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Division of Water Rights, Water Quality Certification Program
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Re: Upper North Fork Feather River Hydroelectric Project Draft EIR

Dear Mr. Barnes:

We have read with interest the draft EIR of the above referenced project. While this document raises important issues, we are very concerned because many of us find the apparent conclusions in the document confusing and deeply flawed. Specifically, the document concludes that implementation of the UNFFR Project would have less than significant impact on aquatic habitat conditions in Lake Almanor. However, **this conclusion is deeply flawed because the document does not consider the effects of current warming trends and reduced water flows in Lake Almanor**, and the **conclusions about effects of water warming on aquatic habitat conditions in Lake Almanor appear to conflict with published scientific literature**.

The temperatures of large lakes are excellent indicators of climate change. Satellite measurements clearly show that six lakes in California and Nevada, including Lake Almanor, have exhibited average summer nighttime warming trends of 0.11 ± 0.02 °C per year between 1992 and 2008 (Schneider et *al*., *Geophysical Research Letters* **2009**, *36*, L22402; doi: 10.1029/2009GL04846). *Of these six lakes, Lake Almanor has the highest rate of increase in temperature* (0.15 ± 0.03 °C per year). The trend line for Lake Almanor shows that the temperature increased by 2.4 °C (4.3 °F) over these 16 years. **Given this scientifically proven trend, any actions that would exacerbate this lake warming trend could prove to be disastrous for the Lake Almanor ecosystem.**

Along with increasing lake temperature, there is a trend in warmer air temperatures that leads to less snowpack: Gary J. Freeman from PG&E concludes that "With climate change and the continuing loss of the northern California snowpack (Freeman, [Western Snow Conference] 2011, 2012), the recharge opportunity for the aquifers are continuing to decline." (82nd Annual Western Snow Conference, 2014, pp 163-168). Freeman also notes that "Both the Lake Almanor and East Branch of the North Fork Feather (EBNFFR) subbasins are two rain-shadowed subbasins that exhibit a declining trend in water year runoff." (79th Annual Western Snow Conference, 2011, pp 71-82). These trends indicate that the warming of Lake Almanor will likely accelerate in the future even if the UNFFR Project were justifiably not implemented.

Similar trends affect Lake Tahoe. A recent study concluded that these changes "…will have profound biological effects, making the deep waters of the lake uninhabitable for salmonids and many invertebrates. More subtle biological changes, however, are already under way at the lowest and highest trophic levels" (Coats et *al.* Historic and Likely Future Impacts of Climate Change on Lake Tahoe, California-Nevada, USA in *Climate Change and Global Warming of Inland Waters: Impacts and Mitigation for Ecosystems and Societies*, Golman, Kumagai and

Robarts, Eds. John Wiley & Sons, **2013**, pp 231-254). Moreover, these authors conclude "These changes would most likely be irreversible, since the increased algal growth would increase the organic matter deposition in deep water, adding to the BOD of bottom waters and initiating, through a positive feedback mechanism, a "death-spiral of anoxia"".

Lake Tahoe is warming, and there is clear evidence and concern that this rate of warming will adversely impact the aquatic habitat conditions at Lake Tahoe. ***Lake Almanor is warming at an even faster rate than Lake Tahoe; removal of additional cold water from Lake Almanor under the proposed UNFFR project or the two alternatives will surely exacerbate the current warming trends and will have an even greater detriment to aquatic habitat conditions at Lake Almanor***. The draft EIR report does not take into account current trends in warming of Lake Almanor, and the known adverse affects of this warming on aquatic habitat. Removal of additional cold water from the lake may or may not have benefits downstream, but it will surely accelerate the warming trends and associated adverse impact on aquatic habitat in the Lake.

Based on these data, it appears that the real big problem that you should be concerned with is the warming of Lake Almanor. Given the fact that the UNFFR EIR has ignored this critical issue, it is clear that the EIR as currently prepared is deeply flawed and if implemented will cause critical environmental damage to the Lake Almanor ecosystem. If the UNFFR Project is approved, you can expect an extremely large community of Lake Almanor supporters to initiate legal action including injunctions to ensure that an EIS is developed that properly considers **all the possible environmental impacts** as the legislation dictates.

Personally, we are frequent visitors and part time residents in the Lake Almanor area. We request that you reject both the thermal curtain and the increased release alternatives to ensure the protection of the existing aquatic habitat at Lake Almanor and consider less environmentally harmful alternatives to address the Feather River issues. Lake Almanor is a treasure that is enjoyed by many for recreation, and the lake as it currently exists is an economic driver to the surrounding region – its recreational destruction would be a disaster.

Please don't ruin one ecosystem in an attempt to "save" another.

Sincerely,

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