DRAFT INSTREAM FLOW RECOMMENDATION – SUBJECT TO CHANGE

Ms. Linda Bassi
Colorado Water Conservation Board
1313 Sherman Street, Room 721
Denver, Colorado 80203

Dear Ms. Bassi:

The Bureau of Land Management (BLM) is writing this letter to formally communicate its recommendation for an instream flow water right on West Muddy Creek, located in Water Division 4.

Location and Land Status. West Muddy Creek originates on the eastern slope of Chalk Mountain, approximately 17 miles north of Paonia. This recommendation covers a reach that starts at the confluence with Ault Creek and extends to the confluence with East Muddy Creek. This stream reach covers a distance of approximately 5.52 miles. The BLM manages approximately 0.96 miles of this stream reach, while 4.56 miles are in private ownership.

Biological Summary. West Muddy Creek is a cold-water, moderate gradient stream. It flows through a narrow mountain valley approximately 0.25 miles in width. The stream cuts through alluvial deposits in some locations and is constrained by bedrock in locations where the stream comes close to valley walls. The stream generally has large-sized substrate, ranging from small cobbles to two-foot boulders. The stream has a good mix of pool and riffle habitat for supporting salmonids. Fisheries surveys have revealed self-sustaining populations of speckled dace and mottled sculpin, both of which are native species.

The riparian community in this part of West Muddy Creek is generally comprised of willow species, alder, and spruce. In general, the riparian community is in good condition, provides substantial shading and cover for fish habitat, and provides stream stability during flood events.

R2Cross Analysis. BLM collected the following R2Cross data from West Fork Muddy Creek:

Cross Section Date	Discharge Rate	Top Width	Winter Flow Recommendation (meets 2 of 3 hydraulic criteria)	Summer Flow Recommendation (meets 3 of 3 hydraulic criteria)
06/01/2018 #1	4.72 cfs	33.5 feet	3.63 cfs	Out of range
06/01/2018 #2	5.42 cfs	33.5 feet	4.37 cfs	Out of range
Additional data to be collected				
Additional data to be collected				
		Averages:	4.00 cfs	XX.XX cfs

BLM's analysis of this data, coordinated with Colorado Parks and Wildlife, indicates that the

following flows are needed to protect the fishery and natural environment to a reasonable degree.

> 14.0 cubic feet per second is recommended for the snowmelt runoff period from April 1 through July 15. This recommendation is driven by the average velocity criteria. **(Note: Additional data to be collected during 2020 to confirm this preliminary number suggested by the data sets above.)**
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> 6.0 cubic feet per second is recommended for the late summer and fall period between July 16 and November 30. This recommendation is driven by limited water availability during this period. This flow rate will generally meet the wetted perimeter and average depth criteria, while providing velocity in the range of 0.65 to 0.75 feet per second in riffles.
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> 4.0 cubic feet per second is recommended during the winter period between December 1 and February 29. This recommendation is driven by limited water availability during the winter. This flow rate meets the average depth and wetted perimeter criteria in riffle habitat, and should prevent icing in pools.
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> 5.5 cubic feet per second is recommended from March 1 to March 31. This is the period when frozen portions of the stream channel start to melt, and the fish population starts to become more active. This flow rate will generally meet the wetted perimeter and average depth criteria, while providing wetted velocities in the range between 0.6 and 0.7 feet per second.

Water Availability. The BLM recommends relying upon historic gage data to confirm water availability. USGS Gage 09131200 (West Muddy Creek Near Somerset, CO) was operated between 1961 and 1973, reflecting a 13-year period of record. The gage records will have to be adjusted to account for new diversions below the gage that have commenced since 1973. In addition, the gage data will need be adjusted to reflect the fact that some tributaries enter the creek downstream of the gage.

The BLM is not aware of any active surface water rights in the proposed reach. Upstream from the proposed instream reach, BLM is aware of at least 13 active surface water rights, totaling just under 63 cubic feet per second in decreed diversion rates.

Relationship to Land Management Plans. The BLM land use plan for this area calls for actions to maintain and enhance riparian and fisheries habitat. In general, any proposed new land use, such as right-of-way corridors or mineral development, must be implemented with no surface occupancy to avoid impacts to the creek. Establishing an instream flow water right would assist in meeting these objectives.

Data sheets, R2Cross output, fishery survey information, and photographs of the cross section were included with BLM's draft recommendation in February 2020. We thank both Colorado Parks and Wildlife and the Colorado Water Conservation Board for their cooperation in this effort.

If you have any questions regarding our instream flow recommendation, please contact Roy Smith at 303-239-3940.

Sincerely,

Brian St. George
Deputy State Director
Resources and Fire

Cc: Jedd Sondergard, Uncompahgre FO
Greg Larson, Uncompahgre FO
Stephanie Connolly, Southwest District