



January 2, 2013

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On December 4, 2012, Grand County Commissioners gave final approval to the conditions on the county's 1041 permit for the Windy Gap Firming Project. Attached is a summary of the key conditions that were negotiated among Northern Colorado Water Conservancy District (NCWCD) (project proponent), the county, Trout Unlimited, and others. The Colorado Wildlife Federation applauds the concerted efforts of all the participating parties to reach agreement on many measures needed to protect the aquatic environment of the Upper Colorado River.

However, we remain concerned that at least two of those conditions, as currently stated, will not be sufficient to protect the aquatic environment without further attention by EPA, the U.S. Army Corps of Engineers, and the Colorado Division of Water Quality during upcoming federal and state permitting processes. It also is important that the parties that will be participating in the future "Learning by Doing" process (i.e., adaptive management) follow through to ensure that any permit conditions shall be modified if needed to protect the fisheries and their food sources. Two of the measures we continue to be concerned about involve (a) the proposed level of flushing flows; and (b) the requirement to cease pumping when water temperatures rise to within 1° Celsius of state acute water quality standards. Furthermore, we believe that even efforts to address these concerns will not be sufficient without making significant changes to the operation and onsite physical conditions of Windy Gap Dam, which has in fact caused major adverse ecological impacts to the Upper Colorado River (Berry Nehring, fishery biologist).¹

¹ "Colorado River Aquatic Resources Investigations – Federal Aid Project F-237R-18", Colorado Division of Wildlife (2011)

Flushing Flows

Flushing flows are often recommended when there is ongoing or the potential for the “armoring” of stream channel bottoms. When stream bottoms are armored, a stream may only have sufficient hydraulic power to remove fine bedload material (e.g. sand and small gravel), leaving a tightly compacted layer of more coarse material on the bed surface. This adversely affects fish spawning success and the ability of stream macroinvertebrates (fish food) to find spaces for habitat. While stream bottom armoring can be a natural phenomenon, it is usually identified downstream of reservoirs.

It is our understanding that the recommended 1200 cfs flushing flows past Windy Gam Dam every five years was based upon some historical average of flows, but there is no confidence that those flows are what are actually needed. We recommend studies and close monitoring be conducted to ascertain the optimum practicable level and frequency of flushing flows that will provide the most benefit for the Upper Colorado River in conjunction with proposed stream habitat improvements.

The goal should be to restore the slope, vegetation and habitats of the channel and the banks to be more compatible with the valley slope, which could significantly benefit fish and wildlife. Where that is not practicable, features could be constructed in the stream that “guides” the flows into the mid-channel areas. If designed properly and maintained, structures such as rock/log veins can quite effective in not only concentrating discharge into the mid-channel area but moving sediment from upstream. However, without sufficient flows, these measures will not be adequate in the long term. These studies should be funded by the Windy Gap Firing Project proponents (i.e., NCWCD) and managed by Colorado Parks and Wildlife in cooperation with Grand County.

High Water Temperatures

We commend NCWCD for its willingness to install and maintain two real time stream temperature/flow gages and to cease pumping if stream temperatures are within 1° Celsius of state acute stream standards and if stream temperatures exceed chronic standards. However, these commitments by themselves will not be sufficient to protect fish and their food sources during periods of rapidly increasing temperatures.

Therefore, we recommend that NCWCD be required to develop an operations plan that will specifically delineate how they will avoid exceeding those standards whenever possible. For example, will there be some sort of alarm system that will notify an operator that the stream temperatures are approaching the limit, and will that operator have the ability to immediately take action?

During periods of high temperature and low flows, if one waits until the aforementioned thresholds are reached it may be too late to prevent serious and perhaps irreparable impacts to the aquatic ecosystem, particularly when we know that other parameters such as water quality are also impaired and there are insufficient deep pools to protect the fish.

One reason that temperature management is so difficult to use as a technique for mitigation is that daily, seasonally and over years it changes significantly. These natural conditions have resulted in the aquatic life and productivity that is present. When temperatures attain “acute toxicity” levels fish can only move to deeper pools and cooler seeps, springs and tributaries if they are available in sufficient quantities. Therefore, there is no doubt that adverse temperature conditions can have a major influence on trout and insect populations, especially below dams such as Windy Gap.

Using instantaneous and chronic levels set by the State as operational standards is useful as it potentially has enforceability. However, it is very important that not exceeding those standards be delineated as more than just goals. Project management should be required to ensure that those limits are never reached if at all practicable to ensure maintenance of desired populations of macroinvertebrates not just avoidance of fish kill.

Windy Gap Dam

This dam needs to be removed and/or a bypass for flows constructed. The dam caused major declines in macroinvertebrates (Nehring report). The large stonefly (*Pteronarcys californica*) used to be abundant on the Upper Colorado River and was identified as a major food source for larger trout. There are populations in the upstream tributary Fraser River, but they are essentially gone downstream of Windy Gap Dam until reaching Byers Canyon and are greatly reduced from there to Gore Canyon. The mottled sculpin is the most plentiful fish species in the Fraser River but is completely gone downstream of Windy Gam Dam and so is the green drake fly, both also were historically important food sources for big trout. Population density and size of the trout were the bases for designating these Gold Medal Waters. In conclusion, this dam has caused a major adverse impact to the aquatic environment and must be addressed in the permitting processes

Thank you for considering our comments. Please contact me if you have questions.



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