DRAFT INSTREAM FLOW RECOMMENDATION – SUBJECT TO CHANGE

Mr. Rob Viehl
Colorado Water Conservation Board
1313 Sherman Street, Room 721
Denver, Colorado 80203

Dear Mr. Viehl:

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 Sheep Creek and extends to the confluence with East Muddy Creek. This stream reach covers a distance of approximately 8.25 miles. BLM manages approximately 1.0 mile of this stream reach, the U.S. Forest Service manages 1.5 miles, and while 5.75 miles are in private ownership.

Biological Summary. West Muddy Creek is a cold-water, moderate gradient stream. The upper four miles of the reach flow through a valley approximately 0.5 miles in width with some meadows and irrigated fields. The lower four miles flow 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 upper four miles of the creek generally has medium sized substrate, ranging from silt to one-foot boulders, while the lower four miles of the creek generally have large-sized substrate, ranging from small cobbles to two-foot boulders. The stream has a good mix of pool and riffle habitat for supporting native fish species.

Fisheries surveys have revealed self-sustaining populations of bluehead suckers, speckled dace, and mottled sculpin, all of which are native species. Bluehead suckers appear on BLM's sensitive species list, and BLM is a signatory to a multi-party, multi-state conservation agreement for that species that is designed to prevent a listing of bluehead suckers under the Endangered Species Act. The stream also supports self-sustaining populations of brook trout, rainbow trout, and white suckers, all of which are introduced species. Northern leopard frogs, which also appear on BLM's sensitive species list, have been documented along the creek.

The riparian community in this part of West Muddy Creek is generally comprised of willow species, alder, narrowleaf cottonwood 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	4.73 cfs	33.5 feet	3.28 cfs	10.08 cfs
06/01/2018 #2	5.82 cfs	33.5 feet	4.41 cfs	12.34 cfs
05/11/2021 #1	33.34 cfs	47.04 feet	7.43 cfs	19.16 cfs
08/06/2021 #1	4.57 cfs	30.13 feet	3.39 cfs	13.65 cfs
08/06/2021 #2	4.57 cfs	36.16 feet	8.75 cfs	9.30 cfs
		Averages:	5.45 cfs	12.91 cfs

BLM's analysis of this data indicates that the following flows are needed to protect the fishery and natural environment to a reasonable degree.

> 12.9 cubic feet per second is recommended for the snowmelt runoff period from March 16 through June 30 and meets all three instream flow criteria. This recommendation is driven by the average velocity criteria.
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> 8.0 cubic feet per second is recommended from July 1 to July 31. This recommendation is driven by limited water availability during this period. It provides the maximum amount of physical habitat possible to the fish community consistent with water availability constraints, which is important objective during this high growth period.
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> 5.1 cubic feet per second is recommended between August 1 and March 15. This recommendation is driven by limited water availability during this period. On average, this flow rate comes very close to meeting two of the three instream flow criteria in the cross sections analyzed. This flow rate should maintain sufficiently cool temperatures in pools during late summer and should prevent icing in pools during the winter.

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 aware of only one active surface water rights in the proposed reach, the Snooks Ditch No. 2, which is decreed for 1.5 cfs. Upstream from the proposed instream flow reach, BLM is aware of at least 12 active surface water rights, totaling just over 60 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,

Allan Bittner
Deputy State Director
Resources

Cc: Kevin Hyatt, Uncompahgre FO
Suzanne Copping, Uncompahgre FO
Stephanie Connolly, Southwest District