

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 Clear Creek near Thornburg, located in Water Division 6.

Location and Land Status. Clear Creek originates on Horse Ridge approximately 20 miles northeast of the community of Meeker. This recommendation addresses the entire length of Clear Creek from the headwaters to the confluence with Milk Creek, a distance of approximately 7.4 miles. The BLM manages approximately 0.7 miles of this reach, the U.S. Forest Service manages 4.4 miles, and 2.3 miles are in private ownership.

Biological Summary. Clear Creek is a cold water, moderate gradient stream. It begins in a rolling, forested valley on the north side of Horse Ridge, descends through alternating open meadows and forested reaches, then merges with Milk Creek on a broad valley floor. Substrate ranges from silt to 2-foot boulders, and it appears that the creek carries a substantial sediment load. Bank stability appears to be good, but there are locations where livestock use is evident.

The creek appears to have adequate pools and riffles for natural reproduction of native species, but population sizes appear to be limited by low flows and high stream temperatures in late summer. Other than temperatures, water quality appears to be sufficient for supporting native species.

Fish surveys have documented self-supporting populations of speckled dace and mottled sculpin. Spot surveys have revealed populations of caddisfly and mayfly. The creek supports a healthy riparian community comprised of narrow leaf cottonwood, willow, and alder.

R2Cross Analysis. The BLM collected the following R2Cross data from Clear 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)
5/24/2022 #1	8.74 cfs	21.32 feet	1.71 cfs	1.77 cfs
5/24/2022 #2	7.94 cfs	27.79 feet	3.00 cfs	6.66 cfs
Averages:			2.35 cfs	4.21 cfs

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

4.20 cubic feet per second is recommended during the snowmelt runoff period from April 1 through June 30. This recommendation is driven by the average velocity criteria. This flow rate will ensure that pool and riffle habitat can be fully utilized during this high growth period.

1.0 cubic feet per second is recommended during the remainder of the year summer, from July 1 through March 31. This recommendation is limited water availability. This flow rate comes very close to meeting both the wetted perimeter and average depth criteria. This flow rate should maintain full and sufficiently cool pools during the summer when stream temperatures can still be high and provide sufficient water for passage between pools. During the winter, this flow rate should prevent icing of pools, allowing the fish population to overwinter.

Water Availability. BLM recommends using a variety of data sources to confirm water availability, because BLM is not aware of any historical gage data on this creek. Use of the CSUFlow18 regression model can provide an estimate of natural hydrology. Water availability during the irrigation season can be partially confirmed by consulting diversion records for the Seilaff Ditch, but records for this ditch are limited. The general pattern of streamflow in this watershed can be confirmed by consulting historical data from the Milk Creek near Thornburgh stream gage (USGS Gage 0925000, CDWR Gage MILTHOCO).

The only water right within the recommended reach is the Seilaff Ditch, which is decreed for 1.4 cfs with an 1892 priority date. Diversion records from the last 25 years show that this ditch diverts primarily during May and June.

Relationship to Land Management Plans. BLM's management plan calls for actions to maintain and enhance habitat that supports fish species. Specifically, the BLM plan calls for making instream flow recommendations to the Colorado Water Conservation Board to meet minimum instream flow requirements to maintain fisheries. Finally, the plan calls for maintaining and improving the function of riparian areas to achieve advanced ecological stage for the riparian community, and it also calls for protecting riparian and wetland systems from activities that could degrade those habitats. 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 2023. BLM thanks 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,

Deputy State Director
Resources

Cc: Rob Hampson, White River Field Office
Bill Mills, White River Field Office
Elijah Water, Northwest Colorado District Office



FIELD DATA FOR INSTREAM FLOW DETERMINATIONS



COLORADO WATER
CONSERVATION BOARD

LOCATION INFORMATION

STREAM NAME: <u>Clear Creek</u>		CROSS-SECTION NO: <u>1</u>
CROSS-SECTION LOCATION: <u>At upper BLM-private boundary - just below road crossing</u>		
DATE: <u>5-24-72</u>	OBSERVERS: <u>R. Smith, T. Fresques</u>	
LEGAL DESCRIPTION	% SECTION: <u>SE</u>	SECTION: <u>31</u>
	TOWNSHIP: <u>30N</u>	RANGE: <u>91E</u>
COUNTY: <u>Rio Blanco</u>	WATERSHED: <u>Milk Creek</u>	WATER DIVISION: <u>6</u>
USGS: <u>UTMS = ZONE 13 E 274755</u>		PM: <u>6:44</u>
USFS: <u>N 4451553</u>		DOW WATER CODE:

SUPPLEMENTAL DATA

SAG TAPE SECTION SAME AS DISCHARGE SECTION: <u>(YES)</u>	METER TYPE: <u>M-M</u>
METER NUMBER:	DATE RATED:
CALIB/SPIN: _____ sec	TAPE WEIGHT: <u>surveyed</u> lbs/foot
CHANNEL BED MATERIAL SIZE RANGE: <u>silt to 2-foot boulders</u>	TAPE TENSION: <u>surveyed</u> lbs
PHOTOGRAPHS TAKEN: <u>(YES)</u>	NUMBER OF PHOTOGRAPHS: <u>3</u>

CHANNEL PROFILE DATA

STATION	DISTANCE FROM TAPE (ft)	ROD READING (ft)
(X) Tape @ Stake LB	0.0	<u>surveyed</u>
(X) Tape @ Stake RB	0.0	<u>surveyed</u>
(1) WS @ Tape LB/RB	0.0 <u>24.4</u>	<u>5.40 / 5.40</u>
(2) WS Upstream	<u>21.5</u>	<u>5.14</u>
(3) WS Downstream	<u>19.0</u>	<u>5.84</u>
SLOPE	<u>0.70 / 40.5 = .0173</u>	

SKETCH

TAPE

LEGEND:
Stake (X)
Station (1)
Photo (1)
Direction of Flow:

AQUATIC SAMPLING SUMMARY

STREAM ELECTROFISHED: <u>(YES)</u>	DISTANCE ELECTROFISHED: _____ ft	FISH CAUGHT: <u>(YES)</u>	WATER CHEMISTRY SAMPLED: <u>(YES)</u>														
LENGTH - FREQUENCY DISTRIBUTION BY ONE-INCH SIZE GROUPS (1.0-1.9, 2.0-2.9, ETC.)																	
SPECIES (FILL IN)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	>15	TOTAL
AQUATIC INSECTS IN STREAM SECTION BY COMMON OR SCIENTIFIC ORDER NAME																	
<u>too early for sampling</u>																	

COMMENTS

<u>pH = 8.44</u>	<u>CONDUCTIVITY = 181 μS</u>	<u>SAL = 0.1 ppt</u>	<u>11.5°C</u>
------------------	---------------------------------------------	----------------------	---------------

DISCHARGE/CROSS SECTION NO. S

STREAM NAME:						CROSS-SECTION NO.	DATE:	SHEET	OF		
Clear Creek						1	5-24-22				
BEGINNING OF MEASUREMENT	EDGE OF WATER LOOKING DOWNSTREAM: (0.0 AT STAKE)				LEFT / RIGHT	Gage Reading:	TIME				
						ft	1:00 pm				
Features Stake (S) Grassline (G) Waterline (W) Rock (R)	Distance From Initial Point (ft)	Width (ft)	Total Vertical Depth From Tape/Inst (ft)	Water Depth (ft)	Depth of Observation (ft)	Revolutions	Time (sec)	Velocity (ft/sec)		Area (ft²)	Discharge (cfs)
								At Point	Mean in Vertical		
LS	0.0		3.52								
G	6.2		4.57								
	7.2		4.75								
	7.9		5.28								
	8.0		5.40	φ							
	8.5		5.40								
	9.0		5.8	0.4					0.86		
	10.0		5.9	0.5					1.46		
	11.0		5.9	0.5					2.40		
	12.0		5.75	0.35					2.20		
	13.0		5.9	0.5					1.05		
	14.0		6.0	0.6					0.22		
	15.0		5.9	0.5					1.98		
	15.5		5.9	0.5					2.79		
	16.0		5.95	0.55					2.14		
	16.5		5.95	0.55					2.13		
	17.0		6.0	0.6					1.66		
	17.5		5.8	0.4					2.26		
	18.0		5.7	0.3					2.34		
	18.5		5.9	0.5					1.41		
	19.0		5.8	0.4					1.07		
	19.5		5.65	0.25					1.30		
	20.0		5.55	0.15					1.98		
	21.0		5.55	0.15					0.61		
	22.0		5.5	0.1					0.64		
	23.0		5.5	0.1					0.14		
TOTALS:											
End of Measurement	Time:	Gage Reading:	CALCULATIONS PERFORMED BY:					CALCULATIONS CHECKED BY:			

DISCHARGE/CROSS SECTION NOTES

[illegible]