FOOTHILLS WATER NETWORK

COMMENTS ON DRAFT ENVIRONMENTAL IMPACT STATEMENT (DEIS)

Yuba-Bear Hydroelectric Project (FERC #2266-102)
Licensee: Nevada Irrigation District

Drum-Spaulding Hydroelectric Project (FERC #2310-193)
Licensee: Pacific Gas & Electric Company

Deer Creek Hydroelectric Project (FERC #14530-000)
Licensee: Pacific Gas & Electric Company

Lower Drum Hydroelectric Project (FERC #14531-000)
Licensee: Pacific Gas & Electric Company

August 22, 2013

Ms. Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
Via electronic filing

Dear Ms. Bose:

The Foothills Water Network (FWN or Network) and its member organizations respectfully respond to the Draft Environmental Impact Statement (DEIS) for the coordinated relicensing of Project 2266, the Yuba-Bear Project operated by Nevada Irrigation District (NID), and Project 2310, the Drum-Spaulding Project operated by Pacific Gas & Electric Company (PG&E). These comments also pertain to Project 14530, the Deer Creek Hydroelectric Project, and to the recently proposed Project 14531, the Lower Drum Hydroelectric Project. In these comments, we refer to these projects collectively as "the projects."

Foothills Water Network

This response was jointly developed and signed by non-governmental organizations and individuals participating in the Drum-Spaulding and Yuba-Bear Relicensings.[1] The Foothills Water Network represents a broad group of non-

[1] Foothills Water Network, American Rivers, American Whitewater, California Sportfishing Protection Alliance, Friends of the River, Gold Country Fly Fishers, Northern California Council Federation of Fly Fishers, Ophir Property Owners Association, Save Auburn Ravine Salmon and Steelhead, Sierra Club, South Yuba River Citizens League, and Trout Unlimited

governmental organizations and water resource stakeholders in the Yuba, Bear, and American watersheds. The overall goal of the Foothills Water Network is to provide a forum that increases the effectiveness of non-profit conservation organizations to achieve river and watershed restoration and protection benefits for the Yuba, Bear, and American Rivers. This includes negotiations at the county, state, and federal levels, with an immediate focus on the FERC relicensing processes.

The Foothills Water Network and its member groups have been active relicensing participants in the coordinated relicensing of the projects since before the formal commencement of the Integrated Licensing Process. Network members and the Network coordinator have participated in hundreds of face-to-face relicensing meetings since 2007.

The Foothills Water Network has provided a single voice for numerous NGO's and individuals in the Yuba-Bear and Drum-Spaulding relicensings. The Network believes that the organized action of conservation interests in these proceedings has provided a substantial benefit to licensees, to resource agencies and to the Commission. We have been able to provide answers on a quick turnaround, often much quicker than that of the agencies. We have worked in process group meetings usually with a single representative speaking for all the conservation groups in the proceeding. We have settled our differences on issues before they arose in the broader relicensing group. We have consolidated almost all of our filings.

Executive Summary

From the beginning of these relicensings, the Network has been clear about its primary interests. We sought to determine what habitat is available for reintroduction of anadromous fish to the Middle Yuba and South Yuba rivers, and to determine what flows would be needed to support reintroduction of spring-run Chinook salmon to these rivers in particular. More generally, we sought to manage cold water for all cold water species in these rivers. We sought a minimum flow in Auburn Ravine that would protect the salmon and steelhead that are already present in that water body, and which are there only because of water that is delivered to Auburn Ravine through project facilities. We sought a trail along sections of the Bear River that would meet the public demand for riverine recreation.

These interests have not been met. Instead, the Network met a concerted and aggressive effort by the licensees to keep reintroduction of anadromous fish out of relicensing. We met a concerted effort to artificially distinguish between "hydro" water and "water supply" water, and thus limit protection, mitigation and enhancement measures in Auburn Ravine to the immediate area of Wise Powerhouse, and not to the salmon and steelhead downstream, and to have no protection at all during system outages. And we met a concerted effort to keep any discussion of the Bear River Trail out of the relicensing proceedings. The Commission allowed the interpretation of the study criteria to be defined by these concerted and strategic efforts to use process to reduce exposure. This could have been salvaged in the DEIS with independent

investigation and analysis by Commission staff. Staff could have forged an anadromous fish reintroduction alternative. It did not. Staff could have analyzed project effects on anadromous fish in Auburn Ravine. It did not. Staff could have analyzed project effects on access to the Bear River for riverine recreation. It did not. These decisions make this NEPA document deficient.

In the DEIS, our more general interest to manage cold water for cold water species in the Middle Yuba and South Yuba rivers is inadequately analyzed, and the conditions that the Commission supports are inadequate, consistent with the inadequate preliminary 4(e) conditions of the Forest Service. We discuss these and other areas of disagreement with the conclusions and the analysis of the DEIS below.

In spite of our disagreements on these foundational issues, the Network believes that the participants in this relicensing have achieved many important things. Creeks in the upper watershed that have been dewatered for decades will have flow restored to them. PG&E has agreed to replace the outlet works at Spaulding Dam, enabling significant improvements in streamflow in the South Yuba River. NID has agreed to install a fish screen at Milton Diversion Dam. The new licenses will have protocols for fish rescues and canal outages. We will have dedicated days for whitewater boating in wetter years; these days will improve conditions for aquatic species, and these days will be known to the whitewater community because of real-time flow reporting. Canyon Creek will have enough water in it to make it worthwhile as a fishing destination, and fishing opportunities in Bear Valley will be improved.

Foothills Water Network applauds FERC staff's recognition in the DEIS of the importance of spill cessation measures for Middle Yuba, South Yuba, and Canyon Creek.[2] As FWN and its members pointed out in our written and oral comments on scoping and the Pre-Application Document, it will better protect FYLF and other aquatic resources if the ramping rates off of spill events are improved so that the rate of flow recession more closely mimics natural conditions. Spill cessation flows will also help to

[2] See, e,g, DEIS, pp. 226-227:

> Rapid changes in streamflow associated with management of spill conditions at dams can have a significant effect on aquatic habitat and the organisms that depend on that habitat. Frequently, dams are operated to sharply curtail flow when inflow decreases to a level when the dam stops spilling at the end of an uncontrolled spill event; the resulting quick decrease in discharge can rapidly dewater habitat and strand aquatic organisms below the dam. Less mobile early life stages such as eggs and tadpoles of foothill yellow-legged frog are particularly vulnerable to stranding and desiccation at these times. The proposed measure would gradually reduce downstream flow in the South Yuba River below Lake Spaulding dam at a rate more characteristic of natural flow cessation following a major runoff event in unregulated rivers. The proposed spill cessation schedule gradually reduces flow in time steps of several days until the minimum flow in the South Yuba River below Lake Spaulding dam has been reached. The measure potentially provides higher than proposed minimum streamflows (table 3-121) for periods of 21 to 27 days following a major spill event. Because major spill events are associated with snow melt in late spring and early summer, these higher than minimum streamflows could serve as an additional enhancement of habitat for resident rainbow trout spawning. The proposed schedule for flow reduction at Lake Spaulding dam would also have the added benefit of providing predictable whitewater recreational boating opportunities (section 3.3.5.2, *Recreation Flows*).

improve opportunities for whitewater recreation in a manner that is protective of aquatic resources.

Over the past 7 years, roughly the duration of this relicensing, the science surrounding snowmelt recession flows has become much more substantial. Working together, FWN members and other advocates and researchers have determined that most unimpaired systems across California recede at rates of approximately 8% to 5% per day during the snowmelt recession.[3] Recession rates that exceed 1 foot over 3 weeks at FYLF breeding sites can cause significant impacts, including stranding and desiccation of egg masses.

In seeking to implement measures to protect FYLF under existing licenses, use of stage as a metric has required the development of stage-discharge relationships at individual FYLF breeding sites and then aggregated into a representative stage-discharge relationship. This process is expensive, complex and challenging to implement as a compliance tool. We believe that adhering to average daily percentage flow reductions, combined with maximum step reductions, is a simpler way to develop license measures that provide the appropriate resource protection. This was the approach taken in developing these spill cessation measures, with allowances made for particular infrastructure limitations.

Less directly beneficial to aquatic values but equally important an outcome in this relicensing have been the excellent hydrology dataset and the water balance and water temperature models that were generated to support it. We believe these tools will be extremely useful in managing the projects in the future, and in understanding the relationship of these projects to areas and operations further downstream.

Throughout this relicensing, the Network and its members have made a consistent effort to make the relicensing professional and collegial, and to make the process work as well as it could to achieve as much as it could. Though we have outstanding issues, we believe that the relationships we have developed in the course of relicensing are a very important outcome of this process. These relationships will remain important after these licenses are issued.

On several occasions during this proceeding, the Commission has granted additional time for relicensing participants to reach agreement on as many issues as possible. For the most part, we believe the time was well used, and it is certain that time extensions allowed better outcomes. We thank staff for its flexibility and its understanding of the complexity of the projects and the difficulty in relicensing them.

Structure of these comments

[3] Master's thesis of Gerhart Epke, *Spring Snowmelt Recession in Rivers of the Western Sierra Nevada Mountains*, 2011.

These comments are divided into two sections: comments that are primarily specific to the DEIS's application of the National Environmental Policy Act (NEPA), and comments that are primarily related to the DEIS's substantive conclusions in the Commission's exercise of its authorities under the Federal Power Act. The Network recognizes that the application of these distinctions for the sake of organization is somewhat subjective and that process and substance necessarily overlap.

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Background

Filings by Licensees

Licensees PG&E and NID have made the following major filings in the coordinated Integrated Licensing Process for the Yuba-Bear and Drum-Spaulding projects:

On April 11, 2008, Drum-Spaulding licensee PG&E filed its Notice of Intent[4] and Pre-Application Document.[5]

On April 11, 2008, Yuba-Bear licensee NID filed its Notice of Intent[6] and Pre-Application Document.[7]

[4] *See* eLibrary 20080411-0087.
[5] *See* eLibrary 20080411-0087.

On September 25, 2008, Drum-Spaulding licensee PG&E filed its Proposed Study Plan.[8]

On September 25, 2008, Yuba-Bear licensee NID filed its Proposed Study Plan.[9]

On January 23, 2009, Drum-Spaulding licensee PG&E filed its Revised Study Plan.[10]

On January 23, 2009, Yuba-Bear licensee NID filed its Revised Study Plan.[11]

On March 17, 2010, Drum-Spaulding licensee PG&E filed its Initial Study Report.[12]

On March 17, 2010, Yuba-Bear licensee NID filed its Initial Study Report.[13]

On November 3, 2010, Drum-Spaulding licensee PG&E filed its Draft License Application.[14]

On November 8, 2010, Yuba-Bear licensee NID filed its Draft License Application.[15]

On March 17, 2011, Drum-Spaulding licensee PG&E filed its Updated Study Report.[16]

On March 17, 2011, Yuba-Bear licensee NID filed its Updated Study Report.[17]

On April 12, 2011, Drum-Spaulding licensee PG&E filed its Final License Application.[18]

On April 12, 2011, Yuba-Bear licensee NID filed its Final License Application.[19]

On February 17, 2012, Drum-Spaulding licensee PG&E filed a request for extension of time for the deadlines pursuant to the REA Notice.[20]

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[6] *See* eLibrary 20080411-5026.
[7] *See* eLibrary 20080411-5029.
[8] *See* eLibrary 20080925-5114.
[9] *See* eLibrary 20080925-5115.
[10] *See* eLibrary 20090123-5108.
[11] See eLibrary 20090123-5109.
[12] *See* eLibrary 20100317-5039.
[13] *See* eLibrary 20100317-5040.
[14] *See* eLibrary 20101103-5052.
[15] *See* eLibrary 20101108-0035.
[16] *See* eLibrary 20110317-5078
[17] *See* eLibrary 20110317-5086.
[18] *See* eLibrary 20110412-5005.
[19] *See* eLibrary 20110415-5018.

On February 17, 2012, Yuba-Bear licensee NID filed a request for extension of time for the deadlines pursuant to the REA Notice.[21]

On June 18, 2012, Drum-Spaulding licensee PG&E filed its Amended Final License Application.[22]

On June 18, 2012, Yuba-Bear licensee NID filed its Amended Final License Application.[23]

On July 27, 2012, Drum-Spaulding licensee PG&E submitted a letter to FERC asking that NMFS's February 29, 2012 Biological Opinion for the operation of Englebright and Daguerre Point Dams not be considered "relevant" to the relicensing of the Drum-Spaulding Project, along with twelve supporting documents.[24]

On August 17, 2012, Yuba-Bear licensee NID filed additional water temperature and operations modeling information.[25]

On August 30, 2012, Drum-Spaulding licensee PG&E filed additional water temperature and operations modeling information.[26]

On August 30, 2012, Yuba-Bear licensee NID filed its Proposed Alternative Conditions to USDA Forest Service.[27]

On August 30, 2012, Yuba-Bear licensee NID filed its Proposed Alternative Conditions to USDOI Bureau of Land Management.[28]

On August 30, 2012, Drum-Spaulding licensee PG&E filed its Proposed Alternative Conditions to USDA and the Forest Service.[29]

On August 30, 2012, Drum-Spaulding licensee PG&E filed is Proposed Alternative Conditions to USDOI Bureau of Land Management.[30]

On September 14, 2012, Drum-Spaulding licensee PG&E filed its reply comments to comments, recommendations, terms and conditions for the Drum-Spaulding Project.[31]

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[20] *See* eLibrary 20120217-5130.
[21] *See* eLibrary 201200217-5127.
[22] *See* eLibrary 20120618-5022.
[23] *See* eLibrary 20120618-5134.
[24] *See* eLibrary 20120727-5014.
[25] *See* eLibrary 20120817-5135.
[26] *See* eLibrary 20120830-5000.
[27] *See* eLibrary 20120830-5128.
[28] *See* eLibrary 20120830-5122.
[29] *See* eLibrary 20120830-0022.
[30] *See* eLibrary 20120906-0021.

On September 14, 2012, Yuba-Bear licensee NID filed its reply comments to comments, recommendations, terms and conditions for the Yuba-Bear Project.[32]

On September 14, 2012, PCWA filed its Reply Comments on Recommendations, Preliminary Terms and Conditions, and Preliminary Fishway Prescriptions for the Drum-Spaulding Project and the Yuba-Bear Project.[33]

On January 23, 2013, Drum-Spaulding licensee PG&E filed additional water temperature and operations modeling information.[34]

On February 14, 2013, Drum-Spaulding licensee PG&E filed additional water temperature and operations modeling information.[35]

On February 14, 2013, Yuba-Bear licensee NID filed additional water temperature and operations modeling information.[36]

On May 31, 2013, Drum-Spaulding licensee PG&E filed a request for an additional license for the 4 lower Drum developments.[37]

On May 31, 2013, Drum-Spaulding licensee PG&E filed a request for an extension of time for the comment period for the DEIS.[38]

On July 8, 2013, Drum-Spaulding licensee PG&E filed its answer to Foothills Water Network's Motion for Additional Investigation and Supplemental DEIS under P-2310.[39]

On July 8, 2013, Yuba-Bear licensee NID filed its Opposition to Motion for Additional Investigation and Supplemental Environmental Impact Statement.[40]

Issuances by the Commission

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[31] *See* eLibrary 20120914-5124.
[32] *See* eLibrary 20120914-5152.
[33] *See* eLibrary 20120914-5056. PCWA is not a licensee, but purchases Drum-Spaulding water on contract from licensee PG&E. Because we respond extensively in these comments to this filing by PCWA, we also note this filing in this section.
[34] *See* eLibrary 20130123-5151.
[35] *See* eLibrary 20130214-5171.
[36] *See* eLibrary 20130214-5177.
[37] *See* eLibrary 20130531-5303.
[38] *See* eLibrary 20130531-5277.
[39] *See* eLibrary 20130708-5095.
[40] *See* eLibrary 20130708-5117.

The Commission has made the following issuances in the coordinated Integrated Licensing Process for the Yuba-Bear and Drum-Spaulding projects:

On May 22, 2008, FERC issued Scoping Document 1.[41]

On October 6, 2008, FERC issued Revised Scoping Document 2.[42]

On February 23, 2009, FERC issued its Study Plan Determination.[43]

On July 23, 2010, FERC issued its Determination on Requests for Modifications to Study Plan.[44]

On January 31, 2011, FERC issued a notice of deficiency regarding the Draft License Application for the Drum-Spaulding Project.[45]

On January 31, 2011, FERC issued a notice of deficiency regarding the Draft License Application for the Yuba-Bear Project.[46]

On January 19, 2012, FERC issued its Notice of Ready for Environmental Analysis for the Drum-Spaulding Project.[47]

On January 19, 2012, FERC issued its Notice of Ready for Environmental Analysis for the Yuba-Bear Project.[48]

On February 24, 2012, FERC issued a notice extending the deadlines pursuant to the Notice of Ready for Environmental Analysis to July 31, 2012.[49]

On May 17, 2013, FERC issued its Draft Environmental Impact Statement for the Drum-Spaulding and Yuba-Bear Hydroelectric Projects[50] and Notice of Availability of the DEIS.[51]

On June 20, 2013, FERC issued a letter requesting that DFW provide Comments in Response to Section 10(j) Preliminary Determination of Inconsistency for the Yuba Bear Project[52] and the Drum-Spaulding Project.[53]

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[41] *See* eLibrary 20080522-3011
[42] *See* eLibrary 20081006-3034.
[43] *See* eLibrary 20090223-3023.
[44] *See* eLibrary 20100723-3033.
[45] *See* eLibrary 20110131-3028.
[46] *See* eLibrary 20110131-3028.
[47] *See* eLibrary 20120119-3064.
[48] *See* eLibrary 20120119-3065
[49] *See* eLibrary 20120224-3013.
[50] *See* eLibrary 20130517-4001.
[51] *See* eLibrary 20130517-3010.
[52] *See* eLibrary 20130620-3009.
[53] *See* eLibrary 20130620-3007.

On June 20, 2013, FERC issued a letter requesting that NMFS provide Comments in Response to Section 10(j) Preliminary Determination of Inconsistency for the Drum-Spaulding Project.[54]

On June 28, 2013, FERC issued a letter approving PG&Es 5/17/13 request for extension of time to file comments on the DEIS for the Yuba-Bear Project.[55]

On July 1, 2013, FERC issued a notice extending the deadline to file comments on the DEIS for the Yuba Bear Project and the Drum-Spaulding Project, and to file comments and motions to intervene under the Deer Creek Project and the Lower Drum Project.[56]

On July 10, 2013, FERC issued a notice of public meetings soliciting comments on the DEIS for the Yuba-Bear and Drum Spaulding Projects. [57]

Filings by Foothills Water Network

The Foothills Water Network has made the following major filings in the coordinated Integrated Licensing Process for the Yuba-Bear and Drum-Spaulding projects:

On August 10, 2008, the Foothills Water Network filed comments on the Pre-Application Document; Scoping Document 1; and Study Requests for the Drum-Spaulding and Yuba-Bear Projects P-2266.[58]

On August 11, 2009, American Rivers filed a study request for a Climate Change study.[59]

On December 24, 2008, the Foothills Water Network filed comments on the licensees' Proposed Study Plans.[60]

On December 24, 2008, the Social Alliance Network filed comments on the Proposed Study Plan, including proposed modifications to the licensees' proposed Traditional Cultural Properties study; these modifications proposed a greatly expanded Area of Potential Effects.[61]

On February 8, 2009, the Foothills Water Network filed comments on the licensees' Revised Study Plans.[62]

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[54] *See* eLibrary 20130620-3006.
[55] *See* eLibrary 20130628-3003.
[56] *See* eLibrary 20130701-3004.
[57] *See* eLibrary 20130710-3009.
[58] *See* eLibrary 20080811-5122.
[59] *See* eLibrary 20080812-5006.
[60] *See* eLibrary 20081224-5011.
[61] *See* eLibrary 20081224-5059.
[62] *See* eLibrary 20090209-5012.

On February 19, 2009, the Foothills Water Network filed comments on modified studies.[63]

On April 14, 2009, the Foothills Water Network filed comments on the modified entrainment study.[64]

On May 13, 2010, the Foothills Water Network filed comments on the Initial Study Report.[65]

On February 1, 2011, the Foothills Water Network filed comments on the Draft License Applications for both projects.[66]

On May 13, 2011, the Foothills Water Network filed comments on the Updated Study Reports.[67]

On October 18, 2011, the Foothills Water Network filed comments in response to Placer County Water Agency's September 16, 2010 letter regarding its water supply interests in the coordinated relicensings.[68]

On July 31, 2012, the Foothills Water Network filed comments on the Notice of Ready for Environmental Analysis. (Hereinafter, "FWN's REA Comments").[69]

On August 31, 2012, the Foothills Water Network filed Alternative Conditions to the Forest Service's Revised Preliminary 4(e) Conditions for the Drum-Spaulding Project.[70]

On August 31, 2012, the Foothills Water Network filed Alternative Conditions to the Forest Service's Revised Preliminary 4(e) Conditions for the Yuba-Bear Project.[71]

On September 12, 2012, the Foothills Water Network filed comments on the Alternative Conditions filed by the Licensees.[72]

On June 21, 2013, the California Sportfishing Protection Alliance, Trout Unlimited and American Rivers filed a Motion for Additional Investigation and Supplemental Draft Environmental Impact Statement.[73]

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[63] *See* eLibrary 20090219-5052.
[64] *See* eLibrary 20090414-5033.
[65] *See* eLibrary 20100513-5066.
[66] *See* eLibrary 20110201-5027.
[67] *See* eLibrary 20110513-5049.
[68] *See* eLibrary 20101018-5103.
[69] *See* eLibrary 20120731-5132.
[70] See eLibrary 20120831-5132.
[71] *See* eLibrary 20120831-5126.
[72] *See* eLibrary 20120912-5217 and 20120912-5224.

Comments Related to NEPA

I. Alternatives under NEPA

It is well established that the discussion of alternatives is the "heart" of the NEPA process.[74] NEPA requires agencies to "study, develop, and describe appropriate alternatives to recommended courses of action in any proposal which involves unresolved conflicts concerning alternative uses of available resources." [75] Such an analysis must "rigorously explore and objectively evaluate all reasonable alternatives" to the proposed project in order to "sharply defin[e] the issues and provid[e] a clear basis for choice among options by the decisionmaker and the public."[76] The existence of a viable but unexamined alternative renders an environmental impact statement inadequate.[77]

NEPA expressly requires that a NEPA document consider a reasonable range of alternatives to the proposed action which would achieve a given purpose.[78]

> [40 C.F.R.] section 1502.14 requires the EIS to examine all reasonable alternatives to the proposal. In determining the scope of alternatives to be considered, the emphasis is on what is "reasonable" rather than on whether the proponent or applicant likes or is itself capable of carrying out a particular alternative. Reasonable alternatives include those that are practical or feasible from the technical and economic standpoint and using common sense, rather than simply desirable from the standpoint of the applicant….

In FWN's REA Comments, the Network strongly recommended that the Final License Applications and the Draft EIS evaluate a "Restored Anadromous Fish Alternative" that analyzes "the effects of the proposed relicensing on habitat for anadromous fish in the South Yuba and Middle Yuba rivers."[79] This recommendation was similar to a recommendation we made in comments on the Draft License Application.[80] This alternative was not analyzed in the DEIS. We now affirm the need for a supplemental DEIS that includes a Salmon and Steelhead Reintroduction Alternative.

Also in FWN's REA Comments, the Network recommended the potential need for a "Future Water Supply Demand Alternative" that contains a suite of different levels

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[73] *See* eLibrary 20130621-5143. This filing was not initially made on behalf of Foothills Water Network. However, it is now filed as part of these comments. See Appendix A.
[74] 40 C.F.R. § 1502.14; *Ctr. for Biological Diversity v. National Highway Traffic Safety Admin.*, 538 F.3d 1172, 1217 (9th Cir. 2008).
[75] 42 U.S.C. § 4332(2)(E).
[76] 40 C.F.R. § 1502.14(a).
[77] *See Resources Ltd. v. Robertson*, 35 F.3d 1300, 1307 (9th Cir. 1994).
[78] *See* 42 U.S.C. § 4332(2)(E); 40 C.F.R. § 1508.9(b), *Bob Marshall Alliance*, 852 F.2d at 1229; *Native Ecosystem Council v. U.S. Forest Service*, 428 F.3d 1233, 1245-46 (9th Cir. 2005).
[79] *See* FWN's REA Comments, pp. 69 and 70.
[80] *See* FWN Comments on the Draft License Applications, eLibrary 20110201-5027, pp. 12-14.

of water demand, including reduced demand, and that proposes mitigations for present or future effects on water supply should such effects occur. The Network qualified the need for a complete water supply alternative under NEPA "contingent on the degree to which the Commission limits environmental measures based on impacts to water supply."[81] Although it is not entirely clear, it does not appear that staff eliminated environmental measures in the DEIS based on impacts to future water supply demand. Therefore, unless the Commission modifies the EIS in a way that causes future water supply demand to reduce or eliminate environmental measures, we no longer believe that a Future Water Supply Demand Alternative is necessary.

A. The DEIS fails to analyze the effects of the proposed relicensing on habitat for anadromous fish in the South Yuba and Middle Yuba rivers, and fails to balance values related to reintroduction of salmon and steelhead with other resource and developmental values.

The Network has consistently argued in these proceedings that reintroduction of salmon and steelhead to Project waters during the license term is reasonably foreseeable, and that therefore the Commission must analyze the cumulative effects of relicensing on anadromous fish habitat. We have recommended that the Commission consider a scenario in which salmon and/or steelhead are reintroduced to the South Yuba and/or Middle Yuba rivers. We have stated that the balancing of resources and interests that is required by the Federal Power Act must take place during relicensing, and that reintroduction cannot be pushed to post-licensing. The licensees have consistently opposed evaluating reintroduction in relicensing, and Commission staff has excluded reintroduction from the proceeding.

The U.S. Forest Service and the Bureau of Land Management included provisions in their respective 4(e) conditions for reevaluation of flow and other conditions in the event of reintroduction of anadromous fish; however, they declined to request study to support analysis related to reintroduction in relicensing, and declined to set flow and other conditions during relicensing that would become applicable in the event of salmon and steelhead reintroduction.[82]

Members of FWN made a concerted effort to negotiate these issues with licensees and resource agencies during flow negotiations in the spring of 2012. The licensees declined, and the resource agencies declined to go further than reopener.

In the summer of 2012, licensee PG&E made a particularly aggressive effort to exclude reintroduction from relicensing in general and from consideration by the Commission in its DEIS in particular.[83] NID, while less aggressive, also sought to

[81] *See* FWN REA comments, p. 69.
[82] *See* Condition 32 of Forest Service's revised preliminary 4(e) conditions for each project and Condition 8 of BLM's preliminary 4(e) conditions for each project.
[83] *See* PG&E's July 27, 2012 letter to FERC asking that NMFS's February 29, 2012 Biological Opinion for the operation of Englebright and Daguerre Point Dams not be considered "relevant" to the relicensing of the Drum-Spaulding Project, along with twelve supporting documents, eLibrary 20120727-5014. See also PG&E's September 14, 2012 Reply Comments, 20120914-5124, pp. 23-49.

exclude reintroduction from relicensing in several filings, most notably in its Alternative Conditions filed with the Forest Service, in which NID sought to exclude revised preliminary Condition 32, reopener in the advent of reintroduction of listed species;[84] this was consistent with NID's position throughout relicensing.

On June 21, 2013, California Sportfishing Protection Alliance, Trout Unlimited and American Rivers, weary of this intractable positioning by both licensees and by the failure of FERC staff to respond affirmatively to our arguments on NEPA and the Federal Power Act, filed a "Motion for Additional Investigation and Supplemental Draft Environmental Impact Statement" in the Yuba-Bear and Drum-Spaulding relicensing dockets.[85] We attach this Motion as Appendix A of these comments, and by so doing include them as part of these comments.

We will not repeat or further summarize the arguments of this Motion in the body of these comments. We shall, however, briefly discuss our procedural rationale for filing this Motion, and thus incidentally address procedural comments made by licensees and PCWA in their pleadings filed in response to this Motion.[86]

Each of the respondents suggests that in filing the Motion, CSPA, TU and AR sought to disrupt the orderly relicensing proceeding. PG&E criticizes us because it is a "thinly disguised request for FERC to reconsider its decision on the scope of the Project and/or the study plan for relicensing."[87]

The DEIS says: "Based on the license terms, the temporal scope looks 30 to 50 years into the future, concentrating on the effect of reasonably foreseeable future actions on the resources."[88] The Network believes it is unreasonable to think that reintroduction of salmon and/or steelhead into the upper Yuba watershed will not occur within that timeframe.

We believe that Commission staff has not considered foreseeability based on the particular conditions of the Yuba, but based on its interpretation of Commission policy. We don't understand exactly what that policy is, or its rationale, but we believe that the Commission itself needs to be the forum for such policy. We believe this more strongly because Commission staff has deferred to this policy on several occasions[89], and because

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[84] *See* NID's Alternative Condition for the Forest Service, eLibrary 20120830-5130, pp 55-58 (re Condition 32).
[85] *See* "California Sportfishing Protection Alliance, Trout Unlimited and American Rivers' Motion for Additional Investigation and Supplemental Draft Environmental Impact Statement" in the Yuba-Bear and Drum-Spaulding relicensing dockets, eLibrary 2013061-5143. Appendix A of these comments.
[86] *See* PG&E reply to Motion, eLibrary 20130708-5095; NID reply to Motion eLibrary 20130708-5117; and PCWA reply to Motion eLibrary 20130708-5114.
[87] PG&E reply to Motion, p. 1.
[88] DEIS, p. 92.
[89] We believe this deference was clearly articulated by FERC staff panelist Stephen Bowler at the beginning of the Yuba River Development Project study dispute meeting:

> The panel's role is to develop technical recommendations. To the degree that our review of the dispute requires us to consider technical matters in the context of policy and practice, our findings

staff in the DEIS, consistent with this deference, dismisses recommendations relating to reintroduction of anadromous to be "premature." [90]

NID says that the Motion of CSPA, TU and AR was also premature, and that the Motion should have waited until after comments on the DEIS. Actually, these FWN members thought that the fundamental mistake had gone on far too long already and it was time for a course correction from the Commission. The goal was not to delay but to recover the NEPA process.

Each of the respondents to the Motion criticized it in some fashion for relying in part on a draft document from a voluntary stakeholder process, the Yuba Salmon Forum. First, we think that information is scientifically sound. Second, these are parties who opposed inclusion of this information in relicensing, which would have made it subject to the timelines of the Integrated Licensing Process; had it been required in relicensing, this information would necessarily have been presented in finished form. Third, much of the information developed for these documents was developed in relicensing; the information is available. Fourth, we think it is completely appropriate for staff to complete information gathering or analysis if it hasn't ordered others to do so, if that is what is needed to complete the record.

B. The DEIS improperly dismisses most of NMFS's FPA Section 10(j) recommendations as not "within the scope of 10(j)" because each "depends on a future action."

The DEIS concludes that many of NMFS's recommendations that are related to potential reintroduction of salmon and steelhead to the Middle Yuba and South Yuba rivers do not fall within the scope of Section 10(j) of the Federal Power Act because each "depends on a future action."[91] However, there is nothing in the plain language of Section 10(j) that creates such exclusion. Section 10(j)(1) reads:

> (1) That in order to adequately and equitably protect, mitigate damages to, and enhance, fish and wildlife (including related spawning grounds and habitat) affected by the development, operation, and management of the project, each license issued under this Part [16 USC §§§§ 792 et seq.] shall include conditions for such protection, mitigation, and enhancement. Subject to paragraph (2), such conditions shall be based on recommendations received pursuant to the Fish and Wildlife Coordination Act (16 U.S.C. 661 et seq.) from the National Marine

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> and recommendations must rest in the context of existing Commission policy and practice within which the Director will consider them.
>
> A practical implication of the panel's understanding of its role is that we will not focus nor make findings or recommendations on the issue of whether the Narrows 2 facility is a barrier to the passage of fish from below to above Englebright Dam. This issue is one of policy and law that clearly is beyond the intended scope of the dispute panel process.

See eLibrary 20111130-4017, p. 6.

[90] *See* e.g. DEIS, p. 687 and following pages, where staff dismisses NMFS's recommendations.

[91] DEIS, pp. 623-625 and 687-689.

Fisheries Service, the United States Fish and Wildlife Service, and State fish and wildlife agencies.

Section 10(j) says nothing about future conditions. It does require protection, mitigation and enhancement of fish and wildlife "spawning grounds and habitat."

The DEIS offers no additional support for its exclusion of many of NMFS's recommendations as not falling within the scope of 10(j). We know of no case law that addresses this specific issue. In the FEIS, staff should explain the basis for its exclusion in the DEIS. Staff should also come prepared to explain this basis at its 10(j) meeting with NMFS.

While we do not specifically support the flow recommendations of NMFS, we absolutely support the analysis of these recommendations in the DEIS for their ability to protect fish habitat. As stated in the DEIS, only the costs (monetary, water supply, power, competing aquatic values) of NMFS's proposed flows are analyzed. The DEIS does not contain analysis of the benefits of such proposed flows, or their potential effect on spring-run Chinook salmon or steelhead. The FEIS should correct such imbalance, rescind the exclusion of NMFS's 10(j) recommendations on the grounds that these proposals are outside Section 10(j) of the FPA, and analyze NMFS's 10(j) recommendations on their merits.

II. Description of the proposed action

On May 31, Pacific Gas & Electric Company (PG&E), licensee for the Drum-Spaulding Hydroelectric Project (FERC #2310-193), wrote to the Commission proposing a "Non-Material License Application Amendment Requesting the Issuance of a Separate License for the Lower Drum Developments."[92] FWN recommends that the Commission either disallow PG&E's request or else recirculate the DEIS for the coordinated licensing of the Drum-Spaulding and Yuba-Bear projects with an updated and accurate description of the Proposed Action.[93]

The request by PG&E would fundamentally change the Proposed Action. It is axiomatic that an accurate environmental analysis of a proposed action must contain an accurate description of the proposed action. As described below, issuing a separate license for the lower Drum developments is not "non-material." Issuance of a separate license would raise new regulatory requirements for several resource agencies, require analysis of at least three reasonably foreseeable future alternatives, require additional mitigation measures to assure compliance with required streamflows and other license conditions, and raise water rights issues in the event of future sale of the lower Drum developments.

[92] *See* PG&E, Non-Material License Application Amendment Requesting the Issuance of a Separate License for the Lower Drum Developments, eLibrary no. 20130531-5303.
[93] The Draft EIS was released by the Commission on May 17, 2013, and the comment period closes August 22, 2013. *See* eLibrary 20130517-4001.

In its Amended Final License Application, PG&E stated that it was evaluating a possible separation of the four lower Drum developments from the rest of the Drum-Spaulding Project. PG&E stated that the purpose of such separation would be to "facilitate a future transfer of these developments."[94] There are two likely purchasers, individually or in combination: Nevada Irrigation District (NID) and Placer County Water Agency (PCWA). PG&E delivers water to both of these entities through the lower Drum developments. Should the Commission allow PG&E to change the proposed action, the revised NEPA document should evaluate the effects of sale to NID, sale to PCWA, and sale to these entities jointly.

If NID were to purchase the lower Drum developments, it would make administrative sense to incorporate these developments into the Yuba-Bear Project, rather than leave them as a separate project. From an administrative point of view, it makes further sense to determine a buyer and evaluate issues specific to that buyer, rather than separate the lower Drum developments on the speculation that PG&E might one day sell them.

In its Amended Final License Application, PG&E proposed issuing a license for the Deer Creek Development. This is analyzed in the DEIS. The approach in the DEIS and the current relicensing to separating the Deer Creek development as a separate license created limited concerns: a buyer was known, and there were few unanswered questions. This is not the case with the lower Drum developments. In addition, there are more environmental concerns with the lower Drum system than with the Deer Creek Development.

PG&E proposed in its Amended Final License Application that it not be required to release any instream flow into Auburn Ravine during the annual outage of the lower Drum systems. In the DEIS, Staff agreed, stating: "PG&E's proposed measure is appropriate during a canal outage, since they do not divert water from Auburn Ravine."[95] Both NID and PCWA, however, divert water from Auburn Ravine. NID, unlike PG&E, also has the ability to introduce water into Auburn Ravine through its Combie-Ophir III canal system and North Ravine. Almost all the water in the Combie-Ophir system first passes through the NID's Yuba-Bear Project facilities at Rollins Reservoir. PCWA, for its part, introduces water into Auburn Ravine through the Auburn tunnel, in addition to making deliveries to Zone 5 customers, using Auburn Ravine for conveyance. FWN has previously stated our strong disagreement with Staff's artificial separation of hydroelectric and water supply purposes in both the Yuba-Bear and Drum-Spaulding projects. However, assuming for the sake of argument that it makes a difference that PG&E diverts no water from Auburn Ravine and on its own has no facilities except for the lower Drum system to introduce water into Auburn Ravine, this is not the case for either of the entities most likely to purchase the lower Drum system, should PG&E indeed decide to sell. The revised NEPA document should address such likely changed conditions.

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[94] *See* PG&E, Amended Final License Application for the Drum-Spaulding Project, Summary pp. 1-2, eLibrary no. 20120618-5022.
[95] DEIS, p. 197.

If NID were to become the new licensee or a joint licensee of a lower Drum project, it might also be appropriate to include a reporting requirement for the NID gauge on Auburn Ravine at Lincoln as part of the new license. In the event that NID were to become licensee, the agencies and the Commission might also consider establishing a flow requirement at Lincoln as well as at Wise Powerhouse, since NID controls most of the diversions on Auburn Ravine upstream of Lincoln. This would be consistent with other projects, such as the Merced River Project, where a FERC compliance point is located 22 miles downstream of project facilities and 19 miles downstream of the licensee's 2000 cfs agricultural diversion.

Placer County Water Agency and PG&E have just concluded or are about to conclude a water purchase contract for water deliveries by PG&E to PCWA's Zone I. The details of that contract have not been released to relicensing participants. However, it is reasonable to assume that the price of water has increased, and that a significant portion of that price increase stems from PG&E's known and potential costs in maintaining the lower Drum canal system. The contract will need to be approved by the California Public Utilities Commission (PUC). The PUC will need to understand the obligations for canal maintenance in order to determine whether the contract is equitable and whether it is in the public interest.

Nevada Irrigation District and PG&E have just concluded or are about to conclude an agreement that establishes what NID will pay PG&E for water conveyance. The details of these agreements have not been released to relicensing participants. However, it is reasonable to assume that the price of water conveyance has increased, and that a significant portion of that price increase stems from PG&E's known and potential costs in maintaining the lower Drum canal system. The contract will need to be approved by the California Public Utilities Commission. The PUC will need to understand the obligations for canal maintenance in order to determine whether the contract is equitable and whether it is in the public interest.

PG&E and NID have also concluded or are about to conclude an agreement concerning the division of storage rights in Rollins Reservoir. This agreement would likely be affected by a change in ownership of the lower Drum developments.

PG&E's operation of the lower Drum developments currently relies on PG&E's pre-1914 water rights, as well as on NID water rights, both pre-1914 and appropriative. PG&E's rights are not only for power generation, but are also consumptive rights. Presumably, water rights would need to be lined up with new ownership of the lower Drum developments. For there to be a transfer of rights, those rights would need to be inventoried and quantified. This would not be a simple or short-term exercise, particularly because it would require that the State Water Resources Control Board determine its own vision of the jurisdiction of the Commission and the Board over public trust requirements downstream of Wise Powerhouse in areas where the Commission has denied its own jurisdiction.

Should the Commission separate the lower Drum developments from the Drum-Spaulding Project, the State Board would need to issue separate Water Quality Certifications for the two projects. The Board would be unable to tier off the NEPA document because the description of the Proposed Action would be inaccurate. Thus the Board would likely need to develop a stand-alone Environmental Impact Report or Reports for the Certifications, delaying certification and license issuance.

Separating the lower Drum developments would remove the Forest Service's influence over the lower developments entirely, and severely limit the influence of the Bureau of Land Management. It would likely also reduce or alter the influence on the upper developments of any Biological Opinion that the National Marine Fisheries Service might develop for Auburn Ravine.

For both NMFS and the State Board, as well as for the Commission, separation of the lower Developments would create compliance problems for streamflows in the lower system if the lower developments were sold, since the lower project would be dependent on releases from the upper projects for water adequate to meet instream flow requirements. Of greatest immediate concern is that the ownership of water to meet instream flow requirements in Auburn Ravine, as well as Dry Creek, Rock Creek and Mormon Ravine, would become unclear. If PCWA were to become the licensee of a lower Drum project, would water required for instream flow come out of PCWA's Zone 1 contract, or would it continue to be PG&E water over and beyond PCWA's contract? Similarly, if NID were to become the licensee of a lower Drum project, would NID be using NID water or PG&E water (moved through the Drum-Spaulding and Yuba-Bear system) to meet instream flow requirements?

PG&E has agreed to a "Consultation Group" (see Section XIII below) for the Drum-Spaulding Project. Should ownership of the lower Drum developments change, an additional consultation group for the new project would need to be established.

In its letter of May 31, 2013, PG&E states that the DEIS contains analysis of each of the 10 developments that currently comprise the Drum-Spaulding Project. PG&E thus argues that the DEIS evaluates the environmental effects of these developments, regardless of the "administrative" issue of the number of licenses under which these developments operate.[96] This piecemealing of the effects of the projects does not pass muster. PG&E recognizes that "the agencies that have been participating in the relicensing process did not separate their preliminary conditions and recommendation by project (including a separation for the Deer Creek Project)."[97] While each development has effects, the combined operation of the project also has effects, and these effects change with a change in the operation of the whole. It is reasonable to think that the agencies and the Commission might adjust their protection, mitigation and enhancement measures and balance resource protection differently in a severed project, as compared to within a larger one.

[96] PG&E letter to FERC requesting three licenses for Drum-Spaulding developments, eLibrary no. 20130531-5303, p. 2.
[97] Ibid, p. 4.

The sole stated purpose of PG&E's request that the Commission issue a separate license for the lower Drum developments is to facilitate future transfer of the these developments. Issuance of a separate license would by definition make such transfer reasonably foreseeable; otherwise, there would be no purpose to such action. While the details of future transfer are not known at present, some effects of transfer are known or knowable and must be analyzed now. It is inadequate to parse a few tables from the developmental analysis, as PG&E does in it May 31, 2013 filing, and to list those 4(e) and 10(j) resource agencies who would still have and those who would no longer have jurisdiction over each of the newly configured projects.

PG&E is seeking to create a sellable asset out of several developments which as hydropower facilities are evidently not economic. Marketability and continued operation will depend exclusively on the fact that two entities need the infrastructure of these four developments for water deliveries. We believe that these circumstances would make the case even stronger for the Commission to consider mitigation requirements for effects (such as conveyance flows) of water deliveries through these lower project facilities. Up till now, the Commission has required mitigation only for effects that are identifiable as direct effects from hydropower generation alone.[98] PG&E's proposal to split off four developments from the Drum-Spaulding Project builds on this weak regulatory approach. Balkanizing these developments reduces the regulatory treatment of these developments and may further increase their marketability.

The Developmental Analysis of the DEIS at present does not address the economics of the water supply deliveries that are made through the facilities of the two projects. If PG&E is proposing to seek transfer of ownership of the lower Drum developments to an entity for whom it is economic to operate, the water supply basis for the value of the assets should be included in the developmental analysis.

In summary, the Foothills Water Network recommends that the Commission deny PG&E's request to issue a separate license for a lower Drum Project. Should the Commission decide to entertain PG&E's request, FWN recommends that the Commission recirculate the DEIS with an accurate description of the proposed action and an analysis of the regulatory, jurisdictional, and environmental effects of the reasonably foreseeable sale of the project to NID, PCWA, or both.

III. The Commission must analyze the cumulative effects of relicensing the Projects.

The Cumulative Effects section of the DEIS does not address past cumulative impacts of the Projects and other watershed activities including mining, energy generation, debris management, water supply, and flood control on Central Valley spring-run Chinook salmon and Central Valley steelhead. The Final EIS or a Supplemental DEIS should include such an analysis.

The DEIS states:

[98] *See* e.g. DEIS, pp. 195-197, 266-269, 625.

"The abundance and distribution of native fish species in Sierra Nevada streams, rivers, and lakes has dramatically changed as a result of several factors, including the introduction of non-native species, construction of dams and diversions, alteration of aquatic habitat, and watershed disturbance (Moyle et al., 1997)."[99]

The DEIS continues:

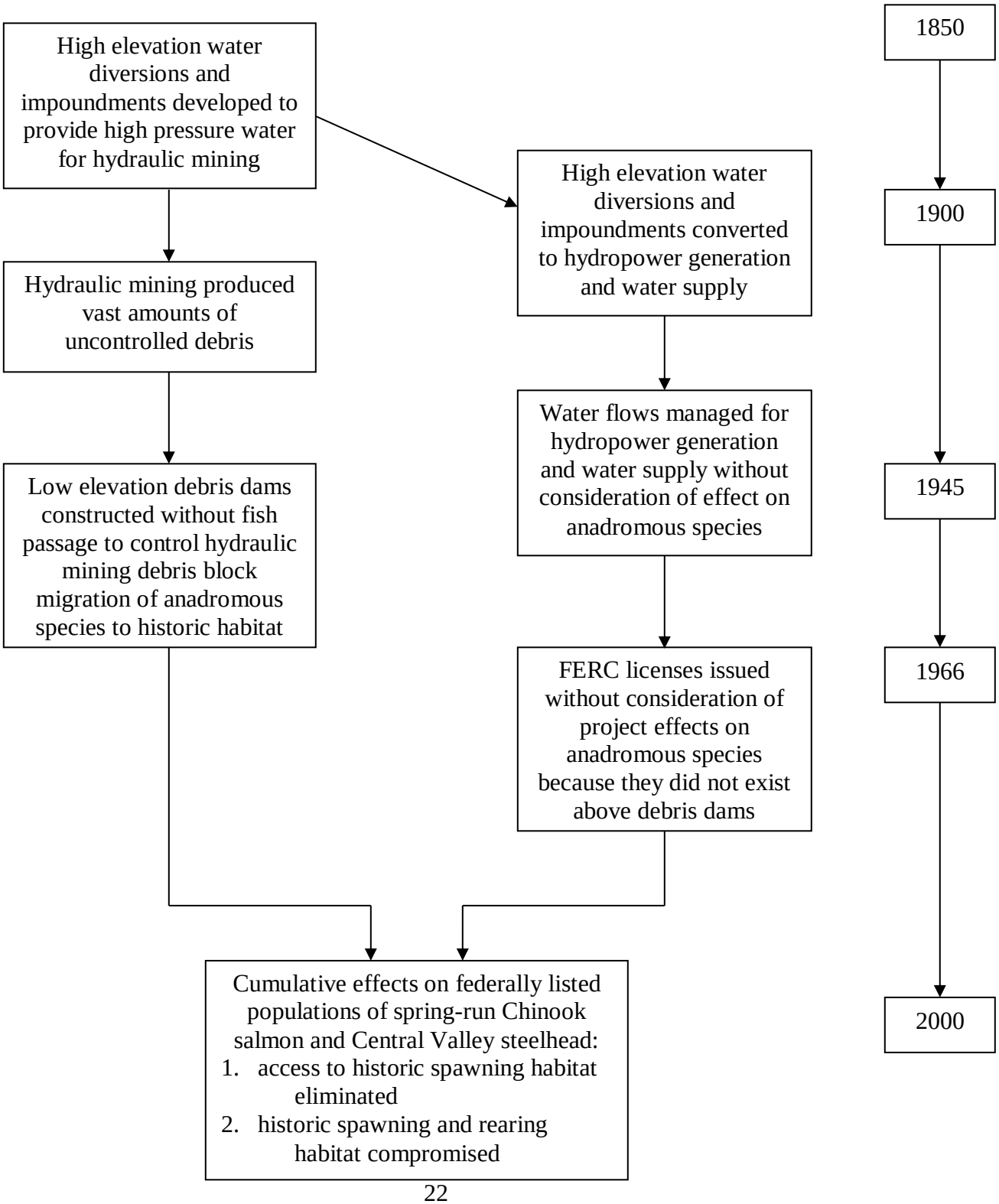
"In particular, the action area includes historic habitat that was accessible to federally listed populations of spring-run Chinook salmon and Central Valley steelhead prior to the construction of Englebright dam. This historic habitat includes the active stream channels and riparian corridors of the Yuba River starting at and including New Bullards Bar dam and reservoir, Log Cabin diversion dam, Our House diversion dam and pool (all part of FERC Project No. 2246), Spaulding dam and Lake Spaulding (Drum-Spaulding Project), and Milton reservoir and Bowman Lake (Yuba-Bear Project)."[100]

As stated, this analysis is perfunctory. The facts clearly point to past and on-going activities in the watershed that require further detailed cumulative effects analysis specific to the Yuba River watershed as a whole. The well-known history of mining, energy generation, debris management, water supply, and flood control projects in the Yuba River watershed began with the development of high elevation water diversions and impoundments to provide high pressure water for hydraulic mining (see Figure 1). Hydraulic mining produced vast amounts of uncontrolled debris that impacted anadromous fish habitat and had other far-reaching impacts downstream. Englebright Dam was a low elevation debris dam constructed for the purpose of controlling the hydraulic mining debris. Constructed without fish passage, Englebright Dam also blocked migration of anadromous species to their spawning grounds.

In parallel, the high elevation water diversions and impoundments first constructed for mining were converted to the dual purposes of hydropower generation and water supply. Instream flows in these projects were managed for hydropower generation and water supply without consideration of effects on anadromous species or the health of the watershed as a whole. In addition, FERC licenses were issued in 1966 without consideration of project effects on anadromous species in part because they did not exist above Englebright Dam at the time.

[99] DEIS, p. 155.
[100] Ibid.

Figure 1: Example of one cumulative effects pathway of past Project and other watershed activities including mining, energy generation, debris management, water supply, and flood control projects on federally listed populations of spring-run Chinook salmon and Central Valley steelhead with historic habitat within and extending beyond the project boundary.



Taken together, the cumulative effects of past Project and other watershed activities, including mining, energy generation, debris management, water supply, and flood control within the Yuba River watershed as a whole and other project-affected streams resulted in and continue to result in or significantly contribute to:

1) Elimination of access to historic spawning habitat of Central Valley spring-run Chinook salmon and steelhead;
2) Diminution of the historic spawning and rearing habitat of these species; and
3) The near demise of these species throughout their historic range.

The requested Cumulative Effects analysis is consistent with stated Commission policy. *The Interagency Task Force Report on NEPA Procedures in FERC Hydroelectric Licensing* issued May 5, 2000 states on page 5:

> Past Conditions/Effects for Cumulatively Affected Resources-
> In accordance with the Council on Environmental Quality's regulations, FERC will include and utilize information regarding past conditions/effects, where applicable, in its cumulative effects analyses. FERC will request this information and include it in its cumulative effects analysis and in its evaluation of measures appropriate to protect, mitigate damages to, and enhance resources affected by the project.[101]

The *Report* continues on page 6:

> Scope of Cumulative Assessment-
> Where relevant, the NEPA document will identify other watershed activities including hydropower projects and will analyze the effects of the proposed project and alternatives in combination with other projects and activities.[102]

In summary, FERC must provide a cumulative impacts analysis specific to the Yuba River watershed as a whole and other project affected streams that "…will identify other watershed activities including hydropower projects and will analyze the effects of the proposed project and alternatives in combination with other projects and activities" on Central Valley spring-run Chinook salmon and Central Valley steelhead. Results of the analysis may require development of mitigations that include the return of these species to their historic range and identifying actions necessary to mitigate cumulative effects on them.

[101] Work Group on the Coordination of Federal Mandates, *The Interagency Task Force Report on NEPA Procedures in FERC Hydroelectric Licensing*, May 22, 2000.
[102] Ibid.

IV. The FEIS must analyze changes in the effects of the proposed action under conditions of climate change.

The Commission and the licensees declined requests to assess how project effects under new project licenses will change under conditions of climate change. Members of the Network proposed a study for the relicensing entitled "Study of Project Effects Under Climate Change." This proposed study was opposed by licensees[103], and was not ordered by the Commission.[104]

Licensee NID stated about this proposed study:

> Licensee suggests that AR's study request is not predicated on just a "better understanding of how the climate will change over the term of the new license," but that this understanding must withstand the rigors of scientific scrutiny and have the same precision and accuracy as is required in other relicensing studies. Licensee does not believe that precision, accuracy and validation is possible at this time.[105]

The Commission commented:

> Although there is consensus that climate change is occurring, we are not aware of any climate change models that are known to have the accuracy that would be needed to predict the degree of specific resource impacts and serve as the basis for informing license conditions.[106]

The Council on Environmental Quality (CEQ) issued, on February 18, 2010, a NEPA guidance document for how federal entities preparing NEPA documents should address the effects of climate change in those documents.[107] The CEQ NEPA Guidance explains the purpose of the document as follows:

> The environmental analysis and documents produced in the NEPA process should provide the decision maker with relevant and timely information about the environmental effects of his or her decision and reasonable alternatives to mitigate those impacts. In this context, climate change issues arise in relation to the consideration of:
>
> (1) The GHG emissions effects of a proposed action and alternative actions; and

[103] See for example NID's Revised Study Plan, Attachment 3A Response to Comments, eLibrary 20090123-5109, pdf pp. 407-418.
[104] See Director's Study Determination, eLibrary 20090223-3023, pp. 23-25.
[105] NID's Revised Study Plan, op cit, pdf p. 407.
[106] Director's Study Determination, op cit, p. 25.
[107] February 18, 2010 memorandum for heads of federal departments and agencies. From: Nancy H. Sutley, Chair, Council on Environmental Quality. Subject: Draft NEPA guidance on consideration of the effects of climate change and greenhouse gas emissions. Hereinafter, "CEQ NEPA Guidance" or "Guidance." CEQ now considers this document final.

> (2) The relationship of climate change effects to a proposed action or alternatives, including the relationship to proposal design, environmental impacts, mitigation and adaptation measures.[108]

CEQ points out that agencies conducting NEPA must "recognize the scientific limits of their ability to accurately predict climate change effects, especially of a short-term nature, and not devote effort to analyzing wholly speculative effects."[109] Nonetheless, failure to address climate change at all is also unacceptable, because: "Agencies can use the NEPA process to reduce vulnerability to climate change impacts, adapt to changes in our environment, and mitigate the impacts of Federal agency actions that are exacerbated by climate change."[110] The Guidance elaborates: "Climate change can increase the vulnerability of a resource, ecosystem, or human community, causing a proposed action to result in consequences that are more damaging than prior experience with environmental impacts analysis might indicate."[111]

In the relicensing process, the Commission and the licensees have staked out the extreme position that, since project effects under climate change cannot be precisely quantified, they are absolved from considering the matter at all. Lack of complete precision has become the excuse for not describing what can be reasonably understood. This does not comport with NEPA's requirement for informed, realistic governmental decision making. So far as the Network can determine, there is not a single mention of climate change in the DEIS.

In the Sierra Nevada, regional climate change due to global climate warming is expected to have substantial effects on hydropower systems operations and their effects. In recent years, the evidence that global climate change will have significant effects on water resources in California has continued to accumulate. More than 200 peer-reviewed scientific articles on climate and water in California have now been published, with more in preparation.[112] Studies consistently indicate that in California, global climate warming will likely result in substantial increases in air temperature by the end of the century and that precipitation will likely decrease.[113] Models show an end-of-century warming of approximately 1.5°C to 6°C above the 1961–1990 mean for summer months in California, assuming that business-as-usual greenhouse gas emissions continue, with warming in the Sierra Nevada expected to be among the highest in the state.[114] Warming

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[108] Ibid, p. 1.
[109] Ibid, p. 1.
[110] Ibid, p. 2.
[111] Ibid, p. 6.
[112] See for example, Cayan et. al., 2006; Kiparsky and Gleick, 2005; Knowles et. al., 2007; Lund et. al., 2003; Medellin et. al., 2006.
[113] See for example, Vicuña S, Dracup JA, Dale L. 2011. Climate change impacts on two high-elevation hydropower systems in California. Climatic Change 109: 151–169. DOI: 10.1007/s10584-011-0301-8; Franco G, Cayan DR, Moser S, Hanemann M, Jones M-A. 2011. Second California assessment: integrated climate change impacts assessment of natural and managed systems. Guest editorial. Climatic Change 109: 1–19. DOI: 10.1007/s10584-011-0318-z.
[114] Hayhoe K, Cayan D, Field CB, Frumhoff PC, Maurer EP, Miller NL, Moser SC, Schneider SH, Cahill KN, Cleland EE, Dale L, Drapek R, Hanemann RM, Kalkstein LS, Lenihan J, Lunch CK, Neilson RP, Sheridan SC, Verville JH. 2004. Emissions pathways, climate change, and impacts on California.

is expected to result in a greater fraction of total precipitation as winter rain and earlier snowmelt.

These changes are anticipated to result in more precipitation-driven runoff in winter and reduced snowmelt runoff in spring, leading to a general shift in runoff timing to earlier in the year and reduced annual runoff. Several studies show that these changes have already been observed over the past half-century or so, including greater warming, less precipitation as snow, earlier snowmelt and onset of spring and a shift in runoff to earlier in the year. [115] Indeed, PG&E data show the amount of water contained in the snowpack as of April 1st each year at Spaulding Reservoir on the South Yuba River has already declined by 25%.[116]

The numerous regional and watershed-scale studies referenced above provide a valuable scientific foundation to understand how climate change will affect precipitation, streamflows, air temperature and other climate variables, but do not provide the information necessary to understand how project effects on the resources of the Yuba and Bear watersheds will change under climate change, and what measures might be necessary to respond to these changes in project effects. Unless the new licenses adequately address these gaps, any license issued in these proceedings may not adequately protect the public interest, nor can the Commission ensure that the Projects are best adapted to a comprehensive plan for the development of the waterway as required by FPA section 10(a)(1).

Project effects under climate change are likely to change in numerous ways, including:

- Water temperatures in reservoir would increase ;
- Reservoirs with sufficient storage would be more capable of capturing snowmelt flows and preventing spill, thus reducing or eliminating the "snowmelt recession hydrograph" that is critical to Sierra Nevada riverine ecology;[117]

Proceedings of the National Academy of Sciences of the United States of America 101: 12422–12427. DOI: 10.1073/pnas.0404500101.

[115] Vicuna S, Dracup J. 2007. The evolution of climate change impact studies on hydrology and water resources in California. Climatic Change 82:327–350. DOI: 10.1007/s10584-006-9207-2; Cayan DR, Maurer EP, Dettinger MD, Tyree M, Hayhoe K. 2008. Climate change scenarios for the California region. Climatic Change 87: 21–42. DOI: 10.1007/s10584-007-9377-6. Barnett TP, Pierce DW, Hidalgo HG, Bonfils C, Santer BD, Das T, Bala G, Wood AW, Nozawa T, Mirin AA, Cayan DR, Dettinger MD. 2008. Human-induced changes in the hydrology of the western United States. Science 319: 1080–1083. DOI: 10.1126/science.1152538; Bonfils C, Santer BD, Pierce DW, Hidalgo HG, Bala G, Das T, Barnett TP, Cayan DR, Doutriaux C, Wood AW, Mirin A, Nozawa T. 2008. Detection and attribution of temperature changes in the mountainous western United States. Journal of Climate 21: 6404–6424. DOI: 10.1175/2008JCLI2397.1.

[116] Freeman, G.J. 2008. PG&E's Mountain Hydroelectric System and the Changing Climate. April 7, 2008 presentation to the Public Interest Energy Research program, California Energy Commission.

[117] Yarnell, S.M., J.H. Viers, J.F. Mount. 2010. Ecology and Management of the Spring Snowmelt Recession. BioScience 60 (2):114-127. DOI: 10.1525/bio.2010.60.2.6.

- Current water year type definitions would result in shift in distribution of water year types to the drier classifications with associated lower instream flow requirements and other measures reflecting drier conditions.
- Project reservoirs would begin to stratify earlier in the year, and stratification would likely last longer.
- Increased flows associated with drawing down high-volume storage reservoirs would occur earlier in the year (i.e., fall instead of winter).

Recognizing the likelihood of significant climate change occurring over the period of a FERC license term, the California State Water Resources Control Board (SWRCB or State Board) issued a Clean Water Act Section 401 Water Quality Certification for PG&E's Chili Bar Project (FERC No. 2155) whose Condition 21 reserves the Water Board's "authority to modify or add conditions to the certification as environmental conditions beyond the control of PG&E change."[118] The State Board provides rationale for its reservation as follows: "Thus, Condition 21 has not been included to require PG&E to mitigate for the impacts of climate change, but to mitigate the impacts of its Project on the environment under a changed-climate scenario."[119] By reserving the authority in case it is needed, the State Board is able to certify that the Project will meet water quality objectives and protect the beneficial uses for the duration of the license.

The Commission and licensees NID and PG&E rejected requests to study the effects of climate change on project impacts in part because they believe climate change models are not accurate enough. Recent improvements in downscaled regionally adjusted climate ensembles, when coupled with hydrological models, have reproduced observed flows at relatively fine scales, and are now being used in water supply assessments. These models are highly accurate, in that they reliably reproduce observed conditions over large areas and long timeframes using physical principles.[120] Moreover, the Commission and licensees must recognize that they are themselves using a hydrologic/climate model as a basis for assessing project effects and conditioning project operations that is of questionable accuracy. A model in this context is defined as "a system of data, assumptions, and inferences presented as a mathematical description of an entity or state of affairs."[121] The primary assumption underlying the Commission's and the licensees' model is that the range of variability of climate and hydrology over the next 30-50 years will be consistent, both in magnitude and frequency, with the past. The idea that climate and hydrology will fluctuate within an unchanging envelope of variability, known as "stationarity", is incorrect,[122] as shown by numerous studies on changes that have already occurred, including studies by licensee PG&E. Moreover, projected changes in climate, precipitation and runoff during the 30-50 year lifetime of a

[118] SWRCB, Water Quality Certification for the Chili Bar Project, eLibrary 20130524-5005, p. 26.
[119] Ibid, p. 6.
[120] Viers, Joshua H., 2011. Hydropower Relicensing and Climate Change. Journal of the American Water Resources
Association (JAWRA) 1-7. DOI: 10.1111/j.1752-1688.2011.00531.
[121] Merriam Webster Dictionary, http://www.merriam-webster.com/dictionary/model.
[122] Milly, P.C.D., J. Betancourt, M. Falkenmark, R.M. Hirsch, Z.W. Kundzewicz, D.P. Lettenmaier, and R.J. Stouffer, 2008. Stationarity Is Dead: Whither Water Management?: Science, 319, 573-574.

new hydropower license are large enough to push far beyond the range of historical patterns.[123] Therefore, the inaccuracy of the Commission and licensees' hydrologic model as a basis for this DEIS is already demonstrated, and incorporating climate change science into the Commission's analysis is necessary to meet NEPA's requirement for informed, realistic governmental decision making.

The FEIS should analyze how project effects on resources are likely to change under changing climate conditions. At a minimum, the analysis should assess project effects under climate change conditions on: increases in reservoir and instream flow release water temperatures, the frequency, magnitude and duration of reservoir spills, the "snowmelt recession hydrograph", and the probable occurrence of each water year type,

Comments on Substative Issues Raised in the DEIS

V. The Commission should adopt the Middle Yuba Block Flow and South Yuba Block Flow Measures proposed by the Network and by the California Department of Fish and Wildlife.

In FWN's REA Comments, we stated: "Block Flows for the South Yuba and Middle Yuba rivers will increase compliance with the Basin Plan at a cost that appropriately balances beneficial uses." On pages 20-22 of those comments, we presented our Block Flow proposal for the Middle Yuba River. On pages 18-20, we presented our Block Flow proposal for the South Yuba River.[124] FWN's Block Flow proposals were identical to those proposed by the California Department of Fish and Game (whose name changed to the Department of Fish and Wildlife January, 2013).[125]

The Network provided additional rationale for these Block Flow recommendations for the Middle Yuba in Alternative Conditions presented to the Forest Service for the Yuba-Bear Project.[126] The Network provided additional rationale for these Block Flow recommendations for the South Yuba in Alternative Conditions presented to the Forest Service for the Drum-Spaulding Project.[127]

The DEIS analyzes these Block Flow Proposals on pages 237-240 (Middle Yuba) and pages 233-237 (South Yuba).

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[123] Franco G, Cayan DR, Moser S, Hanemann M, Jones M-A. 2011. Second California assessment: integrated climate change impacts assessment of natural and managed systems. Guest editorial. Climatic Change 109: 1–19. DOI: 10.1007/s10584-011-0318-z; R. Seager et al., Model Projections of an Imminent Transition to a More Arid Climate in Southwestern North America, *Science* 316, 1181 (2007).
[124] FWN's REA Comments, ibid, pp. 17-22.
[125] *See* DFG Section 10(j) Recommendations for the Yuba-Bear Project, eLibrary 20120730-5174, Enclosure B, pp. 16-18 for DFG Middle Yuba Block Flows; DFG Section Revised 10(j) Recommendations for the Drum-Spaulding Project South Yuba Block Flows, eLibrary 20120731-5223, pp. 1-3; and eLibrary 20120730-5174 Enclosure C, pp. 276-281 for DFG's Rationale for Middle Block Flows and pp. 282-297 for DFG's Rationale for South Yuba Block Flows. Generally, in these comments, we update to "DFW." However, when referring to the Department's documents filed before January 1, 2013, we retain "DFG."
[126] *See* FWN Alternative Conditions for Yuba-Bear Project, eLibrary 20120831-5126.
[127] *See* FWN Alternative Conditions for Drum-Spaulding Project, eLibrary 20120831-5132.

A. FWN comments on the treatment and analysis of Middle Yuba Block Flows in the DEIS.

1. The DEIS mischaracterizes the DFW/FWN Block Flow recommendation for the Middle Yuba River.

The DEIS characterizes the DFW/FWN Block Flow recommendation for the Middle Yuba as follows:

> During the summer, the minimum streamflows proposed by NID would range from 6 to 15 cfs in critically dry years to 15 to 40 cfs in wet years, depending on month; the *Block Flow* recommendation would generally increase flows by 2 to 5 times the proposed minimum streamflows during drier periods.[128]

This characterization suggests that FERC believes that the actual release that licensee would make as part of the block flow would "generally" be 30 cfs, the maximum allowed under the proposed measure. The "5 times" (we believe) refers to occasions when 6 cfs was increased to 30 cfs; the "2 times" refers to when 15 cfs was increased to 30 cfs. But there is no reason to believe that would be the actual operation for temperature management. Analysis by DFW in its 10(j) recommendations and by the Network in our Alternative Conditions for the Yuba-Bear Project suggests that 1) the maximum would not have been used in either 2008 or 2009, both relatively dry and warm years, and that 2) the number of days when the Block Flows would have been called on would have been few in 2008 and 2009, and that overall nowhere near the available maximum would have been required. In our Alternative Condition for the Yuba-Bear Project, we showed that Block Flows for the Middle Yuba would have required small flow augmentations in one 19-day period and on one additional day in 2009, and during one 13-day period in 2006. DFW showed that typical Middle Yuba Block Flow augmentations in 2008 and 2009 would have been 10 to 20 cfs, not 30 cfs as suggested in the passage from the DEIS above.[129]

The statement in the DEIS that flows would increase two to five times during Block Flow releases ignores how small the 4(e) flow magnitudes in the Middle Yuba are, especially in August. Augmentations are likely 10 to 20 cfs in a wide stream channel; as we noted in our Alternative Condition, percent WUA for adult rainbow trout at 15 cfs is only 29% of maximum, because so little of the stream channel is wetted under the 4(e) flows.

The DEIS also states: "This *Block Flow* schedule would be similar to the range to flows recommended by NMFS (table 3-152) to support reintroduction of Central Valley steelhead to Middle Yuba River (section 3.3.2.2.2, *Instream Flow*)." [130] This characterization is also

[128] DEIS, p. 237.
[129] DFG Rationale Report (Enclosure C) for Section 10(j) Recommendations for the Yuba-Bear Project, op cit, p. 280, Table 3.
[130] DEIS, p. 237.

misleading. NMFS recommends 40 cfs from July through September 15, with possibly added flow for temperature reduction. NMFS proposes 200 cfs in the first week of June and 100 cfs release in the second week of June, with a decreasing release in the last half of June to meet the July flow release of 40 cfs. This is vastly more water than the DFW/FWN proposed Block Flow. The Block Flow only uses water when it is needed for thermal improvement, with a maximum total release of 30 cfs at any time and a maximum of 2500 acre-feet per year more than the 4(e) flows that licensees, Placer County Water Agency and the Forest Service have already agreed to. Analysis by DFW showed that the required Block Flow for 2008 would have been 803 acre-feet and for 2009 would have been 490 acre-feet.[131] Analysis by FWN showed that the Block Flow that would have been required in the hot, Wet year 2006 was about 390 acre-feet, released over one 13-day period in July.[132] By contrast, NMFS's proposed flows in July and August would use 2820 acre-feet more than the 4(e) flows in every year, not counting possible additional flows to cool the river that likely would have rarely been needed, plus additional flow augmentations in the fall. These flow schedules cannot fairly be called similar, and analysis of NMFS's flow proposals cannot fairly be used to characterize DFW/FWN's proposal.

2. The DEIS relies on faulty analysis of the relative risks and benefits of Block Flows in the Middle Yuba River.

The DEIS does not perform a temperature analysis of the proposed preliminary 4(e) minimum instream flows for the Middle Yuba River below Milton diversion. Rather, it relies on an incremental analysis of flows in 2008 and 2009 (figures 3-98 through 3-101) that has extremely wide increments, and no increments between 3 and 25 cfs, even though most of the recommended 4(e) flows fall in between these values. Unlike the DFW analysis cited above, the DEIS does not say when or how often the Block Flows would have been used in 2008 and 2009, but states generally that 25 cfs would have kept water temperatures in the Middle Yuba at Wolf Creek below 18°C. The problem is, the preliminary 4(e) minimum flows in July and August (except in Extreme Critical years) would be between 6 cfs and 20 cfs, and the DEIS offers no direct comparison between the Block Flow proposal and the preliminary 4(e) flows.

This defect reproduces the central defect of the September 14, 2012 filing of PCWA entitled "Reply Comments of Placer County Water Agency on the California Department of Fish and Game's Federal Power Act § 10(j) Recommendations."[133] PCWA's Enclosure 1 attributes all flow increases over base case to DFW's flow recommendations. However, most of the water temperature effects that PCWA attributes to DFW are attributable to the preliminary 4(e) flows of the Forest Service; these are flows *that PCWA agreed to in flow negotiations*. PCWA does not accurately quantify or

[131] *See* DFW Rationale Report, op cit, p. 281, Table 4.

[132] FWN Alternative Condition for Condition 29 of the Yuba-Bear Project, op cit, p. 15.

[133] *See* PCWA Reply Comments, eLibrary 20120914-5057, Enclosure 1. PCWA notes in Enclosure 3, p. 3 that its criticisms of DFW's Block Flows also apply to the Network's identical Block Flow proposal.

evaluate the incremental difference between preliminary 4(e) flows with and without the DFW/FWN Block Flows.

In fact, careful review of the charts and graphs provided by PCWA in Enclosure 1 shows that almost all the effect that PCWA attributes to the "CDFG Recommendation" is in fact attributable to the preliminary 4(e) flows.[134] Figure 12a for Middle Yuba above Wolf Creek in the summer of 2008 shows that Block Flow augmentations of an unknown quantity would have been released for about 9 days in July to augment the Dry year July flow of 10 cfs; and that small Block Flow augmentations of the August flow of 6 cfs may have been required for a few days around the middle of the month (the Figure is not clear). Figure 12b for Middle Yuba above Wolf Creek in the summer of 2009 shows that Block Flow augmentations of the required 15 cfs July flow and the required 10 cfs August flow in the Below Normal year would have been required for about 17 days at the end of July and very beginning of August. All the rest of the year's water temperatures in the Middle Yuba would have been driven by the preliminary 4(e) flows alone.

The DEIS also relies on PCWA's Reply Comments to DFG to provide a biological rationale for rejecting Block Flows in the Middle Yuba:

> The additional flows dedicated to further reducing water temperature in the stream reach from 20°C to 19°C above Wolf Creek confluence would result in an uncertain and potentially adverse effect on various aquatic resource species at the expense of project operations. … while the *Block Flow* condition further benefits resident rainbow trout in reaches farther downstream, it could adversely affect foothill yellow-legged frog in stream reaches where viable populations have been identified.

No other citations are provided to justify staff's evaluation of "potential" adverse effect to FYLF. The Commission relies entirely on an analysis and hypothesized temperature threshold developed and asserted by PCWA specifically in support of its Reply Comments. The underlying analysis warrants critical review.

Figures 8a and 8b are the cornerstone of PCWA's analysis. PCWA does a correlation of the Maximum 30 Day Average Temperature (M30DAT) for a series of known FYLF sites in the Sierras and in the unimpaired coastal Eel River. PCWA draws a hard line at 19.3° C M30DAT in dry years. PCWA labels temperatures above this value as "protective" in Figures 8a and 8b. PCWA labels temperatures below this value as creating a "loss of FYLF habitat." [135]

Under existing flow requirements, the FYLF population on the Middle Yuba at Wolf Creek is on the borderline of PCWA's decided thermal threshold. This existing condition assumes a release from Milton Diversion of 3-4 cfs in July and August, less than unregulated. Effectively, PCWA shows that the preliminary 4(e) conditions (even

[134] PCWA Figures 12a and 12b provide temperature model output specifically for the Block Flow Proposal for the Middle Yuba River; the DEIS, as noted above, does not provide such model output.
[135] PCWA Reply Comments Enclosure 1, op cit, p. 14 and p. 15.

without Block Flows) will drop water temperatures in the Middle Yuba at Wolf Creek below the M30ADT threshold of 19.3°C in dry years.

The increment is small, and the increment between preliminary 4(e) flows with and without Block Flows is also small. The difference in 2008 between base case and preliminary 4(e) flows with Block Flows is 0.4°C. The difference in 2009 is 0.7°C.[136] This according to PCWA is the difference between maintaining habitat and "loss of habitat."

There is no evidence supporting a hard and fast threshold temperature for FYLF habitat. A group of FYLF on the Eel River thrives at a 2008-2009 combined M30DAT of about 18.7°C. There is no real evidence that a warmer M30DAT makes a better population; the number of egg masses on the Middle Yuba at Wolf Creek in 2008 was the highest of all Sierra values provided in Figure 8a. PCWA does not make a persuasive case that the population of FYLF on the Middle Yuba at Wolf Creek will lose viability if the temperature metric chosen by PCWA slips by about half a degree C.

Statements by PCWA that measure "loss of habitat" in number of river miles are also misleading. These statements ignore the life history requirement of these amphibians for access to a tributary for six to seven months a year. On the Middle Yuba River, there is a small subpopulation of FYLF at National Gulch (about RM 30) and the larger subpopulation of FYLF near Wolf Creek (about RM 27). There are no major tributaries to the Middle Yuba River between National Gulch and Wolf Creek, and in particular there are no tributaries that support known populations of FYLF. To the extent that PCWA's argument has merit in considering the risk of cooler water temperatures on FYLF populations, a more accurate statement of hypotheses would be as follows: there is a chance the already marginal subpopulation at National Gulch may not persist, and there is a chance temperature reduction may reduce growth rates or production at Wolf Creek.

PCWA relies on a document by Kupferberg, Addley, and Graf entitled "Water Temperature Effects on Foothill Yellow-Legged Frog and Hardhead."[137] This analysis states Sierra FYLF populations need a Maximum 30 Day Daily Average Temperature of 19.3°C in dry years. This focus on the warmest 30 days of a dry year summer is a completely new approach that by definition will exclude a management regime directed at temperature exceedences on the warmest days of the year. With an M30DAT threshold above 19°C, days above the threshold are needed to achieve the average: the construct sets up a certain-to-fail scenario because by definition eliminating temperatures above 19°C from the dataset will eliminate the possibility of an average greater than 19°C. However, it is not known if it is the warmest days or the overall summer

[136] This is less even than the 1°C difference in M30DAT cited on p. 14 and repeated in the DEIS on page 239; FERC staff adds the imprecision of not mentioning the M30DAT metric, simply saying that "the *Block Flow* recommendation would reduce temperatures 1°C below estimated unregulated conditions in the Middle Yuba River … ."

[137] *See* PCWA Reply Comments, Appendix B, Sarah Kupferberg, Craig Addley, and Peter Graf, "Water Temperature Effects on Foothill Yellow-Legged Frog and Hardhead."

temperatures that are causal, or if for example increasing the number of days at or above 18°C or 18.5°C or 19°C is equally or even more determinative.

The science underlying the DEIS analysis actually suggests that there is no discrete thermal threshold for FYLF populations. In fact, there are many instances of FYLF subpopulations where M30DAT is less than 19.3°C in dry years.[138]

The immediate question is: will the subpopulation of FYLF at Wolf Creek become less productive because of Block Flow water temperature management? The answer is uncertain. More broadly, the question is whether or not Block Flow water temperature management will have a net detrimental effect on the FYLF population in the Middle Yuba as a whole. Due to a cooling of downstream reaches below detrimental temperature levels, it is likely that some subpopulations of FYLF will benefit from Block Flows.

Kupferberg, Addley, and Graf state:

> At the warmest site (M30DAT = 21.83°C) metamorphosis began 4-5 weeks sooner and tadpoles were larger, but because of high mortality during the warmest period, the total production was slightly lower. The causes of mortality in the experiment were not identified, however we believe it was not due to reaching a critical thermal maximum as tadpoles have been observed to successfully metamorphose from isolated sidepools where large diurnal fluctuations in temperature exist, and daily maxima can reach 30°C.[139]

Kupferberg, Addley, and Graf selectively discount the correlation between decreased chances of survival and temperatures greater than optimal. When the data shows that temperatures above a threshold of 21.83°C correlated to reduced survival of FYLF to metamorph stage, the authors discount it, because of occasional observations of survival at high temperatures:

> When tadpoles were reared in flow through enclosures in streams that had maximum 30 day average temperatures (M30DAT) colder (16.06°, 16.9°), warmer (21.83°), or close to the mean preferred temperature (19.94°), survival was highest when M30DAT closely matched thermal preference (Figure 2a). Post-hatching growth and development, however, were most rapid at the M30AT=21.83° (Figure 2b). When considering total production of metamorphs as a performance for tadpoles receiving supplements of high food quality algae, there is a humped shaped (i.e. parabolic) response curve, with the greatest production of metamorphs at M30DAT= 19.94C. (Figure 2c).[140]

At any FYLF site on the Middle Yuba downstream from Wolf Creek, water temperatures are greater than 19.94°C M30DAT in dry years. To complete the picture,

[138] Ibid, Figure 8A.
[139] Ibid, p. B-4.
[140] Ibid.

the authors (and the Commission) should quantify and evaluate the benefits that subpopulations of FYLF downstream will enjoy because *reduced* water temperatures in their habitat become closer to the "thermal preference." This might include evaluation of relative rates of successful metamorphosis at different M30DAT values, or of the importance at different temperatures of contributing factors in mortality, such as fungus, disease, or presence of other pathogens. Absent such an effort by the authors, Commission staff lacks key evidence to conclude that, due to concerns for FYLF: "It is likely that 20°C would be a more appropriate management goal for the Middle Yuba River above Wolf Creek for balancing aquatic resource needs."[141]

In addition to inappropriately relying on the analysis of PCWA regarding FYLF, the DEIS relies on PCWA's brief comments on periphyton.[142] The DEIS states:

> PCWA also points out that the proposed change in water temperature regime associated with the Block Flow proposal has the potential to alter the periphyton algae-based food web on which foothill yellow-legged frog rely. Seasonal blooms of periphyton are dependent on stable flow conditions, increasing day light, and warming temperatures during the mid-summer dry season. PCWA indicates that slowing or delaying the seasonal increase in water temperature in the stream reach above Wolf Creek could affect seasonal succession and species composition of the algae and diatoms in the periphyton community, which in turn determines the food quality for consumers (Furey et al., 2012) such as foothill yellow-legged frog tadpoles.[143]

This analysis relies on hypothetical assertions made by PCWA regarding a complex ecological interaction of periphyton, water temperatures and flow. PCWA has presented no evidence that the flow changes associated with Block Flows (typically 5-20 cfs) would have an effect on periphyton succession. While the cited research[144] does discuss the important role of periphyton community structure for primary consumers, it makes no reference to small scale flow changes, alteration of water temperature or anything regarding frog tadpoles. Furey et al (2012) contribute to an understanding of grazer-periphyton interactions and differing qualities of Cladophora-based periphyton stages in a system unimpaired by hydrologic alteration and invasive species. The single reference to flow changes in this document is made in context of the seasonal scouring floods that precede periods of especially high periphyton quality and production. Such hydrologic events have no bearing on Block Flows.

The Middle Yuba River and South Yuba River have diminished frequency of scouring floods due to project dams and diversions. In addition, blooms of Didymosphenia geminate have been observed in both rivers. Didymo is known to impair

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[141] DEIS, p. 239.
[142] PCWA Reply Comments, Appendix B, esp. p. B-12.
[143] DEIS, p. 239.
[144] Paula C. Furey, Rex L. Lowe, Mary E. Power, and Alexis M. Campbell-Craven (*2012*) Midges, Cladophora, and epiphytes: shifting interactions through succession. Freshwater Science: March 2012, Vol. 31, No. 1, pp. 93-107.

food quality for primary consumers[145], and is related to hydrologic alteration by dams[146]. FWN requested a study of periphyton in order to investigate the relationship between project operations and aquatic resources through effects on periphtyon, including Didymo, but that request was denied by FERC. [147] Periphyton is important and may be sensitive to project operations, but it is biased for FERC to reject a study of project effects on periphyton and then cast Block Flows as risky in part due to hypothetical and highly questionable effects on periphyton. The contrast of the actions is magnified when considering that a rejection of the periphyton study reduced the availability of scientific information for the development of license terms, and the rejection of the Block Flows precludes the opportunity to test a measure that will have certain benefits to cold-water fish populations and only hypothetical negative impacts on FYLF populations.

3. The DEIS does not give sufficient weight to the protection of cold water fisheries in the Middle Yuba River.

In our Alternative Conditions for the Yuba-Bear Project, the Network noted that the fishery in the Middle Yuba River in the vicinity of Wolf Creek was of "remarkably good quality." Much of what makes the quality of the fishery "remarkable" is that it persists in spite of the fact that flows at 6 cfs (double the existing instream flow requirement) provide only about 12% of maximum weighted usable area for adult rainbow trout. We stated in our Alternative Conditions that Block Flows were needed to protect the fishery:

> The Network's alternative condition cannot restore the lack of physical habitat in the Middle Yuba River, but it will improve the quality of that habitat. This alternative is a low cost measure that protects high value fishery resources that have otherwise been overlooked by the Forest Service. As it stands, Condition 29 requirements are out of balance on the Middle Yuba River, because no weight has been given to the fishery resources in its middle reach.[148]

The DEIS, however, uses the quality of the fishery against adopting measures to improve it. It describes adding flow as a matter of enhancement, not protection:

> However, the California Fish and Wildlife and Foothills Water Network proposal would further enhance the good quality conditions for trout by suppressing water temperatures in the Middle Yuba River between Milton diversion dam and the confluence of Wolf Creek to the potential detriment of inhibiting development of early life stages of foothill yellow-legged frog.[149]

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[145] James D.A, S. H. Ranney, S. R. Chipps, and B. D. Spindler. 2010. Invertebrate Composition and Abundance Associated with Didymosphenia geminata in a Montane Stream. Journal of Freshwater Ecology Vol 25 (2), pages 235-241.
[146] Kirkwood, A. E., Jackson, L. J. and Mccauley, E. (2009), Are dams hotspots for *Didymosphenia geminata* blooms? Freshwater Biology, 54: 1856–1863. doi: 10.1111/j.1365-2427.2009.02231.x
[147] See Director's Study Determination, eLibrary 20090223-3023, pp. 19-21.
[148] FWN Alternative Condition for Condition 29 of the Yuba-Bear Project, p. 11.
[149] DEIS, p. 240.

The Commission and the Forest Service should also recall that although the Middle Yuba had the best rainbow trout populations of over 40 project reaches, its population was about half that of the unregulated North Yuba River immediately to the north. Quality is relative. At present, the Middle Yuba is not considered an important angling destination. This is unlike the North Yuba and the lower Yuba, to which people from all over northern California come to fish. Significant improvement of the trout population that would be expected from Block Flow temperature management would increase sport fishing recreation and contribute to the local economy of Nevada County. Please see below, and FWN's REA Comments, for additional discussion of the economic benefit of water temperature improvements.[150]

In the Motion for Additional Investigation, CSPA, TU and AR point out that balancing "the potential to adversely affect development of foothill-yellow legged frog tadpoles"[151] with fisheries values and benefits changes if spring-run Chinook salmon are part of the fishery that "the potential to adversely affect" is balanced against.[152] With spring-run Chinook, 20°C presents a known and extensively documented potential for direct mortality. The Commission and the Forest Service should acknowledge that the balance tips even more heavily towards cold water fisheries with salmon on the scales.

4. Conclusion on Middle Yuba Block Flows

The Commission and the Forest Service should adopt the DFW/FWN Block Flow recommendation for the Middle Yuba River. The DEIS mischaracterizes the Block Flow recommendations and erroneously concludes that Block Flows would not provide a benefit to balancing aquatic resources in the Middle Yuba River.

B. FWN comments on the treatment and analysis of South Yuba Block Flows in the DEIS.

1. The DEIS mischaracterizes the DFW/FWN Block Flow recommendation for the South Yuba River.

The description of South Yuba Block Flows in the DEIS is even more inaccurate than the description of Middle Yuba Block Flows. Though not internally consistent, the DEIS evaluates a hypothetical situation in which South Yuba Block Flows were released at the maximum allowable value all summer long, thus changing the Block Flows into an alternative summer minimum instream flow measure:

> The *Block Flow* recommendation of California Fish and Wildlife and the Foothills Water Network establishes a management goal to maintain water temperature above the Canyon Creek confluence at 19°C or less and below 20°C above Poorman Creek to benefit coldwater species and enhance coldwater angling opportunities in areas that are more accessible downstream of Canyon Creek. The

[150] *See* FWN's REA Comments, pp. 23-24.
[151] DEIS, p. 239.
[152] *See* CSPA, TU and AR, Motion for Additional Investigation, op cit, p. 28, footnote 142.

> 60-cfs total *Block Flow* recommended by California Fish and Wildlife and the Foothills Water Network would have produced water temperatures in mid-July at Canyon Creek in the range of 16 to 17°C. While these temperatures could benefit resident trout, they are likely to inhibit development of foothill yellow-legged frog tadpoles in this stream reach. At a total *Block Flow* of 60 cfs, water temperatures would have rarely reached 18°C during either year.[153]

The South Yuba Block Flow measure (like the Middle Yuba Block Flow measure) was crafted explicitly to address periods of high water temperature. During periods when water temperatures in the South Yuba River are less than the trigger point of 19°C at Canyon Creek, the flow releases and thus the water temperature in the South Yuba River would be the result of flow releases required by the preliminary 4(e) flow requirements. The scenario "analyzed" in the DEIS as quoted above does not analyze the measure recommended by DFW and FWN.

The DEIS continues by noting:

> Furthermore, temperature modeling predicts (Amended License Application Supplement 4, Attachment 2B [January 23, 2013]) that in July and August during warm years, the temperature differential between Canyon Creek confluence and Poorman Creek confluence could be 2 to 4°C (figure 3-94), not the 1°C assumed by California Fish and Wildlife and the Foothills Water Network. Thus, it does not appear that the Block Flow recommendation would achieve the 20°C water temperature target at Poorman Creek during warmer years. To maintain 20°C water temperature in south Yuba River at Poorman Creek would require a discharge at Lake Spaulding dam greater than 60 cfs and would result in water temperatures less than 17°C at the Canyon Creek confluence (figure 3-94), a temperature range likely to adversely affect development of foothill yellow-legged frog.[154]

FWN noted in our Alternative Condition for Condition 29 of the Drum-Spaulding Project that the temperature benefit at Poorman Creek that DFW's analysis ascribed to the South Yuba Block Flow measure did not appear to be consistent with temperature modeling performed by the licensee.[155] However, neither the Network nor DFW modified the proposed South Yuba Block Flow condition based on this analysis; thus, the last sentence of the paragraph quoted above has no bearing on the South Yuba Block Flow measure as actually recommended. The compliance point and the temperature trigger remain 19°C at Canyon Creek, regardless of the resulting water temperature at Poorman Creek. The hypothetical situation described in the concluding sentence of the paragraph from the DEIS quoted immediately above is simply that: a hypothetical

[153] DEIS, p. 235.
[154] Ibid, pp. 235-236.
[155] FWN Alternative Condition for Condition 29 of the Drum-Spaulding Project, op cit, pp. 10-11. DFW continues to have concerns about the accuracy of temperature modeling results for the reach of the South Yuba River between Canyon Creek and Poorman Creek; it is our understanding that DFW may address this issue in its comments on the DEIS.

description of hypothetical effects from a hypothetical compliance requirement that no one has actually recommended.

Finally, the DEIS concludes that "… the *Block Flow* proposal from California Fish and Wildlife would provide water temperatures several degrees cooler than the *Supplemental Flow* condition."[156] However, the data cited in the DEIS shows that the difference would be one degree Celsius or less, except for a few days as modeled in 2009.

2. The DEIS does not give sufficient weight to the protection of cold water fisheries in the South Yuba River.

The DEIS relies entirely on PCWA's September 14, 2012 Reply Comments and Appendix B to those comments for its determination of potential adverse effects to FYLF in the South Yuba River, as it also does in analyzing FYLF in the Middle Yuba River, as discussed above.[157] The DEIS states no other metric for adverse effects, nor does it cite to other documents that present such metrics.

PCWA's analysis of South Yuba Block Flows contains many of the same problems we have enumerated above regarding PCWA's analysis of the Middle Yuba Block Flows: most notably, PCWA does not accurately quantify or evaluate the incremental difference between preliminary 4(e) flows with and without the DFG/FWN Block Flows, and attributes effects to the Block Flow measure that are in fact attributable to the preliminary 4(e) flow condition. The general dismissal of the effects of water temperatures greater than optimal, which we discussed above, also of course applies equally to the South Yuba.

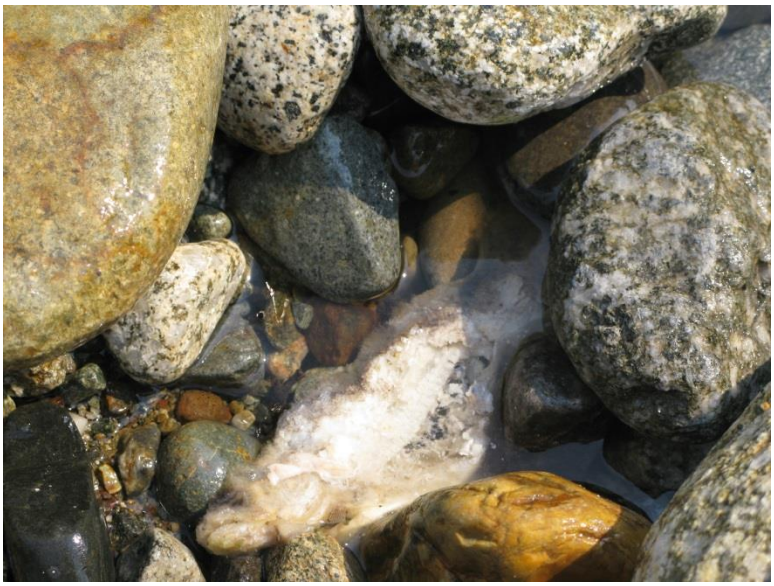
PCWA compares the preliminary 4(e) condition for South Yuba minimum flows with "existing reference" and unimpaired conditions:

> The CDFG recommended <19˚C temperature requirements would result in summer temperature in the South Yuba River that would be 4-5˚C M30DAT colder than estimated unimpaired or existing reference conditions (Figures 5 and 7).[158]

Unlike the Middle Yuba River, where the existing condition shows a relative strong fishery at Wolf Creek, the South Yuba trout population is clearly impaired due to seasonally high water temperatures. Summer mortality of rainbow trout in the South Yuba River has been commonly observed, and rainbow trout are also observed

[156] DEIS, p. 236.
[157] *See* PCWA Reply Comments, eLibrary 20120914-5057, Enclosure 1.
[158] Ibid, Appendix B, p. B-9. PCWA's "reference" conditions are existing flow requirements and the unimpaired condition, not to be confused with the "reference reach" on the North Yuba River that was used in the fish populations studies for the South Yuba and Middle Yuba rivers. The existing flow requirements on the South Yuba river provide summer flows less than unimpaired in almost all years in July, and less than or about equal to unimpaired flows in August and September. See PCWA Figure 2c.

congregating at tributary inflows that provided limited temperature refuge. [159] In 2010, the SWRCB listed the South Yuba River as temperature impaired under Section 303(d) of the Clean Water Act.[160]



Dead rainbow trout in South Yuba River at
Scotchman Creek, July, 2012. Photo: R. Gotham.

In addition, the existing condition of FYLF in the South Yuba in the area likely to be affected by Block Flows or other flow increases is different than that of the Middle Yuba. There are subpopulations of FYLF in the South Yuba River near the mouths of many tributaries in between Poorman Creek (RM 28) and Fall Creek (RM 35.6). As reported by PCWA (Figure 5), 15 egg masses were detected at Poorman Creek (RM 28) in 2009, and 6 egg masses were detected at a site near Diamond Creek in 2009.[161] Less than 5 egg masses were detected at all other sites upstream of RM 28 in 2008 and 2009. Significant numbers of tadpoles were detected in at least one survey at Canyon Creek (RM 32; 346 early detections and 27 later detections) and Scotchman Creek (RM 30.4; 63 early detections and 31 later detections).

Larger numbers of detections of both egg masses and tadpoles were made further downstream near Humbug Creek (RM 19.6). Populations of tadpoles also persisted throughout the summer in the South Yuba at Purdon Creek (RM 11.1; 97 tadpoles) and

[159] Rorie Gotham, resident of Washington (Nevada County) at confluence of South Yuba River and Scotchman Creek, personal communications 2012 and 2013, and Gary Reedy, fisheries biologist, South Yuba River Citizens League, personal communication 2013. Both Ms. Gotham and Mr. Reedy have noted fish hanging at the mouth of Scotchman Creek, which despite low discharge is cooler than the South Yuba River in the summer under current conditions.
[160] 2010 Integrated Report (Clean Water Act Section 303(d) List / 305(b) Report), California Environmental Protection Agency, State Water Resources Control Board.
[161] PCWA Reply Comments, op cit, Figure 5.

Spring Creek (RM 15; 69 tadpoles). As we pointed out in our Alternative Condition to Condition 29 for the Drum-Spaulding Project, it was believed that egg mass surveys may have missed some egg masses, because of early season access issues, and since tadpoles were located in some areas where egg masses had not been detected.[162]

Although the water temperatures at FYLF sites on the South Yuba River are much warmer than water temperature in the Middle Yuba at Wolf Creek, the abundance of FYLF at all of the FYLF sites on the South Yuba River upstream from Poorman Creek is much lower than it is on the Middle Yuba River at Wolf Creek. It does not seem reasonable to expect that even with existing warm water temperatures, FYLF abundance at any of the sites on the South Yuba upstream of Poorman Creek will improve to the point where it meets a relative abundance greater than 0.5.[163] We are not sure then where PCWA's argument about FYLF on the South Yuba upstream of Poorman Creek really leads: except perhaps right at Poorman Creek, existing subpopulations are marginal today. PCWA, relying on Kupferberg, Addley and Berg, creates a standard for "FYLF habitat" derived from a correlation between water temperatures and abundant subpopulations of FYLF, and a standard for "protective" water temperatures of 19°C M30DAT in dry years. The result today of the "protective" flows is a series of sites where annual egg mass numbers are below 5.

FWN believes that flow increases in the South Yuba River will improve water quality and reduce the likelihood that pathogens will attack FYLF. Tech Memo 3-7 (FYLF Habitat Modeling) shows a slight increase in FYLF habitat in the South Yuba River near Fall Creek when flow increases from 6 cfs to 15 cfs, and little decrease in physical habitat for FYLF when flows are increased from 15 cfs to 50 cfs.[164] We therefore believe that the Forest Service was correct to require augmentation of releases from Spaulding Dam, releases from which account for most of the summer flow in the South Yuba River between Spaulding Dam and Canyon Creek.

As we noted above for the Middle Yuba River downstream from Wolf Creek, at any FYLF site on the South Yuba downstream from Poorman Creek, water temperatures under existing conditions are greater than 19.94°C M30DAT in dry years. The authors should complete and balance their analysis by evaluating the benefits that subpopulations of FYLF downstream will enjoy because *reduced* water temperatures in their habitat become closer to the "thermal preference."

We do not believe the evidence supports the theory that South Yuba Block Flows "has the potential to put populations of foothill yellow-legged frog at risk in this stream reach of the South Yuba River."[165] The increment of difference between the South Yuba Block Flows and the South Yuba Supplemental Flow Measure negotiated between PG&E and the Forest Service is unlikely to be determinative in the future of the small subpopulations of FYLF upstream of Poorman Creek. On the other hand, we believe that

[162] FWN Alternative Condition for Condition 29 of the Drum-Spaulding Project, op cit, p. 18.
[163] *See* PCWA Reply Comments, op cit, figure 12b.
[164] Tech Memo 3-7, FYLF Habitat Modeling, pp. 49-50.
[165] DEIS, p. 237.

the increment of difference will significantly improve the rainbow trout fishery in the area of the South Yuba River near the town of Washington.

The DEIS does not analyze the economic benefit to the local community of an enhanced trout fishery in the South Yuba River. The town of Washington is a disadvantaged community located on the South Yuba River one mile upstream of Poorman Creek. The Washington Hotel and other accommodations in the vicinity are less than fully booked, even in the summer months, despite offering unique access to the Wild and Scenic South Yuba River. By comparison to comparable rural communities located on rivers with healthy and vibrant trout fisheries, such as Downieville on the North Yuba River, the town of Washington is being deprived of substantial economic revenue attributable to trout fishing. Of course, the economic benefit of enhancing the South Yuba trout fishery would extend to Nevada City, Grass Valley and businesses throughout Nevada County.

3. Conclusion on South Yuba Block Flows

The Commission and the Forest Service should adopt the DFW/FWN Block Flow recommendation for the South Yuba River. The DEIS mischaracterizes the Block Flow recommendations and erroneously concludes that Block Flows would not provide a benefit to balancing aquatic resources in the South Yuba River.

VI. The Commission should require year-round flows to protect anadromous and resident fish in Auburn Ravine.

In several passages regarding Auburn Ravine, the DEIS ascribes to Relicensing Participants an agreement that the Drum-Spaulding Project should be required to mitigate for project effects to fisheries in Auburn Ravine only downstream to River Mile 26.4. This ascription is inaccurate. FWN has strongly and consistently disagreed with such limitation throughout relicensing.[166] DFW has also strongly disagreed with such limitation.[167]

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[166] *See* FWN REA comments, eLibrary 20120731-5130 and 20120731-5132, pp. 25-28.
[167] *See* DFW REA comments, eLibrary 20120730-5181, pp. 217-230. DFW states on p. 217:

> The Resource Agencies believe that the study planning decisions made by FERC Staff to date have resulted in an inadequate record on which to base the Commission's findings regarding the Project's effects (direct, indirect and cumulative) on water quality and coldwater fish in the lower 26.4 miles of Auburn Ravine. Moreover, we believe that the information provided through the FERC approved studies will be inadequate for the State Water Resources Control Board (Water Board) to conduct a cumulative impact analysis for Auburn Ravine.

DFW concludes on p. 229:

> These negotiated flows are intended only to provide interim protection of beneficial uses in the upper 1.2 miles of Auburn Ravine. Results of future studies (described below) will detail flow required for protection of beneficial uses throughout Auburn Ravine, during all seasons and including during planned and unplanned outages.

PG&E sought through the first four years of relicensing to avoid responsibility for any flow requirements in Auburn Ravine. In its initial Final License Application, PG&E proposed no minimum instream flow requirement for Auburn Ravine.[168] As a proposed compromise, PG&E agreed during negotiations in early 2012 to a minimum flow that would address fish only in the reach between Wise Powerhouse (RM 27.6) and the outfall of Placer County Water Agency's Auburn Tunnel (RM 26.4). This minimum flow is based on PHABSIM results for resident rainbow trout in the reach of Auburn Ravine upstream of RM 26.4. PG&E still proposes no required minimum flow during its annual outage, which generally begins mid-October.

Relicensing participants other than PG&E did not tell PG&E that it should put no water into Auburn Ravine as a required minimum flow, as opposed to an inadequate amount of water. However, it is completely inaccurate to suggest that participants agreed with the rationale provided by PG&E or the limitation of effect as consistently stated by PG&E and FERC. The DEIS states: "The relicensing stakeholders recognized the complexity of these interacting water uses in downstream reaches and focused on providing flows in Auburn Ravine to enhance aquatic habitat in the area immediately downstream of PG&E's release point from South canal." This is untrue. FWN and others simply took what was offered, with no agreement whatever to limit their efforts to achieve a more appropriate flow requirement to protect fishery resources further downstream. As FWN stated in our REA comments, "In recent discussions, the Network was clear with PG&E that, while some flow was better than no flow, the flows now proposed in DSAQR-5 are not sufficient to protect Auburn Ravine fisheries."[169]

FWN summed up our analysis of the proper perspective on Auburn Ravine in our REA comments:

> From the beginning of the relicensing, the Network has been clear in its advocacy relating to Auburn Ravine[170] as follows:
>
> 1) Approximately 80% of the water that flows in Auburn Ravine on an average annual basis is delivered through PG&E's project facilities. "Effectively, the Drum- Spaulding Project operates in Auburn Ravine as a faucet, not a drain. The impact comes when the faucet attracts fish and creates habitat, and then is turned off." [171]
>
> 2) Regardless of the immediate or overriding motivation for operational decisions, the effects that result from the operation of project facilities are by definition project effects.

[168] *See* Drum-Spaulding Final License Application, eLibrary 20110412-5005, Appendix E7.
[169] *See* FWN REA comments, op cit, p. 28.
[170] *See* FWN comments on the Initial Study Report, eLibrary 2010513-5066, pp. 6-15 [citation in original].
[171] Ibid, p.13. [Citation in original]

3) Under the comprehensive planning requirement of the Federal Power Act, PG&E is required to mitigate the effects of its operations both for power and non-power purposes. [172]

4) While PG&E is not able to guarantee that other water users downstream will not divert the required minimum instream flow in Auburn Ravine, PG&E can provide the water at its point of delivery and take reasonable measures to assure that the minimum flow is not diverted.

5) A minimum flow is needed in Auburn Ravine at all times, including and perhaps most critically during periods of canal outage. The Network recognizes that during irrigation season there is usually sufficient water in Auburn Ravine so that an additional minimum flow is not necessary.[173]

Our position has not changed.

The DEIS states:

> PG&E's hydroelectric releases from South canal (up to 80 cfs) account for about 27 percent of the total volume of water releases to Auburn Ravine that occur upstream of NID's Auburn Ravine I diversion dam (technical memorandum 3-13, *Western Placer County Streams*). While water deliveries associated with hydropower operations account for a portion of flows in Auburn Ravine below the Auburn Ravine 1 diversion dam, other sources associated with consumptive water deliveries cumulatively account for more than 70 percent of the flow in this stream reach.[174]

The DEIS's construction here suggests that water delivered through Wise Powerhouse into Auburn Ravine does not count as "hydropower operations" if it is "associated with consumptive water deliveries." This is wrong. Consumptive water delivered through hydropower facilities *generates hydropower*. The primary reason the project exists is to generate hydropower in the course of delivering consumptive water. The four lower Drum developments in particular are not economic as stand-alone hydropower facilities: otherwise, PG&E would not be making an eleventh hour effort to obtain a separate license for these developments, in order to facilitate its stated goal of a possible future transfer of ownership. PG&E does not plan to sell these developments for their ability to generate power: their value lies in their ability to deliver water to Auburn and points downstream. Nonetheless, as long as these facilities generate power, they are subject to the jurisdiction of the Commission and to mitigation requirements as required by the Federal Power Act.

Deliveries by PCWA through the Auburn Tunnel and occasional deliveries by NID through the Combie-Ophir system and North Ravine account for about ten percent of the annual flow of Auburn Ravine. Other than these, *there are no "other sources*

[172] *See* also Conservation Groups' petition for Declaratory Relief in the P-2179 Docket, eLibrary 20120601-5053, pp. 18-24 and 34-37. [Citation in original].
[173] *See* FWN REA comments, op cit, pp. 26-27.
[174] DEIS, p. 266.

associated with consumptive water deliveries," to use the phrase from the DEIS quoted above. As we stated in our REA comments, approximately 80% of the water that flows in Auburn Ravine on an average annual basis is delivered through PG&E's hydroelectric facilities.

The DEIS continues the construct advanced by both PG&E and NID that consumptive water deliveries would continue even if the projects were not relicensed. There are no alternative facilities for the vast majority of such deliveries. The DEIS states: "The exercise of legally established water rights by NID and PCWA for delivery to meet water demand in their service areas is likely to continue and increase irrespective of hydroelectric operations of the Drum-Spaulding and Yuba-Bear Projects." [175] These deliveries are not likely to continue without using the facilities of the two projects, because so doing would require construction of completely new conveyance, storage and diversion structures, or else require decommissioning of powerhouses that provide substantial economic offset of the costs of water delivery. Future deliveries without project facilities are completely speculative.[176]

In our REA comments, the Network recommended flow measures more appropriate to the protection of Auburn Ravine fishery resources. We re-state them here:

> PG&E shall provide an interim year-round minimum instream flow release of 10 cfs plus buffer, to be measured downstream of the point where South Canal crosses Auburn Ravine. In March and April of Above Normal years, the minimum flow shall be 13 cfs; in March and April of Wet years, the minimum flow shall be 18 cfs. This interim requirement shall be subject to upward revision conditioned on the outcome of the Department of Fish & Game's instream flow study on Auburn Ravine currently underway, and conditioned on the determination of the forthcoming Biological Opinion for Central Valley steelhead for the Drum-Spaulding relicensing.
>
> Further, PG&E shall be required as a license condition to enter into a contract with Nevada Irrigation District and/or Placer County Water Agency to provide the minimum instream flow in Auburn Ravine during periods of outage of any portion of the Drum-Spaulding system between the upper end of the Bear River Canal and a delivery point of water into Auburn Ravine downstream of Wise Powerhouse, such that PG&E cannot independently deliver the minimum instream flow. The existence of such a contract that assures such delivery of the minimum instream flow to Auburn Ravine shall become a condition of the use of Drum-Spaulding project facilities for delivery of consumptive water to both NID and PCWA.[177]

[175] DEIS, p. 267.
[176] They are far more speculative than the reintroduction of anadromous fish: no one has even conceptually proposed such replacement.
[177] *See* FWN REA comments, op cit, p. 28.

In a relicensing meeting in June, 2013, both licensees committed to participate in discussions in a non-relicensing venue relating to flow and other environmental issues in Auburn Ravine. As the Network pointed out at that meeting, we have been waiting for an alternative venue for four years. So far as we know, there has still been no substantive progress to establishing such a venue. While the Network would welcome an adequate and enforceable agreement on flow and other environmental issues in Auburn Ravine, and would participate in an alternative venue if asked for as long as an adequate outcome seems reasonably achievable, this does not absolve the Commission or the Drum-Spaulding licensee of their responsibilities under the FPA to protect the fishery resources of Auburn Ravine consistent with the public interest.

VII. The Commission must analyze project effects on access to the Bear River and analyze the need for a Bear River Trail.

A. Description of proposed measure

Forest Service Condition 41, California Fish and Wildlife Measure 16, and BLM Recommendation 1 recommend that PG&E assist with the development of a trail along the Bear River ("Bear River Trail"). When completed, the Bear River Trail would be a 33-mile riverine recreation trail along the Bear River in Placer and Nevada Counties, starting at the headwaters of the Bear River in Bear Valley and ending at NID's Combie Reservoir. According to BLM, about 15.5 miles of the trail would be on PG&E property, 6 miles on NID property, 4.9 miles on FS lands, 4.4 miles on BLM lands, 2.7 miles on Placer County lands (Bear River campground) and 3 miles on private lands.[178]

B. There is a need and demand for riverine recreation, and the Bear River Trail is the only riverine recreation facility proposed in relicensing.

The DEIS fails to acknowledge, let alone address, the need for riverine recreation. While the DEIS acknowledges that "...there is a demonstrated demand for trail use by project visitors,"[179] there is more specifically a clear demand for access for riverine recreation by boaters, fishers, gold panners, and others, as well as by hikers.

This demand is shown in the submittals of intervenors and by recreation surveys.[180]

The proposed Bear River Trail is the only measure brought forward in the YBDS relicensing that would provide a riverine recreation facility for the public. Parts of the Bear River are clearly within project boundaries. Parts of the Bear River are also clearly affected by project operations. Access to the Bear River is impeded and in some cases blocked by the project facilities and operations. As we stated in our REA comments, the Bear Valley spill (RM 33.6), the Tahoe spill (RM 31.75), the Drum penstocks, the Drum Powerhouse road gate and gated and blocked roads between the Dutch Flat and Chicago

[178] DEIS p.395.
[179] DEIS p.601.
[180] DEIS Table 3-211, pp. 364-365.

Park Powerhouses are among the trail elements affected by the project.[181] Also, see Section VI, below, for a summary of trail elements affected by project facilities.

The demand for trail access is demonstrated by submittals of interests by intervenors including five fishing groups, historical groups such as the Placer Sierra Railroad Heritage Society and the Grace Hubley Foundation, hikers and bikers as well as other interests, including property owners in the affected reaches.[182]

C. The DEIS fails to acknowledge or address FWN comments on the Bear River Trail.

The DEIS states:

> **"**Staff made effort to determine if the trail is located within or outside the project boundary based on PG&E's Recreation Plan, the license applications, and California Fish and Wildlife Response to Notice of Ready for Environmental Analysis, Federal Power Act Section 10(j) and 10(a) Recommendations, Drum-Spaulding Hydroelectric Project."[183]

FWN submitted thirteen pages of comments on the proposed Bear River Trail in our REA comments, providing detailed descriptions and maps of the trail's location, routes, nexus to the project, and access points.[184] We made clear that the Bear Yuba Land Trust has agreed to assume overall management of the trail, and that the Pacific Forest and Watershed Lands Stewardship Council is in support of the trail. FWN's detailed trail proposal represents a considerable amount of effort and commitment from a broad spectrum of individuals and groups willing to devote such time and effort in the interest of riverine recreation.

In its justification of its conclusions, the DEIS states "Based on our independent review of agency and *public comments* [emphasis added] filed on this project and our review of the environmental and economic effects of the proposed project and its alternatives, we selected the staff alternative as the preferred alternative for the Drum-Spaulding Project".[185]

Given the complete failure of the DEIS to address the comments of FWN and other Intervenors on this issue, we are at a loss to understand how FERC can justify the exclusion of the Bear River Trail in the preferred alternative.

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[181] *See* FWN REA Comments, eLibrary 20120731 - 5130, pp. 45-52.
[182] *See* American Watershed Institute et al. Motion to Intervene in the Drum-Spaulding Hydroelectric relicensing, eLibrary 20120731-5145, and in the Yuba - Bear relicensing, eLibrary 20120731-5135, pp. 1-6 of each document.
[183] DEIS p. 396, Footnote 23.
[184] *See* FWN REA comments, op cit, pp. 40-53.
[185] DEIS p. 583.

D. The failure of the DEIS to consider or address FWN's comments on the Bear River Trail prejudices the DEIS's response to support for the trail by BLM, USFS and DFW.

The DEIS states that "there does not appear to be a nexus between the trail project...based on the information provided [by BLM and USFS][186]." It should have been clear to FERC that USFS Condition 41, DFW Measure 16 and BLM Recommendation 1 adopted FWN's trail proposal. It was certainly clear to PG&E, which noted the connection in its Reply Comments: *'Please also see* [italics in original] PG&E's response to FWN's Bear River Trail proposal below, which PG&E assumes this recommendation [BLM's recommendation 1] reflects."[187]

FERC should re-evaluate its response to USFS Condition 41, CFW Measure 16 and BLM's Recommendation 1, incorporating an analysis of the detailed information provided in FWN's REA Comments.

E. The DEIS's conclusions about the Bear River Trail improperly exclude recreation as a "project purpose," fail to consider substantial evidence of the need for riverine recreation, and inaccurately characterize land ownership of the proposed trail.

The DEIS concludes:

> "The bulk of the Bear River Trail would be located outside the project boundary, primarily on Forest Service lands, and would not serve a project purpose. Therefore, we conclude that this trail is not necessary for project purposes."[188]

Recreation is clearly a project purpose.[189] Further, FERC regulations require that the Commission "...evaluate and seek development of recreational resources at a project consistent with the needs of the area".[190] As noted above, there are no options for riverine recreation facilities that have been presented in relicensing other than the Bear River Trail. Given the demonstrated need for riverine recreation in the project reaches of the Bear River, the DEIS fails to meet the requirement of the FPA to provide recreational resources consistent with "the needs of the area."

Further, the conclusion that the bulk of the Bear River Trail would be on Forest Service lands is grossly inaccurate, and is contradicted by BLM's analysis of land ownership as summarized in the DEIS and cited above.[191] Fifteen miles of the proposed trail would be on PG&E land, and much of this land is land that PG&E has declined to

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[186] DEIS p. 398.
[187] *See* PG&E Reply Comments, September 14, 2012, op cit, pp. 66-68.
[188] DEIS p.665
[189] FPA Section 10(a)(1)
[190] *See* Order Granting Rehearing and Amending Project License, Public Service Company of Colorado, P-2187-005, 82 FERC P 61334 (F.E.R.C.), 1998 WL 213983.
[191] DEIS, p. 395.

donate as part of the Stewardship Lands program *on the grounds that this land is needed for project purposes.*[192]

F. The Bear River Trail proposal: summary of trail elements within FERC boundaries or directly affected by project operations with nexus issues.

This narrative tracks the format of FWN's REA Comments for trail segment numbers.[193] Refer to these REA comments for detailed maps of the trail segments, descriptions, specific recommendations for the trail, and rationale describing nexus with the projects.

1. Bear Meadow to Upper Boardman Canal Diversion [*see* FWN's REA Comments, pp. 42-44]

The existing Bear River Trail through Bear Valley Meadow is located right next to the river. PG&E's present and proposed operations preclude the continued use of the existing trail through the meadow, due to high flows and extreme fluctuations in flow caused by both emergency releases from the Drum Canal upstream of the Valley, and by operational releases from the Drum Canal into the Bear River as a routine practice during winter. These high flows (200 cfs during winter, often more in emergency conditions) are without question unnatural and a direct result of operations. They have direct nexus to the project.

Absent these threats to public safety that are directly caused by project operational releases, there would be no reason to change the present location of the trail directly adjacent to the river. FWN has agreed with PG&E that it is prudent to move the trail out of the hazardous high water area, and has proposed an alternative trail location that loops the meadow on both sides of the river. This alternative would provide a trail on both sides of the river, protecting recreational users from the hazardous high flows and flow fluctuations. Relocating the trail will also protect sensitive riparian vegetation that helps to stabilize the river banks that are subject to these high flow fluctuations.[194]

The Bear Valley Spill moves water from the Drum Canal to the Bear River right in the meadow area. The "random" caused by the Spill crosses the existing Bear River Trail on the south side of the river, and crosses the currently proposed new trail alignment. A footbridge crossing will be required in order to provide recreational users a continuous path that does not force hikers to climb down and through the gully caused by the high flow spills. This gully exists only because of project operations. This is clearly a direct project nexus. There would be no need for a bridge were it not for the Bear Valley Spill on the Drum Canal and the public safety problem caused by potential high flow releases.

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[192] *See* PG&E's Reply Comments, op cit, pp. 67-68.
[193] *See* FWN REA comments, op cit, pp. 41-53.
[194] *See* PG&E's Reply Comments, op cit, p. 67. Also, per discussion between FWN and PG&E staff on February 2, 2012.

PG&E states that the parking area at lower Bear Valley and trailhead for lower Bear River Trail is unsuitable for a parking area and trailhead with amenities. As rationale, PG&E states concerns about hazardous flow fluctuations, the narrow bridge, and the lack of adequate space for parking close to the river.[195] FWN concurs with this assessment: conditions are unsafe at the intersection of the utility road and the Bear River just below the former Boardman Canal diversion dam. FWN proposes a trailhead and parking along the access road higher and away from these hazards along the river.

2. Bear Valley to Drum Forebay and Powerhouse [*see* FWN's REA Comments, pp. 44-45]

Tahoe Spill from Drum Canal to Bear River. The proposed alignment of the Bear River Trail along the abandoned Old Boardman Canal would have the trail cross the Tahoe Spill and would require a footbridge due to the operation of the Spill. Today, the Old Boardman Canal is washed out by the "random" created by the high flow releases from the Tahoe Spill. The "wash" at this site is approximately 10 feet deep and 30 feet across. This wash is filled with cobble and has unstable banks. In the presently proposed flow agreement for the new license, there will be increased use of the Tahoe Spill in order to partially reduce the high flow release impacts on the Bear Valley section of the Bear River.[196] The washout and the need for a footbridge at this intersection of the Tahoe Spill and the proposed Bear River Trail have a clear nexus to the project.

Lower Boardman Canal/Towle Railroad bed section just upstream of Drum Powerhouse. Within a mile upstream of Drum Powerhouse, the route of the proposed Bear River Trail veers up the south side of the canyon, on a utility road next to Pittman Spill "random". All possible trail routes along the south side of the canyon offering access to the river are entirely blocked by three successive elements of the Drum-Spaulding Project. This entire portion of the trail leaves the canyon to avoid the following project elements:

- *Pittman Spill and "random".* The "random" that begins at Drum Canal at the Pittman spill and extends the entire distance from ridge to river is completely washed out. In the storm event of 1997, this ravine suffered extreme mass wasting due to the spill releases on top of the natural runoff. The result is an impassable landslide that is unstable and not suitable for recreational hiking. Pittman slide is a consequence of project operations within the current license term, and precludes numerous trail opportunities.
- *Penstocks from Drum Forebay.* These are on the ridge of the canyon run all the way to the powerhouse on the Bear River's edge. This project feature blocks the proposed trail location, which followed the route of the abandoned Dutch Flat Canal just above the Drum Powerhouse. PG&E rejected the FWN proposal to provide some means of recreational access either over or under the penstocks

[195] *See* PG&E's Reply Comments, op cit, p. 67.
[196] *See* DEIS Table 5-1, p. 577.

where the old Dutch Flat Canal route meets the penstocks.[197]

- *High voltage transmission lines*. These run from the Drum Powerhouse at the river's edge to the ridge, parallel to the penstocks, creating a third blockage of the Bear River Trail at this location.

Combined, these three barriers block any natural trail location near the river which could provide riverine recreation. The current FWN proposal would use the PG&E utility road from the river on the upstream side of the Pittman slide to take recreational users out of the canyon at this point to avoid the project barriers. PG&E used this road to transport material from the Pittman slide out of the canyon. This section of the proposed trail would end at a trailhead along the PG&E utility road, and then connect recreational users with vehicle access to the towns of Alta and Dutch Flat and the I-80 exits at Alta and Dutch Flat.

3. Drum Powerhouse to Dutch Flat
[*see* FWN's REA Comments, pp. 46-47]

River access is needed around Drum Powerhouse for access for fishing, kayaking, and river scrambling. Recreational access to rivers in California is embedded in the law, where citizens have a right to access the river to a point defined by the mean high water line. The Drum Powerhouse currently blocks all access to the river. An access trail can be built around the powerhouse next to the river. The north side of the river is unstable due to the construction of the powerhouse, and is not suitable for trail construction.

Drum Powerhouse road has been used by the public during the past license period to access the river for fishing, hiking, kayaking, biking, and motorized access to the canyon and the afterbay at Drum Powerhouse. Public access to these recreational amenities should continue and be formalized in the next license period. Drum Powerhouse Road is completely within the project boundary.

At the midpoint between Drum Powerhouse and Alta, an access road to the river has been gated. This is an access point used for kayaking, biking to the river, and informal swimming, fishing and scrambling. This access point to the river should be opened and available to the public in the new license period.

4. Dutch Flat/Alta to Rollins Reservoir
[*see* FWN's REA Comments, pp. 47-48]

This proposed trail section is on public access dirt roads, but has gates that need to be modified to allow access for horseback riding, bikes, and hiking.

[197] *See* PG&E's Reply Comments, op cit, p. 67. Also, per discussion between FWN and PG&E staff on February 2, 2012.

5. Rollins Reservoir [*see* FWN's REA Comments, pp. 48-49]

The proposed trail is along the edge of Rollins Reservoir, and is completely within the Yuba-Bear Project boundary. A connecting link needs to be constructed from the public road at Chicago Park Powerhouse to the tail of Rollins Reservoir. This land is owned by NID and in its current state is an abandoned gravel quarry previously leased by NID to a private sector gravel operation.

6. Rollins Reservoir to Taylor Crossing
[*see* FWN's REA Comments, pp. 49-51]

PG&E's Bear River Canal blocks access to the river on the Placer County side. The informal trail on the north side of the river should be extended to link with the historic Taylor Crossing. This trail segment is proposed as mitigation for the loss of river access due to the Bear Canal. Much of the land is owned by NID and BLM.

7. Taylor Crossing to Bear River Campground
[*see* FWN's REA Comments, pp. 51-52]

PG&E's Bear River Canal blocks access to the river on the Placer County side. This trail segment is proposed as mitigation for the loss of river access due to the Bear River Canal. Much of the land is owned by NID, State of California/Bear River Campground and BLM. This trail system will link with the trails within the campground lands developed by Placer County.

8. Bear River Campground to Combie Reservoir
[*see* FWN's REA Comments, pp. 52-53]

PG&E's Bear River Canal blocks access to the river on the Placer County side. This trail segment is also proposed as mitigation for the loss of river access due to the Bear River Canal. Almost all of the land is owned by NID on the Nevada County side of the river, and a much used informal trail is already in place. Use needs to be formalized in this license period, and parking, trail improvement, signage, and sanitation facilities need to be provided for public health and safety.

VIII. Monitoring and Monitoring Plans

During the past six months, licensees, resource agencies and the Network have negotiated the locations, methods and frequency of many types of post-licensing monitoring. As we described in our September 12, 2012 Reply Comments, our principal interests in post-license monitoring are for FYLF, fish populations, and water temperature.[198] Our principal geographic areas of interest are the Middle Yuba River below Milton Diversion Dam, Canyon Creek below the Bowman-Spaulding Diversion, and the South Yuba River below Spaulding Dam.

[198] See FWN Reply Comments, eLibrary 20120912-5217 and 20120912-5224, pp. 11-15.

As of August 1, 2013, we believe that we are very close to agreement with licensees and resource agencies on the location, methods and frequency for post-license monitoring of FYLF and fish populations, especially in the stream reaches in which we have the greatest interest. As of our most recent discussions, most of the locations we requested in our Reply Comments for this monitoring will be included in monitoring plans.

So far as we understand, we are less close on water temperature monitoring. We find this perplexing because water temperature information is so vital to understanding biological response, particularly by FYLF and fish, and we believe the importance of water temperature is recognized by all relicensing participants. Water temperature data is also less expensive to collect than biological data per se. We continue to believe that it is essential to have water temperature monitoring at the FYLF sites and fish population survey sites on the Middle Yuba River, Canyon Creek, and the South Yuba River.

As what we hope is a placeholder until we can conclude negotiations on monitoring for FYLF, fish populations, and temperature monitoring, we recommend that the Commission adopt the measures for this monitoring recommended by DFW in its comments on the DEIS. More generally, we support the recommendations of DFW for other post-license monitoring, recognizing that licensees have agreed in a few areas and that unresolved areas require further discussion.

The Network also continues to recommend installation of a real-time flow gauge on the South Yuba River just downstream of Canyon Creek. While we have also noted this in the context of gauging and recreation, it bears repeating because of its great prospective utility in evaluating biological response in the key section of South Yuba River.

IX. The Forest Service should modify the section of its Condition 29 for the Drum-Spaulding Project entitled "Fordyce Lake Drawdown."

Licensees, resource agencies, recreational boating advocates and OHV groups jointly developed the Fordyce drawdown measure. The primary goal of this measure is to provide predictable timing of flow releases and flow magnitudes in this reach.

This measure allows PG&E a high degree of operational flexibility, in recognition of the complexity and unpredictability of snowmelt runoff and spill management below Spaulding reservoir. It does not require any date-certain releases, other than low flows for the Sierra Trek event. Relicensing participants also afforded the licensee wide latitude to set flow levels within the high target range, and set no specific flows for the low target range.

That being said, the Network (and others) were clear about our expectation of how this measure would be implemented. The Network's expectation was as follows: as soon as flows can be released from Fordyce dam without inducing or augmenting spills at Lake Spaulding, the outlet valve at Fordyce Reservoir will be opened to release 475 cfs,

or the maximum flow the outlet will safely pass if 475 cfs cannot be achieved because the reservoir is too low. As the reservoir elevation drops, flows will gradually reduce in magnitude because of loss of head. The outlet works will remain wide open until storage in Fordyce Reservoir drops to the 29,000 acre–feet.

This operational expectation is important for several reasons.

First, the vast majority of the whitewater recreation that occurs on this reach will be hardshell whitewater kayakers. Tech memo 8–1, *Recreation Flow,* shows that the boatable flow range for this craft type is between 350 and 550 cfs. The operational scenario described above will provide the maximum number of flow days within this range.

Second, releasing high flows early in the season will prevent the occurrence of high late-season flows. By definition, releasing more water early in the season will ensure that lower releases occur later in the summer. Lower late-summer flow was a stated interest of several of the resource agencies.

Third, we expect that in most water years the licensee should be able to reach the 29,000 acre-foot threshold before the August Sierra Trek OHV event. This will avoid the need to return to the High Target Flow (as described below) after reducing the flows to 50 cfs for the Sierra Trek event. We expect that in most years flows after the Sierra Trek event will remain in a range low enough to allow for safe OHV crossing of Fordyce Creek.

In negotiating this condition, it was not our expectation that the licensee would be able to maintain releases throughout the summer in the lower end of the high target range. We do not believe that this is the licensee's intent, but as it reads at present the preliminary 4(e) condition could allow such operation, or operation that would step up the magnitude of releases from Fordyce Reservoir as the summer progresses. In the interest of avoiding future conflicts, we propose that the Forest Service amend the section of preliminary Condition 29 for the Drum-Spaulding Project entitled "Fordyce Lake Drawdown." An additional bullet should be inserted immediately following the bullet that reads, "When Lake Spaulding has ceased spilling (or in a year when Lake Spaulding has not spilled) and as soon as there is sufficient storage space available in Lake Spaulding, Licensee shall begin the High Target Flow." This new bullet should read:

- The High Target Flow shall commence at an initial magnitude between 450 cfs and 475 cfs, and its magnitude shall be reduced principally by leaving the outlet valve at Fordyce Reservoir as far open as is necessary to achieve the initial magnitude, thereafter allowing the drop in head from declining storage in the reservoir to reduce the flow.

Note that the bullet that follows this proposed insertion defines that the "High Target Flow" period ends when storage in Fordyce Lake drops to 29,000 acre-feet.

X. The new licenses should require that licensees provide streamflow information for selected locations at the existing year-round levels and on the existing 15-minute frequency.

As we stated in FWN's REA comments, licensees should continue to provide the level of flow information that they currently provide to the public.[199] We appreciate that FERC staff recognizes the benefits, and the lack of additional cost, associated with providing year-round flow information to the public (as opposed to May through November, as proposed by licensees). However, FERC proposes to adopt the licensees' proposals that the flow information they provide by internet be mean daily flow. Licensees currently provide 15-minute data for eleven gages, as listed below. Our REA comments would have been clearer if, in requesting that licensees continue current flow information, we had explicitly called out the need for 15-minute reporting. Average daily streamflow information is inadequate to meet the needs of paddlers and other recreational users.

Currently PG&E and NID are providing 15 minute flow information to the public at the following locations:

NID

Location	**Reporting Interval**
Bear - Below Rollins	15-minute
Mi. Yuba - Below Jackson Meadows	15-minute
Mi. Yuba - Below Milton Dam	15-minute
Canyon Creek - Below French Dam	15-minute
Canyon Creek - Below Bowman Dam	15-minute
Bear River - Below Dutch Flat Afterbay	15-minute
Bear - Below Rollins Dam	15-minute

PG&E

Fordyce Creek - Below Fordyce Dam	15-minute
So. Yuba - Near Cisco	15-minute
So. Yuba - At Lang Crossing	15-minute
Bear - Below Drum Afterbay	15-minute

It is extremely important that the 15-minute reporting interval be maintained. Flows, particularly during the winter and spring, are often very dynamic. Paddlers need to know if flows are trending up or down in order to determine if conditions will allow them to safely recreate. Additionally, average daily flows will not give information about the diurnal range of flows, which can be substantial during the spring snowmelt. While the DEIS focuses on public flow information in the context of recreational boating, numerous other recreationists, including anglers, hikers, and OHV enthusiasts will also use this information.

[199] FWN's REA Comments, op cit, p. 39.

We recommend that FERC require continued reporting of year-round, 15 minute real-time flow information. As with the reporting of flow information throughout the year, we do not foresee that there will be any additional cost to the licensees for reporting 15-minute flow data. Existing gauges report out information on 15-minute intervals, and we see no reason to take the extra step of diluting this information before they make it public.

In addition, the gauging on Auburn Ravine needs to be reported on a 15-minute, real-time basis, in large measure because flow fluctuations of water delivered to Auburn Ravine through the Drum-Spaulding Project raise potential concerns about public safety. We understand that PG&E plans to use a gauge just downstream of Wise Powerhouse for compliance purposes, and recognizes the public safety value of the ability to gauge flow in Auburn Ravine that captures the range of flows commonly released. Real-time reporting of flow will provide an added element of safety, and will also aid in the monitoring of flow and the evaluation of the response of fish.

XI. The new license for the Drum-Spaulding Project and/or the Yuba-Bear Project should require a year-round, 15-minute gauge on the South Yuba River just downstream of Canyon Creek that is reported real-time on the internet.

FERC's staff analysis rejects our recommendation that a gauge be required below the confluence of Canyon Creek and the South Yuba River. The DEIS states:

> The location for a new gage recommended by the Foothills Water Network would be 8.5 miles downstream of the project facilities, and flows at this location are influenced by factors beyond the control of PG&E. The public can determine recreation opportunities in this stretch of the South Fork Yuba River through trends from flow information available from NID on the South Yuba just below Lake Spaulding dam and from information available from NID on Canyon Creek below Bowman dam.[200]

This statement includes a simple factual error: in that it is PG&E, not NID, which provides flow information on the South Yuba River. More importantly, the statement incorrectly asserts that recreational opportunities in the interested reaches of the South Yuba River below Canyon Creek can be usefully interpreted and forecasted from the upstream gages. Due to the typically narrow range of suitable boating flows in this reach, and the reliance on combined spill cessation measures from two upstream dams as well as accretion, recreational opportunities and their safety cannot be adequately assessed without the recommended new gauge downstream of Canyon Creek.

Spill cessation measures that are included in the Forest Service 4(e) conditions and supported by FERC in the DEIS will heavily influence the flows at this location during spring spill events. Currently, there is no provision for either of the licensees to coordinate their operations for the spill cessation measures. It is certainly our hope that

[200] DEIS, pp. 410

the spill cessation measures on Canyon Creek and the South Yuba River will occur in concert and provide a combined benefit downstream of the confluence. However, we will not know if this is the case unless we have gauging information below the confluence of Canyon Creek and the South Yuba River. While a gauge on the South Yuba River just downstream of Canyon Creek will provide an added measure of safety for whitewater recreation, the primary purpose for this gauge will be to evaluate the effectiveness of the spill cessation flows that originate from Bowman and Spaulding reservoirs. We continue to recommend that FERC require a gauge below the confluence of Canyon Creek and the South Fork Yuba River. Reporting of 15-minute data from this gauge should be made by internet, as with the other gauges described above.

XII. The new license should require trails and toilets at Edwards Crossing and Purdon Crossing.

There is limited recreation access to much of the South Yuba. Edwards Crossing (RM 16) and Purdon Crossing (RM 12) are two of the very few places where access is possible. As a result, these two locations are extremely popular for a number of recreational activities including boating, hiking, fishing and general river enjoyment.

The DEIS states:

> Although providing facilities at Edwards and Purdon Crossing would provide benefit to recreation users downstream, there does not appear to be a nexus between this area and the project.[201]

We disagree with staff's determination that there is a lack of nexus at these sites. The study on *Recreation Flow* clearly shows that flows in the vicinity of Edwards Crossing and Purdon Crossing are directly affected by the projects[202]. Additionally, it is acknowledged throughout the DEIS that several measures will enhance whitewater recreation opportunities. It seems obvious that these improvements in flows, and flow information, will bring additional paddlers to the South Yuba in the future. Both existing use and likely future increased use warrant improvement to the facilities at these two popular locations.

BLM also correctly asserts that the Drum-Spaulding Project, by increasing the frequency of days in spring and early summer where low flow conditions occur, has increased the recreational use of these areas for activities other that whitewater boating, such as swimming.

Consequences of these project effects on recreational use include pollution by human waste, impacts to overburdened trails, and strain on the limited budget of land managers. FWN member group the South Yuba River Citizens League coordinates hundreds of hours per year of volunteer labor aimed at addressing the impacts of recreational use at these sites, including trash removal and trail work at the annual Yuba

[201] DEIS, p. 411.
[202] *Recreation Flow Technical Memo* (TM-8), pp. 76-84

Cleanup Event and funding of portable toilets. It is entirely appropriate for PG&E to fund, at least in part, necessary recreational facilities and maintenance at these sites.

We recommend that FERC support BLM's recommendations for facilities at these sites. These facilities include: constructing a vault toilet at Purdon Crossing; constructing kiosks at Purdon Crossing and Edwards Crossing; constructing an 8-foot-wide path leading from the river to the trailhead or parking area at Purdon Crossing and Edwards Crossing; and replacement of the vault toilet at Edwards Crossing in approximately 10-15 years. Consistent with BLM's recommendation, we also recommend that the new license for the Drum-Spaulding Project require PG&E to provide $30,000 annually with adjusted Gross Domestic Product- Implicit Price Deflator (GDP-IDP) for operation, maintenance, law enforcement patrolling, and administration of these areas.

The Network believes that the DEIS is deficient in its finding of no project nexus to such facilities. The Network applauds BLM and PG&E for working together to develop a separate agreement that addresses the need for these recreational facilities.

XIII. The new license should formally require multiple annual consultation opportunities by NGO's and members of the public, and the FEIS should acknowledge the importance and value of such consultation.

The DEIS inappropriately dismisses the need for a formal consultation role for NGO's and other members of the public in license implementation. The DEIS states in discussing the new license for the Drum-Spaulding Project:

> Implementation of appropriate monitoring plans and review of the results of these surveys are essential to determining if flow-related modifications in project operations included in the new license provide the benefits anticipated by the relicensing stakeholders. Segregation of the monitoring efforts for each resource area into separate monitoring plans allows a more focused process for review of the plans and subsequent implementation, data collection, and analysis. Effective review can be accomplished within the annual consultation process by work groups composed of the most appropriate stakeholders and resource experts and managers for individual affected resources. As required, focused monitoring plans can be updated or modified more efficiently without affecting other resource areas or involving a larger group of stakeholders than necessary.
>
> The Ecological Group as proposed by the agencies would have more far-reaching responsibilities than necessary; input on implementation can be conducted within the scope of the annual consultation process. It would be reasonable to expect that work groups could be organized around resource areas within the consultation process, but this organizational process can be developed by the participants and does not need to be defined within the license.[203]

[203] *See* DEIS, pp. 252. *See* also p. 263 for identical language regarding the Yuba-Bear Project.

The Network strongly disagrees with these assertions. The absence of a formal and defined consultation role for the Network and other responsible stakeholders is not in the public interest. We described at length our rationale for formal inclusion in the project licenses of an "Ecological Group" or similar consultation entity in our September 12, 2012 reply comments to alternative conditions filed by each licensee. We incorporate by reference this rationale in its entirety. [204]

On August 7, 2013, the Network, the resource agencies, and PG&E agreed on language for incorporation into the Forest Service's and BLM's 4(e) conditions that will establish a "Consultation Group" for the Drum-Spaulding Project. We are hopeful that we can achieve a negotiated resolution for inclusion of an equivalent measure in the new Yuba-Bear license as well.

In contrast to the positive resolution chosen by PG&E, the DEIS as stated embodies an unsupported position by Commission staff that would establish a precedent that is bad policy and inconsistent with the Federal Power Act's requirement to protect the public interest. The DEIS as quoted directly above makes unsupported assertions about the extent and the format of post-licensing consultation, accessibility to affected stakeholders, and the need for defining the scope and purview of consultation within the new project licenses.

The DEIS offers no basis for why the "annual consultation process" is temporally or substantively sufficient for review of monitoring plans and their required collection of data. It offers no discussion about how NGO or individual stakeholders would or should be included in such process. It offers a general statement that small workgroups work "more efficiently" without involving "a larger group of stakeholders than necessary." It does not define how workgroups should be chosen, whether NGO representatives would even be involved in choosing them, or what number of stakeholders is "necessary."

The DEIS's dismissal of an Ecological Group is not supported by substantial evidence. It does not respond to Network's comments on the benefits of a formal consultation role for NGO's and members of the public in license implementation. The DEIS's evaluation of this matter does not takes into account the complexity and extent of the Drum-Spaulding and Yuba-Bear projects. It does not address or even acknowledge the collective experience of Network members in ten years of license implementation on several California projects. It does not respond to the examples of the positive benefits of a formal consultation body, or the negative consequences when concerned representatives of the public interest are excluded from discussion of post-licensing problems after spending years during the relicensing process. It does not explain how Network stakeholders with decades of experience advocating for the improvement of the Yuba River watershed can be reasonably assured that their post-licensing concerns will be heard, let alone addressed, or how the conclusion that this "does not need to be defined within the license" squares with the stated positions of the licensees' respective alternative conditions that NGO's should have no defined role in license implementation.

[204] *See* FWN Reply Comments, eLibrary 20120912-5224, pp. 3-11.

Staff should change its conclusion about post-licensing consultation for NGO's and other representatives of the public interest and support an inclusive license requirement for such consultation in the Final EIS. Staff should also elevate this issue as a global policy matter to the Commission itself.

Conclusion

The Network appreciates the effort that all relicensing participants have made to reach agreement on a multitude of issues, as well as the professional and positive spirit in which relicensing participants have conducted day-to-day business. The Network is committed to pressing forward over the next several months to resolve many issues that are close to agreement but not quite complete, particularly monitoring plans.

The Network also remains hopeful that future discussions can resolve some or all of the outstanding issues on which the Network's interests have not been met. Some of these are core issues, as we have described above.

We appreciate the lengths to which Commission staff has gone to examine and consider the voluminous and often technically difficult information that this proceeding has generated. Nonetheless, the Network believes that the DEIS falls short on a number of points, which we have described above and which we summarize below.

The DEIS fails to analyze a reasonable range of alternatives because it does not analyze a "Restored Anadromous Fish Alternative." Staff should circulate a supplemental DEIS to analyze such an alternative, consistent with our comments, including the June 21, 2013 "Motion for Additional Investigation and Supplemental Draft Environmental Impact Statement" that we have attached as an appendix.

The DEIS does not contain a description of the proposed action that includes issuing a separate license for the four "lower Drum" developments. The Commission should either deny PG&E's request for a separate license, or issue a revised DEIS that contains a description of the proposed action that includes a separate license for a "lower Drum" project, and that analyzes the consequences of such a change.

The DEIS does not include an adequate analysis of cumulative effects and in particular of past cumulative effects. The FEIS should include such an analysis consistent with our comments and with the guidance of the *The Interagency Task Force Report on NEPA Procedures in FERC Hydroelectric Licensing*.

The DEIS does not analyze project effects under conditions of climate change. The FEIS should conduct such an analysis, consistent with the Council on Environmental Quality's February 18, 2012 memorandum entitled "Draft NEPA guidance on consideration of the effects of climate change and greenhouse gas emissions."

The DEIS inadequately analyzes the Block Flows for the Middle Yuba River and South Yuba River that were recommended by the California Department of Fish and

Wildlife and by the Network. The DEIS also mischaracterizes and declines to adopt these recommended measures. The FEIS should re-analyze these Block Flow recommendations, and adopt them for inclusion in the Yuba-Bear and Drum-Spaulding licenses.

The DEIS improperly narrows the scope of project effects and thus declines to require flows in the Drum-Spaulding license that will protect fishery resources in Auburn Ravine. The FEIS should analyze project effects downstream of the Auburn Tunnel outfall, and the new license should adopt interim flow measures to protect fisheries downstream of that outfall. The new license should also include a provision to modify the interim flows based on the results of DFW's ongoing instream flow study on Auburn Ravine.

The DEIS utterly fails to analyze project effects on riverine recreation opportunities along the Bear River, particularly hiking opportunities. The FEIS should use the extensive materials provided by the Network in our REA comments, these comments on the DEIS, and the oral comments on the DEIS by Mr. Otis Wollan to establish project nexus to various segments of the proposed and partially existing Bear River Trail. The new project license should also require each licensee as appropriate to mitigate project effects of hiking opportunities along the Bear River by completing portions of the Bear River Trail.

Relicensing participants have yet to complete many monitoring plans for post-license monitoring. The FEIS should analyze plans that are completed, should at minimum meet the monitoring sites for FYLF, fish populations and water temperature monitoring described in the Network's September 12, 2012 Reply Comments, and should more generally require post-license monitoring that will protect the public interest.

The FEIS should analyze and propose for inclusion in the appropriate licenses the Network's proposed modifications, as described in these comments, for Fordyce Lake Drawdown and for streamflow gauging and real-time reporting of 15-minute data on the internet.

The new license for either the Yuba-Bear Project or the Drum-Spaulding Project or both should require a new streamflow gauge, with real-time reporting on the internet, on the South Yuba River just downstream of the confluence with Canyon Creek. The FEIS should analyze how the projects affect flow at this site and should analyze the recreational, public safety, and aquatic monitoring benefits of such a gauge.

The FEIS should analyze the need for facilities at Edwards Crossing and Purdon Crossing, and should analyze how the Drum-Spaulding and Yuba-Bear projects affect recreation at these sites. The new license for the Drum-Spaulding Project should require the new facilities at these sites recommended by BLM, unless BLM and the licensee conclude an agreement that adequately addresses the need.

The FEIS should completely re-evaluate the conclusions of the DEIS about post-license consultation, and in particular its conclusions about the need for a formal consultation role for NGO's and members of the public. The FEIS should analyze the benefits of the Consultation Group for the Drum-Spaulding Project about which PG&E, agencies, and the Network have reached agreement, and should analyze the benefits such an entity would have for NID.

Thank you for the opportunity to comment on the Draft Environmental Impact Statement for the relicensing of the Yuba-Bear Project, the relicensing of the Drum-Spaulding Project, and the licensing of the Deer Creek Project. Thank you also for the opportunity to comment on PG&E's proposal to separately license the lower Drum developments.

Respectfully submitted,

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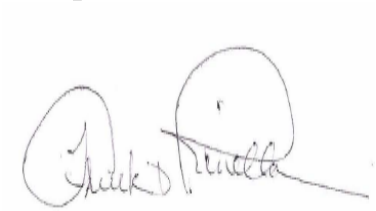

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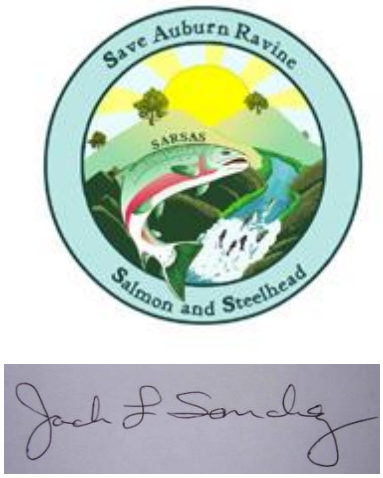

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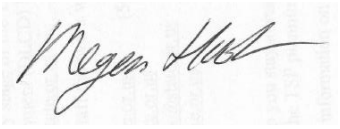
BEFORE THE
UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Nevada Irrigation District	**)**	**Project No. 2266-102**
Pacific Gas and Electric Company	**)**	**Project No. 2310-193**
Pacific Gas and Electric Company	**)**	**Project No. 14530-000**
Pacific Gas and Electric Company	**)**	**Project No. 14531-000**

Certificate of Service

I hereby certify that the foregoing Comments and Recommended Terms and Conditions of Foothills Water Network, American Rivers, American Whitewater, California Sportfishing Protection Alliance, Friends of the River, Gold Country Fly Fishers, Northern California Council Federation of Fly Fishers, Ophir Property Owners Association, Save Auburn Ravine Salmon and Steelhead, Sierra Club, South Yuba River Citizens League, and Trout Unlimited in the above-captioned proceedings has this day been filed online with the Federal Energy Regulatory Commission and served via email or surface mail (as specified for each entity in each of the respective Service Lists) upon each person designated on each of the respective Service Lists compiled by the Commission Secretary for these Projects.

Dated at Bend, Oregon, August 22, 2013



Megan Hooker
American Whitewater

Appendix A

California Sportfishing Protection Alliance, Trout Unlimited, and American Rivers' Motion for Additional Investigation and Supplemental Draft Environmental Impact Statement

UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Nevada Irrigation District	)	
Yuba-Bear Hydroelectric Project	)	P-2266-102
Pacific Gas and Electric Company	)	
Drum-Spaulding Hydroelectric Project	)	P-2310-193

California Sportfishing Protection Alliance, Trout Unlimited, and American Rivers' Motion for Additional Investigation and Supplemental Draft Environmental Impact Statement

California Sportfishing Protection Alliance, Trout Unlimited, and American Rivers hereby request that the Commission direct OEP Staff to make specific findings in a supplement to the Draft Environmental Impact Statement (DEIS) regarding (1) the Yuba-Bear and Drum-Spaulding Hydroelectric Projects' direct, indirect, and cumulative effects on anadromous fish habitat in the South and Middle Yuba Rivers; and (2) feasibility of alternative measures to mitigate the projects' effects on anadromous fish and their habitat in the South and Middle Yuba Rivers once fish are reintroduced into these project-affected waters.

The record presently does not contain adequate evidence on which to base specific findings regarding anadromous fish and their habitat. We request that the Commission require Staff to complete the record through direction to Pacific Gas &Electric Company (PG&E) and Nevada Irrigation District (NID), as the license applicants, or independent investigation. In addition, we request that Staff consider new evidence provided herein that could serve as a record basis for such findings. Given that this information is material to Staff's finding that the proposed new licenses are best adapted to a comprehensive plan of development, and is sufficient to show that the Projects affect anadromous fish habitat to a significant extent not addressed in the DEIS, we request that the Commission publish a supplemental DEIS for comment prior to issuing the FEIS.

I.
MOVANTS

American Rivers is a national not-for-profit organization working to protect and restore our rivers and streams for the benefit of people, fish and wildlife. Since 1973, American Rivers has helped protect and restore more than 150,000 miles of rivers through advocacy, science and on-the-ground projects with local partners. Headquartered in Washington, D.C., American Rivers has offices across the country, including Berkeley and Nevada City, California. It has more than 100,000 supporters, members, and volunteers nationwide. Members of American

Rivers enjoy the Yuba River and its watershed for angling, boating, swimming and hiking. American Rivers has invested many years of work to restore anadromous fish to the upper Yuba River.

California Sportfishing Protection Alliance (CSPA) is a non-profit, public benefit fishery conservation organization incorporated in 1983 to protect, restore, and enhance the state's fishery resources and their aquatic ecosystems. CSPA works to ensure that these renewable public fishery resources are conserved to enable public sport fishing activity. As an alliance, CSPA represents over a thousand members that reside in California. Many CSPA members fish in the Yuba River and its watershed and enjoy other recreational activities in its environs. CSPA has played a leading role in the relicensing of the Yuba-Bear and Drum-Spaulding projects.

Trout Unlimited (TU) is the nation's oldest and largest coldwater fisheries conservation organization. TU is a non-profit corporation organized under the laws of the state of Michigan. Its national office is in Arlington, Virginia, and it maintains California offices in Berkeley, Salinas, Fort Bragg, and Truckee. TU has more than 140,000 members nationwide and is dedicated to protecting, conserving, and restoring North America's trout and salmon resources. TU has more than 10,000 members in California. TU has been an active participant in the relicensing of the Yuba-Bear and Drum-Spaulding projects.

II.
BACKGROUND

A. Yuba-Bear and Drum-Spaulding Projects Affect Coldwater Habitat.

1. Description of Projects

NID's Yuba-Bear Project and PG&E's Drum-Spaulding Project are primarily located on the South Yuba River and Bear River basins.[1] "In addition, some Yuba-Bear Hydroelectric Project facilities are located in the Middle Yuba River basin, and some Drum-Spaulding Project facilities are located in the North Fork of the American River and Sacramento River basins."[2]

The Yuba-Bear Project consists of four developments: Bowman, Dutch Flat, Chicago Park, and Rollins. NID operates the Yuba-Bear Project in coordination with PG&E's Drum-Spaulding Project to generate power with water that is managed principally for water supply.[3]

The Drum-Spaulding Project is comprised of a complex system of ten developments.[4] PG&E operates the project's largest reservoirs for storage of rain and snowmelt during the spring and summer months, and then slowly draws the reservoirs down through summer and fall month for power generation, irrigation, and domestic consumption purposes.[5] PG&E delivers most of

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1 *See* "PG&E's Final License Application (FLA)," eLibrary no. 20110412-5005 *et seq*., Ex. E, p. E2-1.
2 *Id.*
3 "NID FLA," eLibrary no. 20110415-5017, p. B-34.
4 *See* PG&E FLA, p. B-2.
5 *See id.*, p. E6.2-8.

the water that is stored by the project to NID and to Placer County Water Agency (PCWA) pursuant to water purchase contracts.[6]

Together, the Projects export a combined average of over 400,000 acre-feet per year (afy) from the Middle and South Yuba watersheds for use in the Projects' hydropower system on the Bear River. NID's Yuba-Bear Project alone diverts an average of 60,000 afy from Middle Yuba into the Milton Bowman Tunnel, which conveys the water to Spaulding Reservoir and the Bear River hydropower facilities.

The Projects' water supply and power operations cumulatively affect aquatic resources in the South Yuba River downstream of the confluence with Canyon Creek:

> Under existing conditions, a transitional fishery, driven primarily by stream temperature, exists in the lower section of the river. Rainbow trout are relatively abundant in the upper portions of the river below Canyon Creek, but transition to warm water species in the lower reaches as water warms.[7]

The projects do not directly block fish passage to the upper Yuba River. The U.S. Army Corps of Engineers' (Corps) Englebright Dam at river mile 24 of the mainstem Yuba River presently is the terminal barrier to fish passage.

2. Project Relicensings

On May 22, 2008, OEP Staff issued Scoping Document 1 (SD1) for the relicensing of both the Drum-Spaulding and the Yuba-Bear projects.[8]

On August 11, 2008, Movants submitted comments on SD1.[9] Movants stated:

> Currently, only four of 19 populations of Central Valley Spring-run Chinook remain and NMFS has identified the Yuba as a primary recovery opportunity. Accordingly, the EIS should analyze the Projects' effects and alternatives for "reasonable and feasible" salmon recovery in the Upper Yuba during the term of the Projects' licenses. There are a number of studies and efforts that point to the reasonable and feasible recovery of salmon to the Upper South and Middle Yuba. These should be addressed in the EIS.[10]

Scoping Document 2 noted, but did not respond to this comment.[11]

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6 *See* PG&E FLA, p. E3-4. One of the contracts is set to expire in 2013. *Id.*

7 PG&E FLA, p. E6.3-312.

8 *See* eLibrary no. 20080522-3011.

9 *See* eLibrary no. 20080811-5122. Filings in this coordinated proceeding by Movants have been made as part of the Foothills Water Network (FWN) coalition of non-governmental organizations. Movants have signed each of these coalition filings individually in addition to signing as part of the FWN coalition. FWN is not a Movant.

10 *Id.*, p. 10.

11 *See* "Scoping Document 2," eLibrary no. 20081006-3034.

On January 23, 2009, PG&E[12] and NID[13] filed separate Revised Study Plans for their respective projects. Despite comments and requests from the Resource Agencies and FWN[14] in response to the Proposed Study Plans, the Revised Study Plans did not include studies to inform reintroduction of anadromous fish to project-affected waters or habitat for anadromous fish in project-affected waters.

On February 19, 2009, PG&E filed modifications to its Revised Study Plan pursuant to an agreement reached with relicensing participants.[15] The agreement did not include the Anadromous Fish Ecosystems Effects study[16] requested by the National Marine Fisheries Service (NMFS). The Licensees declined to undertake this study because they claimed there was inadequate nexus between the requested study and the Projects. NID stated that "NMFS has provided no information to support its conclusion that 'existing information demonstrates that the habitats in the Middle, South and North Yuba River are suitable for the reintroduction of anadromous fish' nor is Licensee aware of imminent plans by NMFS to do so.'"[17] None of the 34 studies agreed to by relicensing participants analyzes habitat conditions specifically for anadromous fish.

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[12] eLibrary no. 20090123-5108.

[13] eLibrary no. 20090123-5109.

[14] *See* eLibrary no. 20081224-5011, p. 11. Spring-run Chinook require colder water for summer holding and for spawning and incubation than do *O. Mykiss* with an anadromous life history (steelhead) or with a resident life-history (rainbow trout). The different species also prefer different habitat types and utilize different sizes of spawning gravel.

[15] eLibrary no. 2009019-5054. Thirty-four of the thirty-five studies applied to both the Drum-Spaulding and Yuba-Bear projects.

[16] The objectives of the proposed study were to:

> 1) determine the volume of water diverted by the projects in the Yuba River, Bear River, or eastern Placer County stream basins occupied by ESA-listed anadromous fishes, designated as critical habitat under the ESA, or as essential fish habitat (EFH) under the Magnuson-Stevens Act (MSA), and determine the effects of those diversions or additions on those resources; 2) assess the incremental degree of hydrologic effect of current project operation on stream flows that would occur absent the project; 3) develop a hydrological model to determine the incremental degree of hydrological effect of simulated project operation scenarios on flow volumes, timing, magnitudes, and rate of change in streams where ESA-listed or ESA/MSA designated habitat exists; 4) determine the effects of project-caused hydrologic changes on anadromous fish related habitat availability applying quantitative flow versus habitat area models, either existing or feasibly developed; 5) develop the ability to determine the incremental effects of simulated project flow scenarios on anadromous fish habitat availability, including holding, spawning, incubation/emergence, fry/juvenile rearing, and fry/juvenile outmigration for spring- and fall-run Chinook and steelhead/rainbow trout; 6) determine the effects of existing project-caused hydrologic alterations, water storage and simulated flow scenarios on stream water temperatures and mitigation capabilities; and 7) assess the effects of project-caused hydrologic alterations and simulated project flow scenarios on forage productivity in the Yuba and Bear river basins and western Placer County streams.

See "Study Plan Determination," eLibrary no. 20090223-3023, p. 22.

[17] NID Revised Study Plan, Attachment 3A, p. 339.

On February 23, 2009, the OEP Director issued the Study Plan Determination.[18] The Director declined to require the Anadromous Fish Ecosystems Effects study based on Licensees' rationale that there was inadequate nexus between the requested study and the Projects.[19]

On July 23, 2010, following PG&E's[20] and NID's[21] Initial Study Reports, the Commission issued its Determination on Requests for Modifications to Study Plan.[22] The Determination did not require any study related to anadromous fish.

On November 3, 2010, PG&E filed its Draft License Application (DLA). On November 8, 2010, NID filed its DLA. Neither application proposed measures to address the potential for reintroduction of anadromous fish to the Yuba River above Englebright Dam.

On April 12, 2011, PG&E filed its FLA.[23] NID filed its FLA on April 15, 2011.[24] Neither application proposed any measures to address the potential for reintroduction of anadromous fish to the Yuba River above Englebright Dam.

On February 29 and January 19, 2012 respectively, OEP Staff accepted PG&E's FLA[25] and NID's FLA[26] and issued Notices of Readiness for Environmental Analysis (NREA).

On June 18, 2012, PG&E[27] and NID[28] separately filed Amended FLAs. Neither proposed measures to address the potential for reintroduction of anadromous fish to the Yuba River above Englebright Dam.

On July 29, 2012, the Department of the Interior filed Comments, Preliminary 4(e) Conditions, and 10(a) Recommendations on behalf of the Bureau of Land Management (BLM) and the Bureau of Reclamation (BOR); and Comments, 10(a) Recommendations, and a reservation of authority under FPA Section 18 on behalf of the U.S. Fish and Wildlife Service (USFWS) for the Yuba-Bear and Drum-Spaulding Projects.[29] BLM, BOR and USFWS reserved their authority to modify their conditions in the event of reintroduction.[30]

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18 *See* eLibrary no. 20090223-3023.
19 *See id.* at 22.
20 eLibrary no. 20100317-5039.
21 eLibrary no. 20100317-5040.
22 eLibrary no. 20100723-3033.
23 eLibrary no. 20110412-5005 *et seq.*
24 eLibrary no. 20110415-5018 *et seq.*
25 eLibrary no. 20120229-3048.
26 eLibrary no. 20120119-3065.
27 eLibrary no. 20120618-5022.
28 eLibrary no. 20120618-5134.
29 eLibrary no. 20120802-5122.
30 eLibrary no. 20120802-5152, Enclosure A, p. 12; eLibrary no. 20120802-5122, Enclosure A, p. 10. The BLM Condition states: "The BLM, as appropriate, reserves the right to modify these conditions to respond to any Chinook salmon or steelhead trout listed under the Endangered Species Act to stream reaches through BLM lands where the flow is controlled by this Commission licensed facility."

On July 30, 2012, the California Department of Fish and Wildlife (CDFW) filed Section 10(j) and 10(a) recommendations for each project.[31] CDFW recommended flow measures to enhance cold water availability for fisheries in the South Yuba and Middle Yuba Rivers.

On July 31, 2012, FWN filed NREA comments for both projects.[32] FWN's flow recommendations for the South Yuba and Middle Yuba Rivers are effectively identical to those recommended by CDFW.

On July 31, 2012, NMFS filed "Comments, Motion to Intervene, Reservation of Federal Power Act Fishway Prescription Authority, and Preliminary Protection, Mitigation, and Enhancement Measures for the Yuba-Bear Hydroelectric Project (P-2266) and the Drum-Spaulding Hydroelectric Project (P-2310)."[33] NMFS recommended flow measures to support reintroduction of spring-run Chinook and steelhead into the South Yuba and Middle Yuba Rivers.

On July 31, 2012, the U.S. Forest Service (Forest Service) filed its Preliminary 4(e) Terms and Conditions and its 10(a) Recommendations for the Drum-Spaulding Project.[34] It filed preliminary terms and conditions and recommendations for the Yuba Bear Project a few days later.[35] The conditions included a "supplemental flow" condition for the benefit of existing aquatic species in the South Yuba River. The Forest Service also reserved its authority to modify the prescriptions for both projects in the event of reintroduction.[36]

On August 24, 2012, the Forest Service filed Revised Preliminary Terms and Conditions Section 4(e) and Revised Recommendations under Section 10(a) for both projects.[37] The revised 4(e) conditions for the Drum-Spaulding Project included a revised "supplemental flow" condition for the benefit of existing aquatic species South Yuba River. This revised condition reduced the reliability of the delivery of cold water to the South Yuba during the summer, compared to the initial Preliminary 4(e) conditions. Neither Licensee has contested the revised flow condition for the South Yuba River. However, NID subsequently objected to Forest Service and Interior's reservations of authority to address Chinook salmon and steelhead trout.

On August 30, 2012, FWN filed Alternative Conditions for both projects with the Forest Service.[38] FWN requested consideration of its own and CDFW's recommended flows to cool summer water temperatures in the South Yuba and Middle Yuba Rivers. FWN submitted

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31 eLibrary nos. 20120730-5174, 20120730-5181.

32 eLibrary no. 20120731-5132.

33 eLibrary no. 20120731-5212.

34 eLibrary no. 20120731-5114.

35 eLibrary no. 20120824-5006.

36 eLibrary no. 20120731-5114, p. 32, 20120824-5006, p. 31. "FS reserves the right to modify these conditions to respond to any Chinook salmon or steelhead trout listed under the Endangered Species Act to stream reaches through NFS lands where the flow is controlled by this Commission licensed facility." *Id.*

37 eLibrary nos. 20120824-5005 (Drum-Spaulding), 20120824-5006 (Yuba-Bear).

38 eLibrary nos. 20120831-5132 (Drum-Spaulding), 20120831-5126 (Yuba-Bear).

modeling results that showed no negative impact to power generation and virtually no impact to PCWA or NID water supply as a result of its proposed measures, when compared to the Forest Service's proposed flows.

On September 14, 2012, PG&E replied to comments, terms, and conditions filed in the Drum-Spaulding docket.[39] PG&E objected that reintroduction of anadromous fish to the South Yuba River is not reasonably foreseeable.[40] PG&E stated that FERC should wait to analyze the environmental impacts of relicensing on anadromous fish until details of reintroduction are known.[41] Notwithstanding its objection, PG&E submitted modeling results that analyze the impacts of NMFS's flow alternatives for the South Yuba River, Middle Yuba River, and Canyon Creek on power generation and water supply.[42]

On September 14, 2012, NID replied to comments, terms, and conditions filed in the Yuba-Bear docket.[43] NID restated its objection that reintroduction of anadromous fish is not reasonably foreseeable,[44] is uncertain, and so should not be analyzed until a specific project is known.[45] Notwithstanding its objection, NID also submitted modeling results that analyze the impacts of NMFS's flow alternatives for the South Yuba River, Middle Yuba River, and Canyon Creek on power generation and water supply[46]

On September 14, 2012, PCWA replied to NMFS's preliminary terms and conditions and other recommendations.[47] PCWA objected that NMFS's 10(j) recommendations were inappropriate because reintroduction was not "imminent."[48] PCWA submitted modeling results that show the effects of NMFS' flow alternative as compared to existing conditions. However, PCWA did not model the effects of NMFS's flow alternative as compared to Forest Service's alternative.

On September 12, 2012, FWN replied to comments, terms and conditions, and alternative conditions filed in both dockets.[49] FWN objected to NID's proposal to eliminate conditions relating to reintroduction of anadromous fish. FWN argued that reintroduction of anadromous fish to the South Yuba and Middle Yuba Rivers is reasonably foreseeable, and that the Commission must analyze project effects on anadromous fish habitat in these rivers and the effects of reintroducing anadromous fish into these rivers.

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39 eLibrary no. 20120914-5126.
40 *Id*. at 23.
41 *Id.* at 34-35.
42 *Id.* at 35-47.
43 eLibrary no. 20120914-5152.
44 *Id*. at 26-28.
45 *Id.* at 30, including footnote 54.
46 *Id*. at 32-43.
47 eLibrary no. 20120914-5057.
48 *Id.* at 144.
49 eLibrary nos. 20120912-5217 (Yuba-Bear), 20120912-5224 (Drum-Spaulding).

On May 17, 2013, the Commission issued the DEIS for the Drum-Spaulding and Yuba-Bear Projects.[50] The DEIS does not analyze the Projects' effects on habitat for anadromous fish in the Upper Yuba River. Instead it concludes that reintroduction of anadromous fish is not imminent and that any recommendation to protect them is "premature because it depends upon future reintroduction of anadromous fish that may never occur."[51]

On May 31, 2013, PG&E, on behalf of itself, four resource agencies, PCWA, and FWN filed a request for a two-month extension of the comment period for the DEIS.[52] PG&E provided several grounds for this request, including opportunity for relicensing participants to discuss the DEIS, to provide meaningful comments on multiple projects, and to reach further collaborative agreement. The Forest Service made a similar request in the Yuba-Bear docket by letter dated June 17, 2013.[53]

On May 31, 2013, PG&E filed a "Non-Material License Application Amendment Requesting the Issuance of a Separate License for the Lower Drum Developments."[54]

On June 20, 2013, the Commission sent letter of inconsistency under FPA section 10(j) to CDFW under the Drum-Spaulding and Yuba-Bear dockets, and to NMFS under the Drum-Spaulding docket.[55]

B. Access to coldwater habitat is a limiting factor for anadromous fish in the Yuba River.

We describe below the status of anadromous fish that were likely present in project waters, along with pending efforts to protect them.

The Sacramento River Basin, in which the Yuba River watershed is located, formerly sustained large salmon runs. Due to changes to the natural hydrograph and habitat degradation, NMFS has listed several species as endangered or threatened under the federal Endangered Species Act (ESA).[56] On September 16, 1999, NMFS listed the Central Valley evolutionary significant unit (ESU) of spring-run Chinook salmon as threatened.[57] Critical habitat was designated for Central Valley spring-run Chinook salmon on September 2, 2005.[58] It includes stream reaches on the Yuba River. NMFS listed the Central Valley steelhead Distinct Population

50 eLibrary nos. 20130517-3010, 20130517-4001.
51 *Id.* at 623-25, 687-89.
52 eLibrary no. 20130531-5277.
53 eLibrary no. 20130619-5058.
54 eLibrary no. 20130531-5303.
55 eLibrary nos. 20130620-3007, 20130620-3009, 20130620-3006.
56 NMFS, Final Rule, 59 Fed. Reg. 440 (Jan. 4, 1994).
57 NMFS, Final Rule, 64 Fed. Reg. 50394 (Sept. 16, 1999).
58 NMFS, Final Rule, 70 Fed. Reg. 52488 (Sept. 2, 2005).

Segment as threatened on January 5, 2006.[59] Critical habitat was designated for steelhead on September 2, 2005 and includes stream reaches on the Yuba River.[60]

In addition to their formal listing under the ESA, a recent study found that "[a]ll California populations [of anadromous fish] are being adversely impacted by the shrinking availability of coldwater habitats."[61] "The majority of salmonid species [in California] are declining rapidly and, if present trends continue, 78% … are likely to be extirpated from the state in coming decades."[62] "Depending on the rate at which climate change and human impacts continue to alter California's aquatic environments, it is possible that a majority of California's endemic salmon, trout and steelhead could follow coho salmon to extinction within 50 to 100 years."[63] To take Chinook salmon as an example:

> Historically, there were 18 or 19 viable independent populations of spring-run Chinook salmon in the Central Valley, with 11 of those populations occurring in the Northern Sierra Nevada Diversity Group, including the Yuba River population that historically spawned at elevations higher than 500m (Lindley et al. 2004). Currently, there is only 1 viable independent spring-run Chinook salmon population (Butte Creek) in the Central Valley.[64]

NMFS stated, "[i]t is clear that more viable independent populations of spring-run Chinook salmon are needed to recover that species."[65] In addition, a recent scientific evaluation concluded that the risk of extinction for salmon and steelhead threatened ESUs cannot be reduced without providing access to historical habitats, and cited "restoring access to the Yuba River above Englebright Dam" as a single example for reintroduction.[66]

Blockage of access to historic coldwater habitat is a factor in these species' dramatic decline:

> Numerous water development projects blocked the upstream migration of Chinook salmon and steelhead, and altered flow and water temperature regimes downstream from terminal dams. An extensive network of reservoirs and aqueducts has been developed

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59 NMFS, Final Rule, 71 Fed. Reg. 834 (Jan. 5, 2006).

60 NMFS, Final Rule, 70 Fed. Reg. 52488 (Feb. 16, 2000).

61 Jacob Katz, Peter Moyle et al., *Impending extinction of salmon, steelhead, and trout (Salmonidae) in California*, ENVT. BIOLOGY OF FISHES (Jan. 31, 2012), p. 8.

62 *Id.* at 6.

63 *Id.* at 7.

64 *See* S.T. Lindley et al., *Population Structure of Threatened and Endangered Chinook Salmon ESUs in California's Central Valley Basin.*, NOAA Technical Memorandum (2004).

65 "NMFS, Biological Opinion for the Corps' operation and maintenance of Englebright and Daguerre Point dams and Englebright Reservoir on the Yuba River," (Englebright BiOp) (Feb. 29, 2012), eLibrary no. 20120727-5014, p. 5.

66 *See* S.T. Lindley et al., *Framework for Assessing Viability of Threatened and Endangered Chinook Salmon and Steelhead in the Sacramento-San Joaquin Basin*, SAN FRANCISCO ESTUARY & WATERSHED SCIENCE, Volume 5, Issue 1(Feb. 20, 2007).

> throughout much of California to provide water to major urban and agricultural areas. The largest system of surface reservoirs and aqueducts in California is in the Central Valley ….
>
> It has been estimated that 1,126 miles of main stream lengths presently remain of the more than 2,183 miles of Central Valley streams that were originally available to Chinook salmon –indicating an overall loss of at least 1,057 miles (48 percent) of the original total (Yoshiyama *et al.* 2001) ….[67]

As stated above, the Corps' Englebright dam currently blocks passage of spring-run Chinook and steelhead to habitat in the Upper Yuba River, including project waters.

1. <u>NMFS Issued a Biological Opinion for Daguerre Point and Englebright Dams that Determined Restoration of Passage is Essential to the Recovery of these Salmonids</u>.

On February 29, 2012, NMFS issued the Final Biological Opinion for the Corps' operation and maintenance of Englebright and Daguerre Point dams and Englebright Reservoir on the Yuba River (BiOp).[68] The BiOp concludes that the continued operation and maintenance of Englebright and Daguerre Point dams and Englebright Reservoir on the Yuba River are likely to jeopardize the continued existence of federally listed Threatened Central Valley spring-run Chinook salmon, threatened Central Valley steelhead, and threatened North American green sturgeon.

NMFS found that fish passage above Englebright Dam was essential to the recovery of the affected salmonids. [69] It required the Corps to undertake a step-wise approach to achieving a permanent solution to effectively reintroduce fish to the upper Yuba River by January 31, 2020.[70]

The Yuba County Water Agency (YCWA) filed for judicial review of the BiOp on January 9, 2013.[71] The complaint stated that YCWA was aggrieved in part because the BiOp interferes with YCWA's investments in habitat improvements for anadromous fish on the Yuba River:

> YCWA has made substantial investments to evaluate and improve existing habitat for fish in the Yuba River (e.g. the Yuba Accord, River Management Team science, and Feather and Bear River setback levees) as well as to evaluate potential habitat expansion (e.g. Yuba Salmon Forum, Upper Yuba Studies Group, and North Yuba Reintroduction Initiative). Thus, in addition to YCWA's direct economic interests that are impacted by

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67 Draft Recovery Plan, p. 3, *Available at* http://swr.nmfs.noaa.gov/recovery/cent_val/Public_Draft_Recovery_Plan.pdf.

68 *See* Englebright BiOp (Feb. 29, 2012), p. 1.

69 *Id.* at 220.

70 *Id.* at 231.

71 Yuba County Water Agency's Complaint for Declarative and Injunctive Relief, *available at* http://www.ycwa.com/res/docs/04-Complaint.pdf.

> the 2012 BiOp, the 2012 BiOp and RPA also irreparably harm YCWA's continued efforts and investments in improving habitat on the Yuba River.[72]

YCWA has further elaborated:

> Unfortunately, the 2012 BiOp's recommended fish passage programs would prevent YCWA and others in the watershed from playing a meaningful role in developing a collaborative science-based approach for planning salmonid recovery actions in the watershed, including possible reintroduction in the Upper Yuba River.[73]

In addition to the litigation brought by YCWA, the South Yuba River Citizens League and Friends of the River have filed a separate suit seeking to enforce the BiOp.[74]

2. Licensees and Stakeholders Are Working on Strategies to Reintroduce Anadromous Fish to the Middle and South Yuba Rivers.

There are ongoing, collaborative efforts aimed at evaluating science-based strategies to reintroduce salmonids to the Middle and South Yuba Rivers. As described below, these efforts and a prolonged earlier effort have produced essential information regarding upstream fish passage engineering alternatives, habitat suitability, and the feasibility of potential reintroduction strategies.

a. Yuba Salmon Forum

The Yuba Salmon Forum is a multi-party forum comprised of State and Federal agencies, water and power purveyors, and environmental groups collaborating to develop science-based measures to conserve salmonids in the Yuba River watershed. OEP Staff has supported the Forum's efforts and has attended some of the meetings of its plenary.

The Yuba Salmon Forum has worked to identify suitable habitat for salmonids both upstream and downstream of Englebright Dam. It has also evaluated the feasibility of fish passage at Englebright Dam.

The Forum has produced several Habitat Reports and has developed Habitat Matrices that quantify salmonid habitat in the South Yuba River, Middle Yuba River, North Yuba River upstream of New Bullards Bar Dam, the reach of the North Yuba River and Main Yuba River between New Bullards Bar Dam and Englebright Reservoir, and the lower Yuba River

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[72] *Id*. at ¶ 41, p. 12.

[73] "Frequently Asked Questions The National Marine Fisheries Service 2012 Biological Opinion on the U.S. Army Corps of Engineers Daguerre Point Dam and Englebright Dam (FAQ January 9, 2013)," YCWA, p. 6, *available at* http://www.ycwa.com/res/docs/02-FAQ.pdf.

[74] *South Yuba River Citizens League, et al. v. NMFS, et al.*, Case No.: 2:13-CV-00059-MCE-EFB.

downstream of Englebright Dam.[75] The matrices are based on such metrics as the number of thermally suitable river miles of over-summer holding habitat for spring-run Chinook salmon, number of holding pools within those river miles, amount of available spawning gravel, and amount of juvenile rearing habitat.[76] The Forum members will use the Habitat Reports, along with other reports that analyze fiscal and legal constraints, to identify and prioritize the feasible recovery actions in the Yuba River watershed. The Forum members have committed "to seek to achieve implementation" of the recommended actions.[77]

b. 2007 Upper Yuba River Watershed Chinook Salmon and Steelhead Habitat Assessment

The Upper Yuba River Studies Program (UYRSP) was a joint Federal and State investment aimed at determining the feasibility of re-introducing salmon and steelhead into the South and Middle Yuba Rivers. The Upper Yuba River Studies Program Study Team conducted an in-depth analysis of the ability of existing and enhanced (50 cfs) flows to support steelhead and Chinook salmon in the South and Middle Yuba Rivers. The analysis produced habitat assessment reports that indicate the upper Middle Yuba River could support substantial populations of spring-run Chinook salmon and steelhead with a reasonable increase in flow.[78] In addition, the U.S. Geological Survey (USGS) characterized the sediment behind Englebright Dam. This information will be useful to develop plans for remediation and sediment removal if the dam is modified to provide for passage.

3. Fish Passage May Be Required in the Yuba River Development Project FERC Relicensing.

The Yuba River Development Project (P-2246) is currently in the pre-application phase of relicensing. Although the Yuba River Project is related to current proceedings, and contributes to the cumulative impact on fish in the Yuba River, the process has not been timed to coincide with the YBDS relicensing. FWN and NMFS allege that the new license should be conditioned on fish passage at Englebright. FWN alleges that the basis for such a condition is that the project relies on Englebright reservoir as an afterbay for one powerhouse and a forebay for a second powerhouse.[79] In addition, both FWN and NMFS have alleged that it is appropriate

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[75] We provide a declaration by Chris Shutes explaining the draft habitat matrices as Attachment 1, and the matrices as Attachment 2. The draft Habitat Matrices were distributed to the Yuba Salmon Forum Technical Working Group on June 20, 2013. We have not altered the substance of the matrices, but have altered some of the non-substantive properties of the electronic file.

[76] *See* Attachments 1, 2.

[77] *See* Yuba Salmon Forum Charter, February 3, 2011, p. 1.

[78] *See* "Upper Yuba River Watershed Chinook Salmon and Steelhead Habitat Assessment," *available at* http://www.water.ca.gov/fishpassage/docs/yuba/yuba_salmon.pdf. The appendices are particularly well-documented. A fundamental calibration error in the UYRSP temperature model for the South Yuba River led to a disputed analysis for the South Yuba.

[79] *See* "Comments of FWN on Proposed Study Plan," eLibrary no. 20110718-5013, pp. 4-13.

to evaluate fish passage at Englebright Reservoir as a potential mitigation and enhancement measure.[80] This issue is still pending. The new license is due to be issued in 2016.

4. NMFS Has Independently Evaluated Strategies to Reintroduce Anadromous Fish to the Upper Yuba River Watershed.

a. NMFS Draft Recovery Plan

In 2009 NMFS published the "Public Draft Recovery Plan for the Evolutionarily Significant Units of Sacramento River Winter-Run Chinook Salmon and Central Valley Spring-Run Chinook Salmon, and the Distinct Population Segment of Central Valley Steelhead" (Draft Recovery Plan).[81] The Draft Recovery Plan included an extensive analysis of the status of these species and addressed aspects of habitat condition in the Yuba River watershed. Specifically, the plan lists the Upper Yuba River watershed as a "Priority Area for Reintroduction" of spring-run Chinook salmon. The Plan states:

> The upper Yuba River has long been recognized for offering perhaps the best opportunity to create a viable population in the Northern Sierra Diversity Group, that is wholly separate from other populations and many of the catastrophic risk factors other populations face. Several initiatives are underway to develop engineering alternatives to allow upstream passage, develop reintroduction plans, and collaborate with watershed stakeholders to develop a reintroduction strategy.[82]

The Recovery Plan identifies the following goals for the Yuba River:

> **1.9.6 YUBA RIVER**
> **1.9.6.1** Develop and implement a phased approach to salmon reintroduction planning to recolonize historic habitats above Englebright Dam. Implement actions to: (1) enhance habitat conditions including providing flows and suitable water temperatures for successful upstream and downstream passage, holding, spawning and rearing; and (2) improve access within the area above Englebright Dam, including increasing minimum flows, providing passage at Our House, New Bullards Bar, and Log Cabin dams, and assessing feasibility of passage improvement at natural barriers. The phased approach should include:
>
> - Conduct feasibility studies
> - Conduct habitat evaluations
> - Conduct 3-5 year pilot testing program
> - Implement long-term fish passage

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[80] *Id. See also* "NMFS comments on scoping for the Yuba River Development Project," eLibrary no. 20110307-5180, enclosure E.

[81] Draft Recovery Plan.

[82] *See* Draft Recovery Plan, p. 215.

1.9.6.2 Improve spawning habitat in the lower river by gravel restoration program below Englebright Dam and improve rearing habitat by increasing floodplain habitat availability.[83]

NMFS expects to finalize the plan in 2013. Once finalized, NMFS will use the plan to formulate requirements and recommendations for reintroduction and to support other recovery strategies.[84]

[83] *Id.*, p. 161.
[84] *See id.*

b. Englebright Dam Fish Passage Studies and Designs

NMFS commissioned a report on fish passage at Englebright Reservoir in February 2010. The report by the engineering firm Montgomery Watson Harza analyzed several fish passage options for Englebright Reservoir and provided preliminary cost estimates.[85] The production of this report stimulated interest in the broader collaborative evaluations currently underway in the Yuba Salmon Forum.

c. 2011 Stillwater Sciences Draft Habitat Capacity Modeling in the Upper Yuba River Watershed

NMFS funded a study to model the anadromous fish habitat capacity of the Upper Yuba watershed, which resulted in the report, "Modeling habitat capacity and population productivity for spring-run Chinook salmon and steelhead in the Upper Yuba River watershed" (Stillwater Sciences 2012).[86] The report concluded that under moderately enhanced flow conditions (as compared to existing flow requirements) there is some habitat for spring-run Chinook salmon in the South Yuba River and substantial habitat for spring-run Chinook salmon in the Middle Yuba River. The model output from the draft technical report provides a metric of the population potential of historical habitat blocked by Englebright and New Bullards Bar dams.

III. ARGUMENT

Information in the record shows that the Projects have direct, indirect, and cumulative effects on habitat for anadromous fish in the Upper Yuba River. As stated below, reintroduction of anadromous fish into project waters is reasonably foreseeable during the term of the new license. However, there is insufficient information in the record for Staff to make findings in the EIS regarding the full extent of project effects on anadromous fish habitat and the feasibility of any alternatives measures to mitigate those effects. As a result, the Commission cannot support a determination that the proposed new licenses will be best adapted to a comprehensive plan of development as required by Federal Power Act (FPA) section 10(a)(1).[87]

Prior to issuing the new licenses the Commission must undertake a thorough study of alternatives to ensure that the alternative it selects is indeed best adapted.[88] The Commission must ensure that the record is complete for purposes of the evaluating alternatives and contains

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[85] S*ee* "Yuba River Fish Passage: Conceptual Engineering Project Options," Montgomery Watson Harza (Feb. 2010), eLibrary no. 20120731-5222.

[86] *See* "Modeling habitat capacity and population productivity for spring-run Chinook salmon and steelhead in the Upper Yuba River watershed," Stillwater Sciences (Feb. 2012), eLibrary no. 20120731-5222. NMFS released a second version of the Stillwater Technical Report on June 6, 2013, which incorporated numerous improvements based on comments and responses from its first report.

[87] 16 U.S.C. § 803(a)(1); *see also Scenic Hudson Preservation Conf. v. FPC*, 354 F.2d 608, 612-13 (2d. Cir. 1965) (*Scenic Hudson*).

[88] *Scenic Hudson*, 354 F.2d at 612.

substantial evidence to support the Commission's findings.[89] The Commission has not done so here.

The DEIS does not even show that the Commission has complied with its procedural obligation under NEPA to take a "hard look" at the environmental consequences of its proposed action.[90] Under NEPA, FERC is required to prepare a supplement to an EIS if "[t]here are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts."[91] FERC "[m]ay also prepare supplements when the agency determines that the purposes of [NEPA] will be furthered by doing so."[92] FERC should prepare a supplement here because the DEIS did not consider information that shows the proposed new licenses will affect the environment, namely anadromous fish and their habitat, to a significant extent not already considered.[93]

The Commission should direct OEP Staff to obtain additional information and provide a full and complete analysis of project effects, mitigation measures, and reasonable alternatives, in a supplement to the DEIS. It should not further delay the recovery of listed salmonids by failing to evaluate the Projects' effects on anadromous fish habitat as part of the relicensing proceedings.

A. <u>The Commission Must Ensure that the New Licenses Are Best Adapted to a Comprehensive Plan of Development for all Beneficial Uses</u>.

The DEIS does not consider whether the proposed new licenses will be best adapted for anadromous fish in the Yuba River. This is wrong because the Commission must assure that the new licenses balance power and non-power uses like fish and wildlife in a manner that best serves the public interest in these waters. Anadromous fish, while not currently present in project waters, are nonetheless an important resource for the Yuba watershed and so must be considered prior to license issuance.

FPA section 10(a)(1) requires that a project must be "best adapted to a comprehensive plan for improving or developing a waterway or waterways" for beneficial uses, including power generation and environmental quality.

> A license under the Act empowers the licensee to construct, for its own use and benefit, hydroelectric projects utilizing the flow of navigable waters and thus, in effect, to appropriate water resources from the public domain. The grant of authority to the Commission to alienate federal water resources does not, of course, turn simply on whether the project will be beneficial to the licensee. Nor is the test solely whether the region will be able to use the additional power. *The test is whether the project will be in the public interest. And that determination can be made only after an exploration of all*

89 *Id.*; 16 U.S.C. § 825*l*(b).
90 *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 390 (1989) (*Robertson*).
91 40 C.F.R. § 1509(c)(1)(ii).
92 40 C.F.R. § 1509(c)(2).
93 *See Marsh v. Oregon Natural Resources Council*, 490 U.S. 360, 374 (1989).

> *issues relevant to the 'public interest,' including* future power demand and supply, alternate sources of power, the public interest in preserving reaches of wild rivers and wilderness areas, *the preservation of anadromous fish for commercial and recreational purposes,* and the protection of wildlife.[94]

Section 10(a)(1) gives the Commission "sweeping authority and a specific planning responsibility, ... instead of piecemeal, restrictive, negative approach of ... federal laws previously enacted.[95] The Commission must not only consider the stretch of river directly affected by the project, but must consider the potential impacts in a watershed context. This is consistent with guidance that has been issued by other Federal agencies.[96] The Commission must also consider effects over time: "[t]he totality of a project's immediate *and long-range effects* … are to be considered in a licensing proceeding."[97]

The Commission's duty to analyze the impacts to anadromous fish habitat and the impacts of reintroduction is not limited to existing conditions; rather, the Commission must consider future conditions over the 30- to 50-year term of the new licenses. As stated in the Draft Recovery Plan and shown by the multi-year collaborative processes like the Yuba Salmon Forum, the reintroduction of listed anadromous fish to the North, Middle, and South Yuba Rivers has been prioritized by the federal government, state agencies, and other stakeholders active in these watersheds. Given this interest, the Commission cannot determine that the Projects are best adapted to a comprehensive plan of development with respect to fish resources without addressing anadromous fish.

A "plan" by definition refers to a proposed future course of action. A plan can exist even if the implementation timeline for anticipated actions is uncertain or details are undecided. The Commission's definition of a comprehensive plan for purposes of Section 10(a)(2) recognizes this by requiring that the plan, among other things, include a description of the significant resources of the waterway, a description of the various existing and *planned* uses for these resources, and a discussion of goals, objectives, and recommendations for improving, developing, or conserving the waterway in relation to these resources.[98]

Some relicensing participants have argued incorrectly that a comprehensive plan can only apply to conditions that are imminent or that can be immediately measured or quantified.[99] This argument undermines the benefits of planning. It is a disservice to licensees as well as to other stakeholders to view the next 30 to 50 years as though conditions will not change; the only

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94 *Udall v. FPC*, 387 U.S. 428, 450 (1967) (emphasis added).

95 *Scenic Hudson,* 354 F.2d at 613-14.

96 *See, e.g.*, "Unified Federal Policy for a Watershed Approach to Federal Land and Resource Management," 65 Fed. Reg. 62565 (Oct. 18, 2000).

97 *Scenic Hudson,* 354 F.2d at 620 (emphasis added).

98 Commission Order No. 481-A, revising Order No. 481 (April 27, 1988).

99 *See, e.g., "*PCWA reply comments," eLibrary no. 20120914-5057, Enclosure 2, p. 4. PCWA argues: "NMFS's Preliminary § 10(j) recommendations are inappropriate. They do not apply to any tangible, measurable, or imminent introduction of endangered and threatened fish species and therefore cannot be deemed consistent with the FPA or with a comprehensive plan for the waterways in question." *Id.*

certainty this approach would provide to Licensees is that license terms inadequate to address changed conditions will be contested.

The exploration of issues relevant to the public interest must occur pre-license.[100] That is, the Commission must assure the *pre-licensing* record with regard to all relevant factors is adequate to support findings that the new license adequately mitigates the project's impacts on specific resources, and the legal conclusion that the new license is best suited to a comprehensive plan for developing the waterway for the term of the new license. Conversely, post-licensing study is not an adequate basis for the Commission's licensing decision.[101]

Reopener does not provide a comparable opportunity to relicensing to evaluate and mitigate the Projects' effects on anadromous fish. In *Confederated Tribes,* the court rejected the Commission's arguments that deferring fishery issues for post-licensing resolution would protect the fishery.[102] It also rejected the Commission's claims that a reopener or modification proceeding offered the same opportunity to protect fisheries as the relicensing proceeding:

> First, a modification proceeding is not the same as a relicensing proceeding. Subject to the requirement that its decision be in the public interest, the Commission has broad discretion to impose fish protection conditions when it issues a new license. Notwithstanding a reopener clause, FERC may not "amend" a license in a modification proceeding without the licensee's consent. 16 U.S.C. § 799. Plainly, therefore, the Commission's discretion is curtailed in a modification proceeding. Also, as a practical matter, the method used by FERC here removes the incentive for a speedy and efficient resolution of fishery issues. If these issues must be examined and resolved prior to licensing, the licensee has an incentive to submit all the required data as quickly as possible. The same incentive is not present in the procedure used here where fishery issues are deferred to the future. The licensee may very well attempt to forestall the imposition of protection measures because these might affect the project's power production. *See Environmental Defense Fund v. Andrus,* 596 F.2d 848, 853 (9th Cir. 1979).[103]

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100 *Confederated Tribes and Bands of Yakima Indian Nation v. FERC,* 746 F.2d 466 (9th Cir. 1984) (Confederated Tribes).

101 *LaFlamme v. FERC,* 852 F.2d 389 (9th Cir. 1988).

102 *Confederated Tribes, supra,* 746 F.2d at 472.

103 *Id.* at 473. PG&E previously has sought to distinguish these proceedings from the one at issue in *Confederated Tribes*. It says that in *Confederated Tribes* the Commission deferred consideration of *all* fishery issues until post-licensing, whereas here PG&E "has submitted extensive studies and analysis of existing information." *See* "PG&E reply comments," eLibrary no. 20120914-5126, p. 70. PG&E has submitted information that anadromous fish are currently not present in certain reaches affected by the project. However, PG&E has not submitted available information regarding anadromous fish *habitat* that exists in reaches affected by its project, and whether or not such habitat for anadromous fish is affected by the project.

Deferral of analysis until fish are actually in the South Yuba and Middle Yuba Rivers decreases the likelihood that license amendments will occur on a timetable that ensures adequate protection of these imperiled fish. The Commission has previously stated that it is under no obligation to reopen a license or issue a final decision regarding license amendment on a specific schedule.[104] It has stated that its discretion to amend the license is constrained by the FPA's requirement that mutual agreement must be reached with the licensees: "under section 6 of the FPA, licenses may be altered 'only upon mutual agreement between the licensee and the Commission after thirty days' public notice.'"[105] The Commission has effectively set a very high bar to reopen a proceeding by requiring extensive analysis regarding the harm that will befall the affected resource should revised measures not be imposed. Such a threshold is fundamentally different than the FPA's requirement that a new license as a whole must be best adapted to a comprehensive plan for the development of a waterway and balance public uses.

The Commission has previous stated that significant legal and procedural hurdles may delay or prevent the initiation of a reopener proceeding and implementation of the outcome of such proceeding support analysis of project effects on anadromous fish habitat as part of this relicensing.[106] Staff has not made any showing that analysis undertaken now could not be used as the basis for future management actions. To the contrary, information gathered now could be used to inform the Commission's future decisions regarding the scope of any reopener and further environmental analysis once the fish are present in project waters. If further analysis were deemed necessary in connection to a specific proposal for reintroduction, it would be limited to effects not previously considered.[107]

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104 *Turlock Irrigation Dist. and Modesto Irrigation Dist*., 140 FERC ¶ 61207 (Sept. 20, 2012). The Commission explained to NMFS why it had elected not to act to order interim flows in the Lower Tuolumne River, even though a targeted reopener provision in the Don Pedro license provided legal basis for so doing. The Commission affirmed that the decision whether to initiate a reopener is entirely within its discretion: "[t]he fact that the Commission suggested the possibility that interim measures may be needed in the future does not bind the Commission to imposing any measures." *Id.* at 7. In addition, the Commission indicated that there is no enforceable timeline for a reopener proceeding. The Commission explains in its order: "[w]e explained that a decision was not unreasonably delayed because no action was called for in these circumstances." *Id.* at 6.

105 *Id.* at 8 (*quoting* 16 U.S.C. § 799).

106 For example, the Commission explained to NMFS in the Don Pedro proceeding:

> NMFS overlooks the fact that we could not act under the FPA to reopen the license without notice and an opportunity for a hearing, and we could not require the requested flow regime without first conducting a full environmental review of the impacts of the flows and any alternatives. Thus, contrary to NMFS's suggestion, we lack the authority to take immediate action in this case.

Id. at 12-13.

107 "Refers to the coverage of general matters in a broader EIS with subsequent narrower statements or environmental analyses (ultimately site-specific statements) incorporating by reference the general discussions and concentrating solely on the issues specific to the statement subsequently prepared." CEQ NEPA Regulations, 40 CFR § 1508.28.

In summary, the Commission is required to find that a project is "best adapted to a comprehensive plan for improving or developing a waterway or waterways" for all beneficial uses. The public interest requires exploration of issues relevant to this finding occur pre-license, not deferred to an indefinite reopener. Therefore, the Commission should direct its Staff to analyze information related to the Projects' impacts on anadromous fish habitat and reintroduction to ensure that the Commission can properly balance all public interest values prior to issuing a license.

B. The DEIS Concludes Incorrectly that Reintroduction of Anadromous Fish is not Reasonably Foreseeable.

The DEIS finds that "the implementation of a long-term reintroduction program for either [Spring-run Chinook or CV steelhead], particularly in the upper Yuba River, is, at best, uncertain ...."[108] It rejects measures to study or mitigate project effects on anadromous fish as "premature."[109] The DEIS cites to the "considerable uncertainties regarding the variability and implementation program set forth in the draft recovery plan (NMFS, 2009a) and the Central Valley Project and State Water Project biological opinion (NMFS, 2009b)" as the factual basis for this conclusion. *Id.* It does not cite to any legal basis for this conclusion. The DEIS' conclusion does not comply with NEPA's standard for reasonable foreseeability. When the proper standard is applied, the facts of this case show that reintroduction is reasonably foreseeable.

The purpose of an EIS is to assure that agencies take a "'hard look' at environmental consequences," and "provide for broad dissemination of relevant environmental information."[110] NEPA requires consideration of "every significant aspect of the environmental impact of a proposed action." [111]

Cumulative effect analysis is a required element of any EIS:

> [CEQ] regulations also specify that an EIS should consider any cumulative impacts of agency action. 40 C.F.R. § 1508.25(c). "Cumulative impact" is defined as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency... undertakes such other actions." *Id.* § 1508.7.[112]

A "likely" or "reasonably foreseeable" effect is interpreted to mean, "that the impact is sufficiently likely to occur that a person of ordinary prudence would take it into account in

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108 DEIS, p. 609.

109 *Id.*

110 *Robertson*, 490 U.S. at 390 (quoting *Kleppe v. Sierra Club*, 427 U.S. 390, 410, n.21 (1976)). *Biodiversity Conservation Alliance v. BLM*, 404 F.Supp.2d 212, 216 (D.D.C.2005). The Commission is a federal agency subject to NEPA, and it has adopted regulations implementing NEPA at 18 C.F.R. Part 380.

111 *Baltimore Gas & Elec. Co. v. NRDC*, 462 U.S. 87, 97 (1983) (quotation omitted).

112 *Sierra Club v. Marsh*, 976 F.2d 763, 767 (1st Cir. 1992).

reaching a decision …."[113] Thus, even though fish are not currently in project waters, the Commission has an obligation to analyze the effects of the relicensing on anadromous fish habitat, if reintroduction is reasonably foreseeable during the terms of the new licenses.

The duty to analyze cumulative impacts is not limited to actual proposals.[114] It is not limited to anticipated actions with defined timetables for implementation. [115] Instead, the cumulative impacts of a proposal must be analyzed even if certain details of the proposal are unknown.

An agency should not interpret any uncertainty to mean the agency does not have to evaluate future impacts. In *Texas Committee on Natural Resources v. Van Winkle*, the court held that the Corps' discussion of cumulative impacts in an EIS for a flood control project was inadequate because it did not examine the cumulative impacts that foreseeable future river projects would have on the environment.[116] In reaching this holding the court rejected the Corps' conclusory treatment of the cumulative impacts:

> Even if the exact future of these other projects is uncertain, uncertainty alone does not excuse the COE's failure to address the cumulative impacts of these projects in connection with the DFE project. *See Scientists' Inst. for Pub. Info., Inc. v. Atomic Energy Comm'n,* 481 F.2d 1079, 1092 (D.C.Cir.1973) (stating that "we must reject any attempt by agencies to shirk their responsibility under NEPA by labeling any and all discussion of future environmental effects as 'crystal ball inquiry' "); *see also Natural Res. Defense Council, Inc. v. Callaway,* 524 F.2d 79, 87-90 (1975) (rejecting the district court's conclusion that the environmental impact of the proposed project could be considered in isolation from other similar projects in the same area that the district court characterized as tentative or speculative in nature)….
>
> Defendants' argument that the "projects were evaluated to the extents known" is also incorrect. (Defs.' Resp. at 21.) Most of the projects were not even *mentioned,* much less *evaluated.* The future projects that were mentioned were only discussed in conclusory terms. *See Neighbors of Cuddy Mountain v. United States Forest Serv.,* 137 F.3d 1372, 1380 (9th Cir.1998) (stating that "general statements about 'possible' effects and 'some risk' do not constitute a 'hard look' absent a justification regarding why more definite information could not be provided"). Furthermore, Defendants' claim that the cumulative impacts of the other projects were not analyzed because the projects had not been developed to the point where foreseeable cumulative impacts could be determined is not persuasive. *See Neighbors of Cuddy Mountain,* 137 F.3d at 1380 (stating that it is not

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113 *Id.*

114 *See Texas Committee on Natural Resources v. Van Winkle,* 197 F. Supp.2d 586, 617 (2002) (*citing Oregon Natural Res. Council v. Marsh*, 832 F.2d 1498 (9th Cir. 1987), *rev'd on other grounds,* 490 U.S. 360 (1989).

115 *Sierra Club v. U.S. Dept. of Energy*, 255 F.Supp.2d 1177 (D. Colo. 2002). The court considered whether a mine should have been analyzed as a cumulative impact of an easement grant because it was a "reasonably foreseeable future action." In its analysis the court stated that it was not pertinent when the mining company will begin operations, as long as action is "still reasonably foreseeable.

116 197 F. Supp.2d at 620.

> "appropriate to defer consideration of cumulative impacts to a future date" because "NEPA requires consideration of the potential impact of an action *before* the action takes place"). According to the federal regulations, even if an agency has incomplete or unavailable information, the agency is required to reveal the facts and explain that such information is incomplete or unavailable. *See* 40 C.F.R. § 1502.22 (2000). The discussion of cumulative impacts in the 1999 EIS fails to satisfy NEPA's requirements because it consists only of "conclusory remarks, statements that do not equip a decisionmaker to make an informed decision about alternative courses of action, or a court to review the [COE's] reasoning." *See Defenders of Wildlife v. Babbitt*, 130 F.Supp.2d 121, 138 (D.D.C.2001).[117]

Staff has refused to undertake the requested analysis based on the fact it does not know the exact circumstances of reintroduction. Contrary to Staff's assertions,[118] it does not need to know the details or the exact timing of reintroduction to evaluate whether streamflows proposed by the Licensees would support lifestages of anadromous fish if and when they are reintroduced to project-affected waters. The precise mechanisms and exact dates for reintroduction do not affect whether proposed streamflows below Milton Diversion and Spaulding Dam are sufficient to provide thermally suitable holding habitat or adequate spawning habitat for spring-run Chinook. Indeed, Staff does not find that analysis of the Projects' effects on anadromous fish habitat is not possible now. It does not find that such analysis would not be useful once specific plans for reintroduction are known.

The DEIS relies on the uncertainty of the Draft Recovery Plan and Englebright BiOp to find that reintroduction is not reasonably foreseeable. The DEIS's finding does not consider other, significant initiatives to reintroduce salmon and steelhead to project-affected waters within the term of the new license. *See* Section II (B)(3), *supra*. For example, the Yuba Salmon Forum, led by YCWA and joined by OEP Staff and other stakeholders, has successfully identified suitable habitat in the South and Middle Yuba Rivers for anadromous fish. Members of the Yuba Salmon Forum have committed to identify and prioritize recovery actions in the Yuba River watershed, including feasible anadromous fish reintroduction actions.

The Commission should direct OEP Staff to supplement the analysis in the DEIS to evaluate the reasonably foreseeable reintroduction of listed steelhead and salmon during the terms of the new licenses.

C. <u>The Commission Must Make Findings Regarding the Projects' Effects on Habitat for Anadromous Fish in the South Yuba and Middle Yuba Rivers Based on Record Evidence</u>.

The DEIS finds incorrectly finds that the reintroduction of anadromous fish to the Upper Yuba River is too uncertain to warrant study of project effects on anadromous fish habitat in the Upper Yuba River, or alternative operations to mitigate those effects. As a result, the DEIS does

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117 *Texas Comm. on Nat. Resources, supra*, 197 F. Supp. 2d at 619-20.

118 DEIS, p. 608.

not contain adequate information on which to base specifics findings regarding the full extent of project effects on anadromous fish habitat. The DEIS also does not contain sufficient information to conduct a thorough study of alternative operations and measures that better balance anadromous fish and other competing uses of water. The Commission should direct Staff to obtain and consider information necessary to correct these deficiencies. This should include consideration of the evidence provided herein regarding holding habitat, spawning habitat, rearing habitat, and migration corridors under a variety of alternative flow scenarios for the South and Middle Yuba Rivers.

Under the FPA, the Commission's licensing order must be based on substantial evidence.[119] The Integrated Licensing Process generally directs the license applicant to gather and present the information on which the Commission will base the findings in its NEPA document and final licensing order.[120]

However, if OEP Staff does not require the license applicant to provide and/or study potential project effects, including cumulative effects, or alternatives to the proposed project, then the obligation to assure a complete record falls to the Commission:

> The agency does not do its duty when it merely decides upon a poor or nonrepresentative record. As the sole representative of the public, which is a third party in these proceedings, the agency owes the duty to investigate all the pertinent facts, and to see that they are adduced when the parties have not put them in …. The agency must always act upon the record made, and if that is not sufficient, it should see the record is supplemented before it acts. It must always preserve the elements of fair play, but it is not fair play for it to create an injustice, instead of remedying one, by omitting to inform itself and by acting ignorantly when intelligent action is possible ….[121]

Thus, the Commission should either direct the Licensees to provide, or Staff to otherwise obtain, information regarding project effects on anadromous fish habitat that is necessary to support the Commission's licensing decisions.

1. <u>The Existing Record Does Not Include Adequate Information on which to Base Specific Findings Regarding the Extent of Project Effects on Anadromous Fish Habitat</u>.

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119 *See* 16 U.S.C. § 825*l*(b).

120 Exhibit E, specifically, must include extensive information regarding the environmental effects (direct, indirect, and cumulative) of the proposed project based on existing information gathered in the PAD and studies conducted according to the approved study plan. 18 C.F.R. § 5.18; *see also* 18 C.F.R. § 380.3. OEP Staff has said that the purpose of the study process is to "provide a sound evidentiary basis on which the Commission and other participants in the process can make recommendations and provide terms and conditions" for the new license. 68 Fed. Reg. 51070, 51078(Aug. 25, 2003).

121 *Scenic Hudson*, 354 F.2d 608 at 621. "In viewing the public interest, the Commission's vision is not to be limited to the horizons of the private parties to the proceeding." *Id.*

The DEIS does not consider project effects on habitat for anadromous fish. For example, it does not consider the Projects' effects on water temperature, which is an essential habitat component for anadromous fish species. These effects are shown in the draft Yuba Salmon Forum habitat matrices (Attachment 2).[122]

The Licensees did not develop habitat suitability criteria (HSC) curves for anadromous fish for the instream flow study on the Middle Yuba and South Yuba Rivers. Their studies of water temperatures did not consider thermal thresholds for lifestages of salmon and steelhead. A migration study on the South Yuba analyzed migration barriers for resident trout, but not for larger salmon or steelhead. There is no information in the record that analyzes the suitability of spawning gravels in the South and Middle Yuba Rivers, and their tributaries, for salmon and steelhead. This does not comply with the Commission's obligations under the FPA and NEPA to assure a record adequate to evaluate the projects' environmental effects and determine which alternative will be best adapted to a comprehensive plan of development.

2. <u>The Existing Record Does Not Include Adequate Information on which to Base Specific Findings Regarding the Availability and Feasibility of Reasonable Alternatives and other Measures to Mitigate the Projects' Effects on Anadromous Fish in the Middle and South Yuba Rivers</u>.

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[122] Under existing operations in the South Yuba River, using a metric of 65° F (MWAT) as the upper tolerable holding temperature for spring –run Chinook salmon, temperature monitoring showed that there was no thermally suitable holding habitat in 2008 and 2009 for spring-run Chinook salmon. As modeled, the Licensees/Forest Service flows would increase thermally suitable habitat by only 0.2 miles in 2008, with no suitable habitat in 2009. Modeling shows that the CDFW/FWN flows would increase thermally suitable habitat by 1.1 miles in 2008, and 1.3 miles in 2009. Modeling shows that the NMFS flows would increase thermally suitable habitat by 2.2 miles in 2008 and 2 miles in 2009. *See* Attachment 2, Table 8, Cells 22 E,F; I,J; M,N; and Q,R. Modeled values are for comparative purposes; each set of increases is in relation to temperatures monitored under existing conditions.

In the Middle Yuba River, again using a metric of 65° F (MWAT) as the upper tolerable holding temperature for spring-run Chinook, temperature monitoring showed that there were 5.3 miles of thermally suitable holding habitat under existing project operations in 2008 and 5.0 miles in 2009. Modeling shows that the Licensees/Forest Service flows would increase thermally suitable habitat to by 1.5 miles in 2008, and 1.1 miles in 2009. Modeling shows that the CDFW/FWN flows would increase thermally suitable habitat by 2.9 miles in both 2008 and 2009. Modeling shows that the NMFS flows would increase thermally suitable habitat by 6 miles in 2008, and 3.9 miles in 2009. *See* Attachment 2, Table 7, Cells 20 E,F; I,J; M,N; and Q,R. Figures cited here are adjusted for an over-prediction of temperature in the YBDS water temperature model for the Middle Yuba River. *See* Attachment 2, Table 7, footnote 4. Modeled values are for comparative purposes; each set of increases is in relation to temperatures monitored under existing conditions.

The DEIS does not consider alternative operations and measures to mitigate project effects on habitat for anadromous fish because Staff concludes that the reintroduction of anadromous fish is uncertain.[123]

Under FPA section 10(a)(1), the Commission has an obligation to study alternatives to determine which is best adapted.[124] NEPA also requires the Commission to analyze reasonable alternatives to the proposed license.[125] Under this section an EIS must

> present the alternatives to the proposed action. This discussion-of-alternatives requirement is intended to provide evidence that those charged with making the decision have actually considered other methods of attaining the desired goal, and to permit those removed from the decisionmaking process to evaluate and balance the factors on their own. A thorough consideration of all appropriate methods of accomplishing the aim of the proposed action is expected.[126]

Under NEPA section 102(2)(D) all agencies are required to:

> "study, develop, and describe appropriate alternatives to recommended courses of action in any proposal which involves unresolved conflicts concerning alternative uses of available resources." This requirement … seeks to ensure that each agency decision maker has before him and takes into proper account all possible approaches to a

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123 *See, e.g.*, DEIS, p. 687. For each 10(j) recommendation of NMFS that is designed to protect anadromous fish, staff concludes: "No, the recommendation is premature because it depends upon future reintroduction of anadromous fish that may never occur."

124 *Scenic Hudson*, 354 F.2d 608 at 612.

125 42 U.S.C. 4332(2)(C)(iii).

126 *Sierra Club v. Morton*, 510 F.2d 813, 825 (5th Cir. 1975) (internal citations and notes omitted). In order to achieve a "thorough consideration" of alternatives, CEQ requires that an EIS must

> (a) Rigorously explore and objectively evaluate all reasonable alternatives, and for alternatives which were eliminated from detailed study, briefly discuss the reasons for their having been eliminated.
> (b) Devote substantial treatment to each alternative considered in detail including the proposed action so that reviewers may evaluate their comparative merits.
> (c) Include reasonable alternatives not within the jurisdiction of the lead agency.
> (d) Include the alternative of no action.
> (e) Identify the agency's preferred alternative or alternatives, if one or more exists, in the draft statement and identify such alternative in the final statement unless another law prohibits the expression of such a preference.
> (f) Include appropriate mitigation measures not already included in the proposed action or alternatives.

40 C.F.R. § 1502.14.

> particular project … which would alter the environmental impact and the cost-benefit balance.[127]

An EIS must include those reasonable alternatives that "are practical or feasible from the technical and economic standpoint and using common sense, rather than simply desirable from the standpoint of the applicant."[128] "A 'viable but unexamined alternative renders [the] environmental impact statement inadequate.'"[129]

Successful environmental management requires that problems be addressed in a holistic rather than piecemeal fashion:

> What NEPA infused into the decision-making process in 1969 was a directive as to environmental impact statements that was meant to implement the Congressional objectives of Government coordination, a comprehensive approach to environmental management, and a determination to face problems of pollution 'while they are still of manageable proportions and while alternative solutions are still available' rather than persist in environmental decision-making wherein 'policy is established by default and

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[127] *Calvert Cliffs' Coordinating Comm., Inc. v. U. S. Atomic Energy Comm'n*, 449 F.2d 1109, 1114 (D.C. Cir. 1971). Further, NEPA section 102(2)(E) requires that the federal lead agency "study, develop, and describe appropriate alternatives to recommended course of action in any proposal which involves unresolved conflicts concerning alternative uses of available resources ...." 42 U.S.C. § 4332(2)(E). The duty to consider alternatives under NEPA 102(2)(E) is "at least as broad" as the duty under NEPA section 102(2)(C)(iii). The purpose is "to insist that no major federal project should be undertaken without intense consideration of other more ecologically sound courses of action, including shelving the entire project or of accomplishing the same result by entirely different means." *Environmental Defense Fund v. U.S. Army Corps of Engineers*, 492 F.2d 1123 (5th Cir. 1974); *see* Mandelker, *supra* § 9:22, p. 9-53.

[128] "Forty Most Asked Questions Concerning CEQ's National Environmental Policy Act Regulations," 46 Fed. Reg. 18026 (Mar. 23, 1981) (hereafter, "Forty Questions"), Question 2a. Further, "reasonable alternatives" are not limited to those that contain all elements of the proposed action. Daniel R. Mandelker, *NEPA Law and Litigation*, THOMPSON WEST (2003), § 9:18, p. 9-43. Indeed, under administrative practice and case law,

> [a]lternatives can be divided into primary and secondary categories:....
>
> A primary alternative is a substitute for agency action that accomplishes the action in a different manner. Increased coal production is a primary alternative to the construction of a nuclear power plant....Agency opponents presenting a secondary alternative concerned that the agency action is necessary but suggest that it be carried out in a different manner. They may offer a secondary alternative that requires a different location for a project, or project changes that mitigate harmful environmental impacts.

Id.

[129] *Muckleshoot Indian Tribe*, *supra*, 177 F.3d at 814 (*quoting Citizens for a Better Henderson v. Hodel*, 768 F.2d 1051, 1057 (9th Cir. 1985)) (emphasis added).

> inaction' and environmental decisions 'continue to be made in small but steady increments' that perpetuate the mistakes of the past without being dealt with until 'they reach crisis proportions.' S.Rep.No.91-296, 91st Cong., 1st Sess. (1969) p. 5.[130]

So, while "the discussion of environmental effects of alternatives need not be exhaustive," it must present information sufficient "to permit a reasoned choice of alternatives so far as environmental aspects are concerned. As to alternatives not within the scope of authority of the responsible official, reference may of course be made to studies of other agencies-including other impact statements."[131]

a. The EIS Must Analyze the Effects of Each Alternative on Habitat for Spring-Run Chinook Salmon and for Steelhead.

As stated above, the DEIS does not specifically consider the adverse impacts or benefits to anadromous fish habitat in weighing the alternative flow schedules. In order to support a finding regarding which flow schedule is best adapted to a comprehensive plan of development, Staff must obtain information necessary to compare the flow alternatives effects on anadromous fish habitat.

To facilitate this analysis, the EIS should specifically evaluate data developed during these relicensing proceedings and in other venues in the context of habitat and life history (migration, holding, spawning, incubation, and juvenile rearing) requirements for spring-run Chinook salmon and for steelhead.

For example, water temperature modeling performed during the relicensing provides extensive data that demonstrates the impacts of different flows and flow regimes on water temperatures in the Middle and South Yuba Rivers. The water balance model demonstrates how much water is available for migration at various seasonal periods in each year in each river.

In addition, the Yuba Salmon Forum has already done much of the analysis that specifically relates modeling data to habitat conditions for anadromous species in the South and

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130 *Natural Resources Defense Council, Inc. v. Morton*, 458 F.2d 827, 836 (D.C. Cir. 1972). The consideration of reasonable alternatives outside of the lead agency's sole jurisdiction is important to the EIS' utility as a comprehensive planning document. *Id.* at 834.

> While the consideration of pertinent alternatives requires a weighing of numerous matters, such as economics, foreign relations, national security, the fact remains that, as to the ingredient of possible adverse environmental impact, it is the essence and thrust of NEPA that the pertinent Statement serve to gather in one place a discussion of the relative environmental impact of alternatives.

Id.

131 *Id.*

Middle Yuba Rivers.[132] It has produced reports on spawning, juvenile rearing, and migration for salmon and steelhead, and summer holding for spring-run Chinook. These reports are based on habitat criteria for various lifestages of salmon and steelhead. The criteria include upper optimal and upper suitable thermal thresholds for various lifestages, as well as suitable spawning gravels.

The data gathered and analyzed in the Yuba Salmon Forum reports and matrices provide explicit comparisons of the effects on anadromous fish habitat of specific flow regimes for the South Yuba and Middle Yuba Rivers proposed in relicensing. The matrices compare habitat under the following flow alternatives: (1) flows agreed to by the Licensees and submitted as revised preliminary 4(e) conditions by the Forest Service; (2) flows recommended by CDFW under FPA Section 10(j) and supported by FWN under FPA Section 10(a); and (3) flows recommended by NMFS under FPA Section 10(j).

For example, on a comparative basis, Table 7 of the matrices shows that the number of holding pools available at optimal temperature to spring-run Chinook in the Middle Yuba River in 2008 and 2009 would have been 0 under the "Agreed FERC Flows," 6 under the CDFW/FWN flows, and 15 or 14 under NMFS's flows.[133] Spawning habitat in the Middle Yuba River available to spring-run Chinook, if based on proximity to a modeled Upper Tolerable temperature metric for holding habitat, would increase by two to three miles under CDFW/FWN flows as compared to Agreed FERC flows, and would increase another 1-3 miles under NMFS's recommended flows.[134]

In addition, Staff should consider the Yuba Accord's River Management Team extensive database and series of reports regarding salmon and steelhead in the lower Yuba River.[135] It should consider habitat assessment reports and other information developed through the Upper Yuba River Studies Program.[136] Finally, Staff should consider reports prepared by NMFS that describe fish passage barriers, holding habitat, and spawning habitat for spring-run Chinook salmon and steelhead, as well as engineering options for fish passage past Englebright Dam.[137]

b. The EIS Must Include a Complete NEPA Alternative that Analyzes Reintroduction of Spring-run Chinook and Steelhead to the South Yuba and/or the Middle Yuba Rivers.

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132 *See* Attachment 2.

133 *See* Table 7 in Attachment 2, cells 23 I and J, 23 M and N, and 23 Q and R.

134 *See* Table 7 in Attachment 2, cells 29 I and j, 29 M and N, and 29 Q and R.

135 *See* http://www.yubaaccordrmt.com/default.htm.

136 *See* "Upper Yuba River Watershed Chinook Salmon and Steelhead Assessment, California Department of Water Resources," *available at* http://www.water.ca.gov/fishpassage/docs/yuba/yuba_salmon.pdf.

137 *See* eLibrary no. 20120731-5222 (Supporting Documents: "Yuba River Fish Passage: Conceptual Engineering Project Options" Montgomery Watson & Harza (2012), and "Modeling Habitat Capacity and Population Productivity for Spring-run Chinook and Steelhead in the Upper Yuba River Watershed," Stillwater Sciences (February, 2012)). On June 6, 2013, NMFS released a version 2 of the latter document, which incorporates recommendations from diverse stakeholders.

The DEIS is limited to consideration of three alternatives for each project: Applicant's Proposal, Staff Alternative; and No Action Alternative.[138] It does not consider an alternative that provides for reintroduction of anadromous fish, even though the reintroduction of anadromous fish is reasonably foreseeable and would have effects on overall project operations. This does not comply with the Commission's obligations under the FPA and NEPA.

The EIS must include a Salmon and Steelhead Reintroduction Alternative that analyzes flow schedules for the South Yuba and Middle Yuba Rivers that would support each lifestage of spring-run Chinook salmon and steelhead. The EIS must in turn analyze these flow schedules for their potential impacts to power generation for PG&E and NID, and for water supply for NID and PCWA. The EIS must consider beneficial impacts on other instream resources and, if there are any, negative impacts on other instream resources.

The Reintroduction Alternative should disaggregate the flow and other impacts by species and by lifestage. It should also disaggregate sub-alternatives for reintroduction into (1) both the South Yuba River and the Middle Yuba River; (2) the South Yuba River only; and (3) the Middle Yuba River only.[139]

Consideration of a Reintroduction Alternative prior to license issuance is important to Staff's balancing of the competing power and non-power uses of these waters. As stated above, the Commission must ensure that the new licenses strike the optimal balance between competing uses. It cannot provide such assurance if it has failed to include a critical use, i.e., anadromous and other coldwater fish habitat, in its analysis.

For example, the DEIS finds even the "potential detriment" to foothill yellow-legged frog to outweigh known benefits to resident rainbow trout.[140] It further finds that the benefits of providing additional coldwater habitat "would result in an uncertain and potentially adverse effect on various aquatic resource species at the expense of project operations."[141] There would appear to be an inadequate record basis for these findings because Staff has not specifically analyzed the benefits of providing additional coldwater habitat for anadromous fish. Further, Staff does not explain why it prioritized FYLF over coldwater habitat. The missing explanation is important because OEP Staff reached the opposite conclusion in the 2008 Draft Environmental Analysis for the relicensing of the DeSabla – Centerville Project.[142]

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138 *See* DEIS, Executive Summary, p. lvi (Drum-Spaulding) and p. lxviii (Yuba-Bear).

139 In their respective September 14, 2012 Reply Comments, neither PG&E nor NID disaggregated the developmental effects of NMFS's proposed flows in the South Yuba and Middle Yuba to support reintroduction. The two river reintroduction scenario presents greater effects on power generation and water supply than would single river scenarios.

140 DEIS, p. 240.

141 *Id.*

142 *See* "Draft Environmental Analysis for the DeSabla – Centerville Project," pp. 206-07, eLibrary no. 20081229-4001. Foothill yellow-legged frogs are relatively abundant in the affected reach of Butte Creek, and the Commission required flow in a tributary to protect them. However, when the water temperature concern for spring-run Chinook salmon was balanced against frogs and developmental values, the licensee, Commission, agencies and other stakeholders were unanimous in supporting water temperature reduction.

CONCLUSION

The Conservation Groups request that the Commission grant this Motion and direct OEP Staff to make specific findings in a supplement to the DEIS regarding (1) the Yuba-Bear and Drum-Spaulding hydroelectric projects' direct, indirect and cumulative effects on anadromous fish and their habitat in the South and Middle Yuba Rivers; and (2) feasibility of alternatives measures to mitigate the Projects' effects on anadromous fish and their habitat in the South and Middle Yuba Rivers once they are reintroduced into project-affected waters. We request that the Commission require Staff to complete the record through direction to the license applicants, independent investigation, and/or consideration of the information submitted by Movants. The Commission should direct OEP Staff to provide its revised analysis in a supplement to the DEIS. The Commission should not wait until the fish are actually present to determine what project modifications may be necessary to protect and contribute to the recovery of the fish.

Dated: June 21, 2013

Respectfully submitted,

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CERTIFICATION OF SERVICE

Nevada Irrigation District's Yuba-Bear Hydroelectric Project (P-2266-102) and Pacific Gas and Electric Company's Drum-Spaulding Hydroelectric Project (P-2310-193)

I, Nicholas Niiro, hereby certify that I have this day served the foregoing document, "California Sportfishing Protection Alliance, Trout Unlimited, and American Rivers' Motion for Additional Investigation and Supplement to the Draft Environmental Impact Statement," by electronic mail upon each person with an email address designated on the official service lists compiled by the Secretary in the P-2266 and P-2310 dockets.

Dated: June 21, 2013

By:

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Attachment 1 to Appendix A

California Sportfishing Protection Alliance, Trout Unlimited, and American Rivers' Motion for Additional Investigation and Supplemental Draft Environmental Impact Statement

(Filed as "Attachment 1" to original Motion)

DECLARATION OF CHRIS SHUTES

I, Chis Shutes, declare the following:

1. The purpose of my declaration is to provide an explanation of the draft Yuba Salmon Forum habitat matrices[1] to assist the reader in interpreting the matrices.

2. I am the FERC Projects Director for the California Sportfishing Protection Alliance (CSPA). I have held this position for seven years. My responsibilities include representing the interests of CSPA in the relicensing of hydroelectric projects and the implementation of project licenses in California. I also serve as the Vice-Chair of the California Hydropower Reform Coalition.

3. I have represented CSPA in the Yuba Salmon Forum since the Forum's inception in 2010. I have participated in both the plenary and the Technical Working Group. My explanation of the draft Yuba Salmon Forum habitat matrices is based primarily on my participation in the Technical Working Group.

4. The Yuba Salmon Forum habitat matrices and a Yuba Salmon Forum report describing these habitat matrices have been under development since January, 2013. I expect the final matrices and report to be issued in July, 2013. The final Yuba Salmon Forum report will provide extensive technical detail about the data itself, the derivation of the data presented, and the decisions that are embedded in the matrices.

5. While the Yuba Salmon Forum Technical Working Group has reviewed and discussed the matrices, and has generally approved the metrics by which the matrices measure different habitat criteria, the matrices have not yet been approved as final by either the Yuba Salmon Forum Plenary or Technical Working Group, or by their individual members.

6. The data presented in the draft Yuba Salmon Forum habitat matrices were designed for purposes of comparison, to evaluate the relative merits of recovery actions and to develop recovery strategies. They should be considered in the way that the water operations model and the water temperature models were used in the Yuba-Bear and Drum-Spaulding relicensings, to compare various alternatives, not to ascribe or predict absolute values.

7. The Yuba Salmon Forum developed habitat matrices to provide one-page displays of the habitat information that the Forum's Technical Working Group developed over two years of work.

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[1] The draft Yuba Salmon Forum habitat matrices were distributed to the Yuba Salmon Forum Technical Working Group on June 20, 2013. They are being provided as Attachment 2 to the California Sportfishing Protection Alliance, Trout Unlimited, and American Rivers' Motion for Additional Investigation and Supplemental Draft Environmental Impact Statement.

8. The Excel file contains six tabs. Tabs labeled "Table 6," "Table 7," and "Table 8" present habitat data for spring-run Chinook salmon. The tab labeled "Redd Sensitivity App F" provides alternative potential metrics for calculating the size of spring-run Chinook salmon redds, thus potentially increasing or decreasing the number of redds shown in Tables 6, 7 and 8. The tab labeled "Table 9" presents habitat data for steelhead in mainstem river reaches. The tab labeled "Table 11 Steelhead trib" shows the number of miles of potential steelhead habitat in tributaries of the North Yuba, Middle Yuba, and South Yuba Rivers.

9. For spring-run Chinook salmon, Table 6 provides habitat data for existing conditions; Table 7 provides habitat data for both existing conditions and modeled flow scenarios for the Middle Yuba River; and Table 8 provides habitat data for both existing conditions and modeled flow scenarios for the South Yuba River. For steelhead, Table 9 provides habitat data under existing conditions and also under modeled flow scenarios in the Middle Yuba and South Yuba Rivers.

The Columns in the Spring-Run Chinook Salmon Matrices (Tables 6, 7 and 8)

10. Each entry in Column B of each table describes a Life Stage or a Physical Habitat Feature that is analyzed in the row to the right.

11. Columns C and D provide temperature criteria that are used to analyze thermal suitability. The values given are based on the Maximum Weekly Average Temperature (MWAT). "UO" is upper optimum temperature; "UT" is upper tolerable temperature; "UT Butte Creek" presents an alternative upper tolerable temperature that derives from "a specific analysis of the average MWAT in years when there was not obvious summer holding mortality temperature observed at Butte Creek due to temperature."

12. The output in the rows is given:

(1) As a date until which habitat at the bottom of an affected reach is no longer thermally suitable (in Table 6, rows 10-13 and 16-17);
(2) The river miles that provide thermally suitable habitat for the spring-run Chinook lifestage (in Table 6, rows 19-21, 26-28, 35-36, and 41-42; or
(3) The amount of a given physical habitat feature available within thermally suitable areas; the feature and its unit of measurement are described in Column B.

13. The temperature data is based on water temperature modeling in some cases and on water temperature monitoring in other cases. Temperature modeling data was used for the Middle Yuba and South Yuba Rivers for the years 2008 and 2009 for flow scenarios other than existing conditions, but is not available for 2010 and 2011. "NA" means that data is "not available." Temperature monitoring data was used for "existing conditions" in the Middle Yuba and South Yuba Rivers in 2008, 2009, 2010 and 2011. Technical leads for the matrices made a slight adjustment for modeled data for the Middle Yuba, because monitoring showed that the Middle Yuba water temperature model slightly over-predicts the actual temperatures. This adjustment is reflected in values shown in parentheses on the Middle Yuba matrix (Table 7).

14. "NL" means that the Technical Working Group agreed that water temperature was not a limiting factor during the lifestage shown in Column B.

15. The next seven columns to the right in Table 6 (Existing Conditions) analyze seven stream reaches. From left to right across the top of the Table 6 is a column for each of seven river reaches:

(1) North Yuba River upstream of New Bullards Bar Reservoir;
(2) Middle Yuba River upstream of Englebright Reservoir (and also upstream of confluence with North Yuba River);
(3) South Yuba River upstream of Englebright Reservoir;
(4) North Yuba River downstream of New Bullards Bar Reservoir (and also upstream of confluence with Middle Yuba River);
(5) Yuba River downstream of confluence of North Yuba and Middle Yuba, and upstream of Colgate Powerhouse;
(6) Yuba River from Colgate Powerhouse to Englebright Reservoir; and
(7) Lower Yuba River from Englebright Dam downstream to confluence with the Feather River.

16. Tables 7 and 8 evaluate Existing Conditions and Modeled [Flow] Scenarios for the Middle Yuba River (Table 7) and the South Yuba River (Table 8). From left to right across the top of Tables 7 and 8, there is a column for each of six flow scenarios:

(1) Existing conditions i.e. flow conditions under flows required by the existing FERC licenses for the Yuba-Bear Project (Middle Yuba River) and the Drum-Spaulding Project (South Yuba River). These are the conditions that are analyzed on the first matrix (Table 6); the information from Table 6 is transposed to Tables 7 and 8 in this column.
(2) "Agreed FERC flows," flows submitted by the licensees in their Final License Applications[2] and also submitted by the Forest Service in its Revised Preliminary 4(e) Conditions on August 24, 2013[3]. The flows analyzed in the matrix do not include any "block flows" or "supplemental flows" in either the Middle Yuba River or the South Yuba River.
(3) CDFW/FWN flows. Both the California Department of Fish and Wildlife (CDFW) and the Foothills Water Network (FWN) recommended these flows.[4] These flows are identical to the "Agreed FERC flows," except that the CDFW/FWN flows also make available up to 2500 acre-feet of water per year (afy) from Jackson Meadows Reservoir for summer water temperature

[2] *See* Amended FLA for Yuba-Bear, eLibrary no. 20120618-5134, p. E3-13; Amended FLA for Drum Spaulding, eLibrary no. 20120618-5022, p. E7-9.
[3] *See* FS Revised Preliminary 4(e) Conditions, eLibrary no. 20120824-5006 (Yuba-Bear), p. 19; eLibrary no. 20120824-5005 (Drum-Spaulding), p. 19.
[4] *See* DFG's Section 10(j) recommendations, eLibrary no. 20120730-5174 (Yuba-Bear), p. 5; eLibrary no. 20120730-5174 (Drum-Spaulding), p. 5.

management in the Middle Yuba River, and up to 2500 afy from Spaulding Reservoir for water temperature management in the South Yuba River. For purposes of temperature modeling, YSF assumed that the target temperature of 19° C would be met at the Wolf Creek confluence (Middle Yuba) and Canyon Creek confluence (South Yuba), respectively.

(4) NMFS flows. These flows were recommended by the National Marine Fisheries Service (NMFS) explicitly to support spring-run Chinook salmon and steelhead in the Middle Yuba and South Yuba Rivers. NMFS also included the possibility of additional flows for cooling Middle Yuba and South Yuba water temperatures, but these were not included in modeling for the YSF habitat matrices.[5]

(5) Unimpaired flows.

(6) Modeled base case flows. The flows analyzed in this last column differ from "Existing Conditions" because these are based on modeled conditions (like all modeled data, available for 2008 and 2009 only), whereas the "Existing Conditions" flows are based on empirical water temperature data.

The Rows in the Spring-Run Chinook Salmon Matrices (Tables 6, 7, and 8)

17. The rows in Tables 6, 7 and 8 are defined in Column B of each matrix. Each table starts by showing the first terminal barrier to upstream fish passage. Moving down, each table then provides data for each life stage as labeled in a shaded field. The row numeration is slightly different on each table in order to present various details.

18. The life stages for which data is quantified in the rows are: vAdult Migration (April – August), Adult Holding (April – August), Adult Spawning (September – November 15), Juvenile Rearing and Downstream Movement (Year-Round), and Smolt Emigration (October – May 15).

19. Some of the most important characteristics of each these life stages as described in each row are shown below:

(1) The "Adult Migration" rows first identify the most downstream location in the river reach that adult spring-run Chinook would have to pass. These rows then give the last date of the respective spring/summer that water temperatures at that location were at or below the temperature criteria for the adult migration lifestage.

(2) The "Adult Holding" rows give the number of river miles that were thermally suitable for spring-run Chinook salmon holding in the river reach and the respective year stated at the top of the column. The following row presents the number of holding pools in that thermally suitable river reach.

(3) The "Adult Spawning" rows first show the number of river miles of spawning habitat available to spring-run Chinook salmon in the river reach and the respective year stated at the top of the column. This number is calculated by

[5] *See* NMFS's Section 10(j) recommendations, eLibrary no. 20120731-5212, p. 3 (Middle Yuba), 6 (South Yuba and Canyon Creek).

adding 2.2 miles to the amount of thermally suitable holding habitat for that reach for that year. This metric was based on an analysis of holding and spawning data in Butte Creek, which shows downstream migration of spring-run Chinook as they move from holding to spawning locations. The Technical Working Group agreed that this was a reasonable estimate of the extent of downstream migration. Moving down, the rows for the "Adult Spawning" lifestage present the amount of spawning gravel within the available spawning habitat, and the number of spawning redds that this gravel would support based on an average redd size of 94 sq. ft. Finally, the matrices present an alternative metric for spawning habitat, showing the number of miles during the September 15-30 time period in which the median MWAT temperature was at or below a threshold temperature for spring-run Chinook spawning.

(4) "Embryo Incubation" is given rows to show that the Technical Working Group evaluated it, but the Technical Working Group determined that temperatures during this life stage are not limiting.

(5) "Juvenile Rearing and Downstream Movement" addresses juvenile fish that do not leave the river before summer. For Chinook, this applies to "yearling" or "river type" fish that over-summer in the river. The matrix presents data for number of thermally suitable miles and for the number of thousands of square feet of rearing habitat.

(6) "Smolt Emigration" is also given a row to show that the Technical Working Group evaluated it, but the Technical Working Group determined that temperatures during this life stage are not limiting.

The Columns and Rows in the Steelhead Matrix (Table 8)

20. The columns for the section of the steelhead matrix entitled "Existing Conditions – All Reaches" are the same as in Table 6. The columns for the section of the steelhead matrix entitled "Middle and South Yuba River Existing Conditions and Modeled Scenarios" are the same as in Tables 7 and 8.

21. The rows in the steelhead matrix consider only the length of river downstream of the first complete fish passage barrier, and the amount of thermally suitable habitat for the juvenile rearing and downstream migration life stage. The matrix presents data for number of thermally suitable miles and for the number of thousands of square feet of rearing habitat. These numbers are slightly higher than respective numbers for spring-run Chinook, because juvenile steelhead can tolerate slightly higher temperatures, and thus have a longer length of river available for rearing.

22. I declare under penalty of perjury of the laws of the State of California and the United States of America that the foregoing is true and correct and that this declaration was executed June 21, 2013 in Berkeley, California.

Respectfully submitted,

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Attachment 2 to Appendix A

California Sportfishing Protection Alliance, Trout Unlimited, and American Rivers' Motion for Additional Investigation and Supplemental Draft Environmental Impact Statement

(Filed as "Attachment 2" to original Motion)

(See Excel spreadsheet "Habitat Matrices_042413_v4.xlsx" filed concurrently as a separate file.)