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 Kinney Creek, located in Water Division 5.

Location and Land Status. Kinney Creek originates on the east side of Elk Mountain approximately seven miles north of Hot Sulphur Springs. Kinney Creek flows into the Colorado River approximately three miles northeast of Hot Sulphur Springs. This recommendation addresses the portion of Kinney Creek that starts at the headwaters and extends downstream to the confluence with McQueary Creek, a distance of approximately 7.0 miles. The BLM manages 3.6 miles of this reach, the U.S. Forest Service manages approximately 2.6 miles, and approximately 0.8 miles are in private ownership.

Existing Instream Flow Water Right. In 1986, the Colorado Water Conservation Board (CWCB) appropriated an instream flow water on Kinney Creek for 1.0 cfs, year-round. This recommendation is for an increase to the existing instream flow water right.

Biological Summary. Kinney Creek is a cold water, high gradient stream. The reach that is the subject of this recommendation flows through a valley that ranges from ¼ to 1/2 mile in width. Most of the reach is located on densely forested lands.

Substrate is generally moderate in size, ranging from gravels to eight-inch boulder. The stream provides good pools and undercut banks for cover, but riffle habitat is limited because of the steep gradient. Water quality is excellent for supporting cold water species.

Fish surveys have documented a self-supporting population of Colorado River Cutthroat Trout – Blue Lineage. BLM works with partners to manage the fishery in Kinney Creek as a core conservation population. BLM has reintroduced beavers to the creek to create additional pool habitat and trap a portion of the high sediment load.

Surveys have indicated robust populations of stonefly and caddisfly, indicating high water quality. The riparian community is comprised of willow, alder, rushes, sedges, and grasses.

The upper portions of Kinney Creek burned during the East Troublesome Fire in 2020. The creek will be a priority for monitoring during subsequent years to determine if fire will have a significant effect on water quality, sediment, and the fish population.

R2Cross Analysis. The BLM collected the following R2Cross data from Kinney 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)
07/31/2020 #1	1.00 cfs	6.29 feet	Out of range	1.73 cfs
		Averages:	XX cfs	1.73 cfs

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

> An increase of 0.7 cubic feet per second is recommended during the snowmelt runoff period and summer, from May 1 through September 30. This recommendation is driven by the average depth criteria. Kinney Creek has limited riffle habitat, so protecting this flow rate will ensure that the limited habitat can be fully utilized during the snowmelt and summer period, when fish are spawning and moving actively between pools. It will also allow the fish population to complete important parts of its life cycle before cold temperatures arrive.
>
> An increase is warranted because R2Cross modeling clearly shows that the existing 1.0 cfs instream flow water protects insufficient habitat in the limited riffles in Kinney Creek. At 1.0 cfs, the average depth in riffles is only 0.15 feet and the percent wetted perimeter is only 69.2%, far below the instream flow criteria used by the CWCB for the warm portion of the year.

Water Availability. The 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 Streamstats can provide an estimate of natural hydrology. One nearby gage may provide an estimate of the seasonality of flows, because it is located on a watershed with similar characteristics. USGS Gage 09040000, on East Troublesome Creek, is located on a larger watershed but appears to be relatively unaffected by diversion and storage operations. Analysis of diversion records for ditches on Kinney Creek near the confluence with the Colorado River would also provide some documentation of flows available in Kinney Creek. However, diversion records would have to be adjusted to account for inflow from McQueary Creek below the reach that it is the subject of this recommendation.

BLM is aware of the following water right within the reach proposed for an increase:

Dennis Ditch – 2.75 cfs, 1915 priority

Relationship to Land Management Plans. The Colorado River Cutthroat Trout population in Kinney Creek has been identified as a core conservation population in the Conservation Agreement and Strategy for Colorado River Cutthroat Trout in the States of Colorado, Utah, and Wyoming (2007). In addition, the upper portions of the stream reach have been designated as an

Area of Critical Environmental Concern (ACEC) in BLM's land use planning process, with land management prescriptions designed to protect and enhance cutthroat trout habitat. Increasing the instream flow water right would assist in meeting the objectives of the conservation agreement and strategy and the ACEC.

Data sheets, R2Cross output, fishery survey information, and photographs of the cross section were included with BLM's draft recommendation in February 2021. 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: Bill Mills, Kremmling FO
Paula Belcher, Kremmling Field Office
Northwest District Manager

Kremmling Field Office

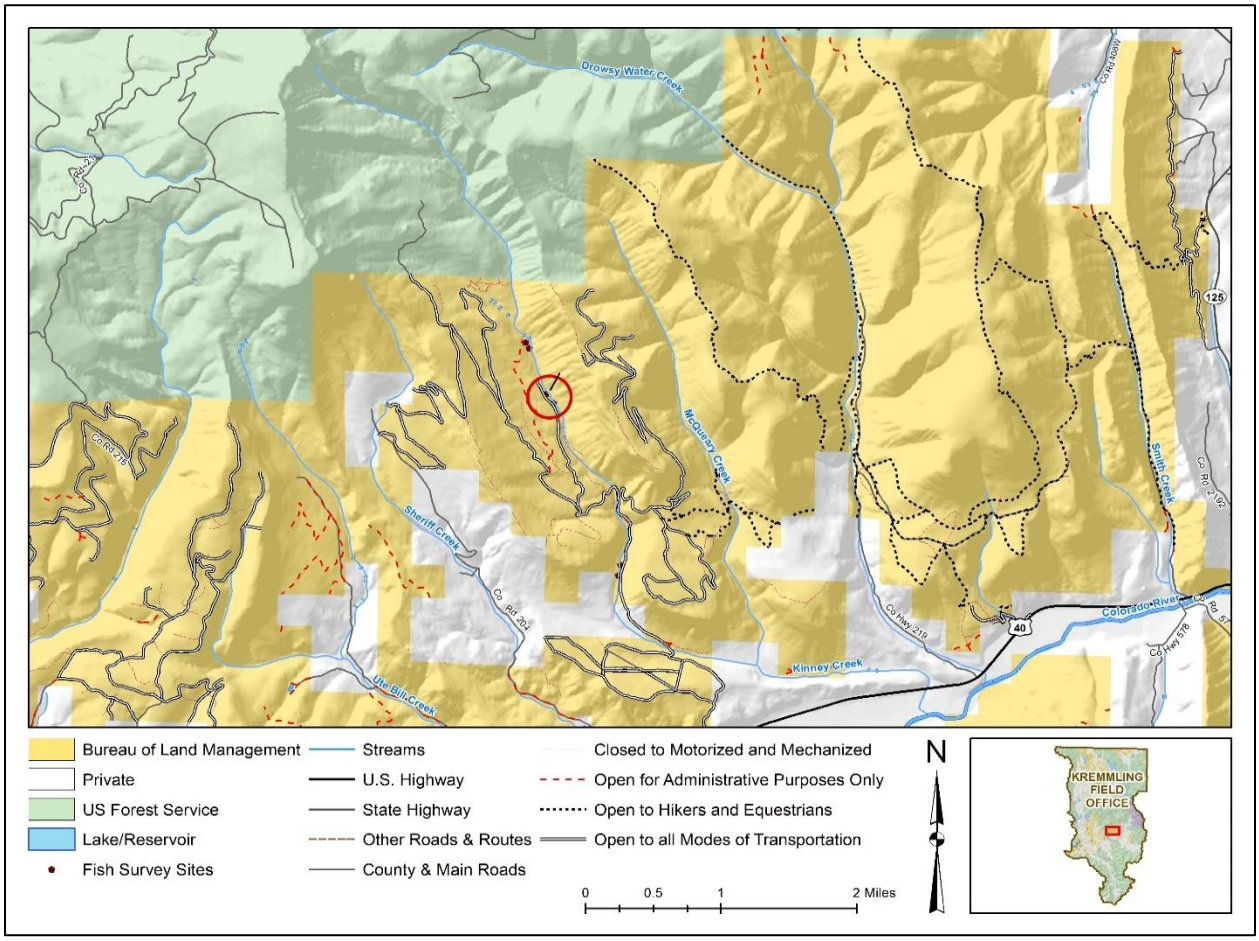
Stream Surveys July 2019

Kinney Creek – Water Code: 23527

Introduction:

Kinney Creek located northwest of Hot Sulphur Springs, Colorado on public lands managed by the BLM's Kremmling Field Office, was sampled on July 18, 2019. Kinney Creek is tributary to the Colorado River and contains a conservation population of Colorado River Cutthroat Trout - Blue Lineage. The purpose of this site visit was to sample the fishery and obtain data to inform an up to date population estimate.

Map of Kinney Creek Survey Area 2019



Colorful Colorado River Cutthroat Trout

Methods:

The sample took place at an established 503' reach where prior surveys have occurred. One backpack electrofishing unit with a backup netter was used to complete a two-pass removal protocol. Personnel present were Josh Ryan, BLM Fish Biologist, Christian Prince, CPW Technician, and BLM Interns from the Kremmling Field Office.

Results:

A total of six Cutthroat Trout were collected at the established monitoring site - all on the first pass as no fish were seen or collected on the second pass. **The resulting population estimate for adult fish (≥150 mm Total Length) at the sample site is 3 fish + or – 0 fish at the 95% Confidence Interval, and 31 fish + or- 0 fish per mile at the 95% Confidence Interval.** This is a lower number than previous sampling efforts. Below is a comparison of the two most recent population estimates completed:

Table 1. Comparison of adult population estimate data from surveys from 2010 and 2019

Survey Year	Total # of Fish Captured	Adult (≥150 mm TL) Pop. Est. at site	95% CI (+/-)	Adult (≥150 mm TL) Pop. Est. per Mile	95% CI (+/-)
2010	22	**15**	14	**157**	143
2019	6	**3**	0	**31**	0

Discussion:

Compared to the 2010 survey, Cutthroat Trout numbers are down, although it is unknown if the 2019 estimate is within the natural variability of the population. Severe drought conditions occurred across the region in 2018, due to low snowpack and lack of monsoonal moisture. As a result, flows were substantially reduced and water temperatures were higher than normal. It is likely that the severe drought had some level of impact on the population. Another hypothesis is that because the 2019 water year was much better with good snowpack and a cool, wet, and prolonged spring, it is possible that resident Cutthroat Trout spawned later than normal and could have been utilizing preferred spawning habitat located outside of the sample reach at the time of sampling.

The riparian vegetation in the sample reach looked much better this year than in recent years. Vegetation consists primarily of willow, alder, sedge, clover, rush, sedges, and grasses. Flows were also higher this year, due to the above average snowpack. The stream contained a good mix of riffles, runs, and pools. It was also noted during discussions with Range, and Hydrology staff on site that the cattle typically in this pasture this time of year were rotated to a different pasture. This allowed for an entire year of rest in this pasture and along the stream.

Recommendations:

- Continue to periodically monitor the population (*every 5 years at a minimum per the CRCT Conservation Agreement and Strategy*)
- Continue to monitor livestock use of the pasture and stream and encourage periodic rest as occurred this year
- Consider moving beaver into the watershed to improve habitat for fish

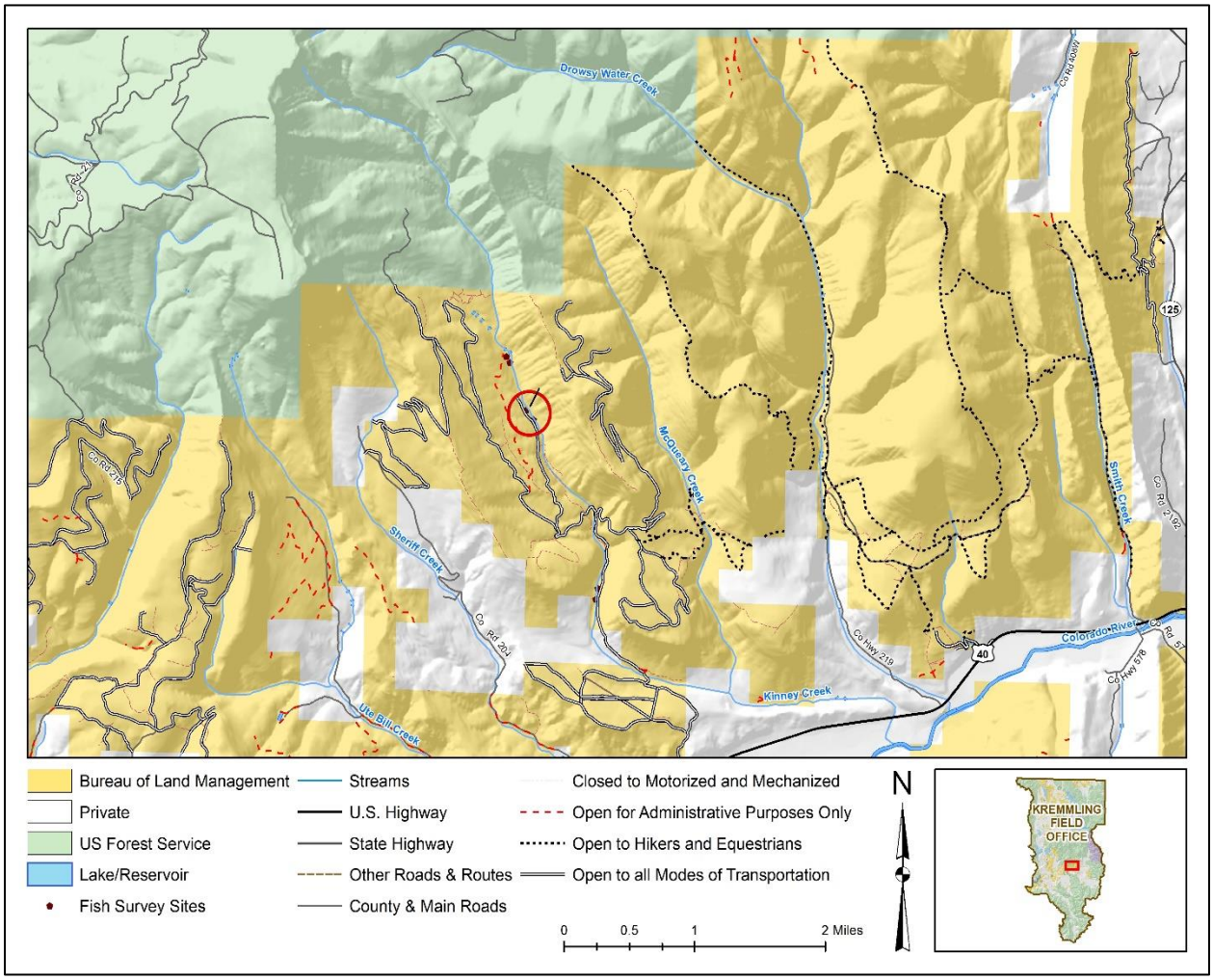
Kremmling Field Office

Stream Surveys July 2018

Kinney Creek – Water Code: 23527

Introduction:

Kinney Creek is located northeast of Hot Sulphur Springs, Colorado on public lands managed by the Kremmling Field Office. Kinney Creek is a tributary to the Colorado River and contains a conservation population of Colorado River Cutthroat Trout - Blue Lineage. The creek has been surveyed in 2006, 2009, and 2010. The purpose of this site visit was to collect a fresh population estimate using a two-pass removal sampling protocol. The sample location was the same as prior surveys. Only one backpack electrofishing unit was used to complete the survey due to low water levels. Personnel present were Josh Ryan, BLM Fish Biologist, Ross McNearney, BLM Fish Technician, Christian Prince, CPW Technician, and BLM Interns from KFO.



Discussion:
2018 was a very dry year and the region suffered from severe drought. Stream flow at the time of sampling was low and water temperatures were pushing upper thresholds for trout. A total of 12 fish were collected during the two passes. Given the stressors to fish associated with warm water temperatures and sampling and handing, as well as the poor sampling efficiency, sampling was ceased, and a population estimate was not completed.

Riparian vegetation was not overly thick, but was comprised of willows, alder, sedges, rush, and grasses. As mentioned above, flows were extremely low and available habitat was limited to deeper pools and undercut banks within the reach.

As noted in previous years, survey conditions are difficult in this stream due to undercut banks and an abundance of downed trees.

Recommendations:

- The stream and site will be resampled in 2019 under more favorable conditions to obtain an up to date population estimate

COLORADO WATER CONSERVATION BOARD

FIELD DATA FOR INSTREAM FLOW DETERMINATIONS

LOCATION INFORMATION

STREAM NAME: Kinney Creek						CROSS-SECTION NO.: 1	
CROSS-SECTION LOCATION: 500 ft. upstream from BLM campground + closed road							
DATE: 7-31-25	OBSERVERS: R. Smith, P. Belcher						
LEGAL DESCRIPTION	% SECTION: SW	SECTION: 24	TOWNSHIP: 2 (N)/S	RANGE: 78 E/(W)	PM: 6th		
COUNTY: Grand	WATERSHED: CO River		WATER DIVISION: 5		DOW WATER CODE: 23527		
MAP(S): USGS: Zone 13 407809			40.119084 N				
USFS: 4441525			106.081898 W				

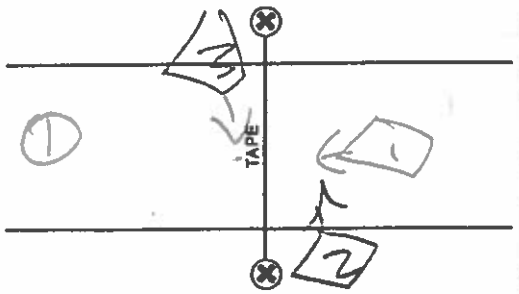
SUPPLEMENTAL DATA

SAG TAPE SECTION SAME AS DISCHARGE SECTION: (YES) NO	METER TYPE: M-M			
METER NUMBER:	DATE RATED:	CALIB/SPIN: ____ sec	TAPE WEIGHT: surveyed ____ lbs/foot	TAPE TENSION: surveyed ____ lbs
CHANNEL BED MATERIAL SIZE RANGE: gravel to 8-inch boulders		PHOTOGRAPHS TAKEN: (YES)/NO	NUMBER OF PHOTOGRAPHS: 3	

CHANNEL PROFILE DATA

STATION	DISTANCE FROM TAPE (ft)	ROD READING (ft)
⊗ Tape @ Stake LB	0.0	surveyed
⊗ Tape @ Stake RB	0.0	surveyed
① WS @ Tape LB/RB	0.0	5.15 / 5.15
② WS Upstream	17.0	4.68
③ WS Downstream	8.0	5.56
SLOPE	0.88/25.0 = 0.0352	

SKETCH



LEGEND:
- Stake ⊗
- Station ①
- Photo ①
- Direction of Flow

AQUATIC SAMPLING SUMMARY

STREAM ELECTROFISHED: YES/(NO)	DISTANCE ELECTROFISHED: ____ ft	FISH CAUGHT: YES/NO	WATER CHEMISTRY SAMPLED: (YES)/NO

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:

mayfly, caddisfly, stonefly

COMMENTS

EC 1.2

Temp. °C

alt. ± 0.1 ppt

DISCHARGE/CROSS SECTION NOTES

STREAM NAME: Kinney Creek | CROSS-SECTION NO.: 1 | DATE: 7-31-20 | SHEET ___ OF ___

BEGINNING OF MEASUREMENT | EDGE OF WATER LOOKING DOWNSTREAM: (0.0 AT STAKE) LEFT / RIGHT | Gage Reading: _____ ft | TIME: 10:30 am

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) At Point	Velocity (ft/sec) Mean in Vertical	Area (ft^2)	Discharge (cfs)
RS	0.0		3.86								
	0.5		4.14								
G	0.7		4.55								
	1.7		4.62								
W	2.1		5.15								
	2.5	5.35	0.2					0.49			
	2.7	5.35	0.2					1.16			
	2.9	5.3	0.15					1.35			
	3.1	5.3	0.15					1.77			
	3.3	5.35	0.2					1.86			
	3.5	5.35	0.2					2.80			
	3.7	5.35	0.2					2.34			
	3.9	5.35	0.2					2.11			
	4.1	5.35	0.2					0.18			
	4.3	5.35	0.2					1.03			
	4.5	5.35	0.2					1.17			
	4.7	5.35	0.2					2.05			
	4.9	5.4	0.25					2.1			
	5.1	5.35	0.2					1.55			
	5.3	5.35	0.2					1.38			
	5.5	5.25	0.1					1.0			
	5.7	5.25	0.1					0.84			
	5.9	5.2	0.05					0.59			
	6.1	5.2	0.05					0			
	6.3	5.2	0.05					0			
W	6.7		5.15								
	7.3		4.75								
G	7.7		4.60								
	8.6		4.46								
TOTALS:											

End of Measurement | Time: | Gage Reading: _____ ft | CALCULATIONS PERFORMED BY: | CALCULATIONS CHECKED BY:

COLORADO WATER CONSERVATION BOARD

FIELD DATA FOR INSTREAM FLOW DETERMINATIONS

COLORADO DIVISION OF WILDLIFE

LOCATION INFORMATION

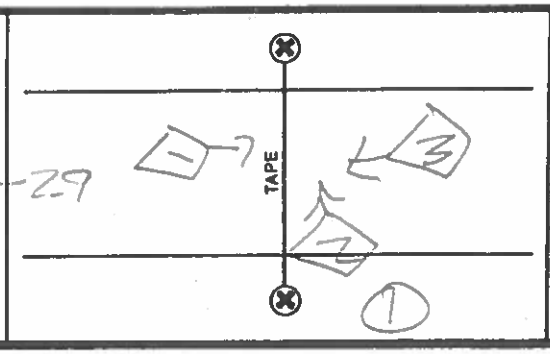
STREAM NAME: Kinney Creek						CROSS-SECTION NO.: 2	
CROSS-SECTION LOCATION: 100 ft. downstream from Kinney Creek Road Crossing							
DATE: 7-31-20	OBSERVERS: R. Smith, P. Belcher						
LEGAL DESCRIPTION	¼ SECTION: SE	SECTION: 25	TOWNSHIP: 2 N/S	RANGE: 78 E/W	PM: 6th		
COUNTY: Grand	WATERSHED: Colorado R.	WATER DIVISION: 5	DOW WATER CODE: 23527				
MAP(S): USGS: Zoke 13 408478 GPS 40.103243 N							
MAP(S): USFS: 4439769			106.073802				

SUPPLEMENTAL DATA

SAG TAPE SECTION SAME AS DISCHARGE SECTION: (YES / NO)	METER TYPE: M-M			
METER NUMBER:	DATE RATED:	CALIB/SPIN. ____ sec	TAPE WEIGHT: surveyed ____ lbs/foot	TAPE TENSION: surveyed ____ lbs
CHANNEL BED MATERIAL SIZE RANGE: gravel to 6" cobbles	PHOTOGRAPHS TAKEN: (YES/NO)	NUMBER OF PHOTOGRAPHS: 3		

CHANNEL PROFILE DATA

STATION	DISTANCE FROM TAPE (ft)	ROD READING (ft)
⊗ Tape @ Stake LB	0.0	surveyed
⊗ Tape @ Stake RB	0.0	surveyed
① WS @ Tape LB/RB	0.0 8.3	5.95 5.95 -2.9
② WS Upstream	15.0	5.78
③ WS Downstream	7.5	6.06
SLOPE	0.28/22.5 = 0.0124	



AQUATIC SAMPLING SUMMARY

STREAM ELECTROFISHED: YES/NO	DISTANCE ELECTROFISHED: ____ ft	FISH CAUGHT: YES/NO	WATER CHEMISTRY SAMPLED: YES/NO

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:

mayfly, caddisfly, stonefly

COMMENTS

pH = meter not working Riparian = Alder - Willow - Spruce

Temp = 7.7°C

Salinity = 0.1 higher

Cond = 132 elevation

DISCHARGE/CROSS SECTION NOTES

STREAM NAME: Kinney Creek	CROSS-SECTION NO: 2	DATE: 7-31-20	SHEET ___ OF ___
BEGINNING OF MEASUREMENT	EDGE OF WATER LOOKING DOWNSTREAM: (0.0 AT STAKE) LEFT / RIGHT	Gage Reading: ____ ft	TIME: 11:50 am

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) At Point	Velocity (ft/sec) Mean in Vertical	Area (ft^2)	Discharge (cfs)
RS	0.0		5.15								
G	1.8		5.55								
	2.3		5.75								
W	2.9		5.95								
LEW	3.										
	3.3		6.1	0.15				0.35			
	3.5		6.15	0.2				0.72			
	3.7		6.15	0.2				0.84			
	3.9		6.15	0.2				0.94			
	4.1		6.15	0.2				0.81			
	4.3		6.15	0.2				1.00			
	4.5		6.15	0.2				0.89			
	4.7		6.15	0.2				1.05			
	4.9		6.15	0.2				1.16			
	5.1		6.15	0.2				1.21			
	5.3		6.15	0.2				0.85			
	5.5		6.15	0.2				1.22			
	5.7		6.15	0.2				1.2			
	5.9		6.15	0.2				1.33			
	6.1		6.2	0.25				1.18			
	6.3		6.2	0.25				1.03			
	6.5		6.2	0.25				1.22			
	6.7		6.25	0.3				1.11			
	6.9		6.3	0.35				0.81			
	7.1		6.15	0.2				0.42			
	7.3		6.15	0.2				0.51			
	7.5		6.05	0.1				0.49			
	7.7		6.15	0.2				0.24			
	7.9		6.15	0.2				0.16			
	8.1		6.1	0.15				0.26			
W	8.3		5.95								
	8.5		5.75								
	8.9		5.65								
G	9.3		5.60								
LS	9.7		5.10								
TOTALS:											

End of Measurement	Time:	Gage Reading: ____ ft	CALCULATIONS PERFORMED BY:	CALCULATIONS CHECKED BY:

STREAM NAME: Kinney Creek
XS LOCATION: UTM Zone 13 407809 4441535
XS NUMBER: 1

SUMMARY SHEET

MEASURED FLOW (Qm)=	1.00	cfs
CALCULATED FLOW (Qc)=	1.00	cfs
(Qm-Qc)/Qm * 100 =	0.0	%
MEASURED WATERLINE (WLm)=	5.15	ft
CALCULATED WATERLINE (WLc)=	5.15	ft
(WLm-WLc)/WLm * 100 =	0.0	%
MAX MEASURED DEPTH (Dm)=	0.25	ft
MAX CALCULATED DEPTH (Dc)=	0.25	ft
(Dm-Dc)/Dm * 100	0.0	%
MEAN VELOCITY=	1.45	ft/sec
MANNING'S N=	0.053	
SLOPE=	0.0352	ft/ft
.4 * Qm =	0.4	cfs
2.5 * Qm=	2.5	cfs

RECOMMENDED INSTREAM FLOW:
==========

FLOW (CFS)	PERIOD
==========	========
_____	_____
_____	_____
_____	_____

RATIONALE FOR RECOMMENDATION:
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_____
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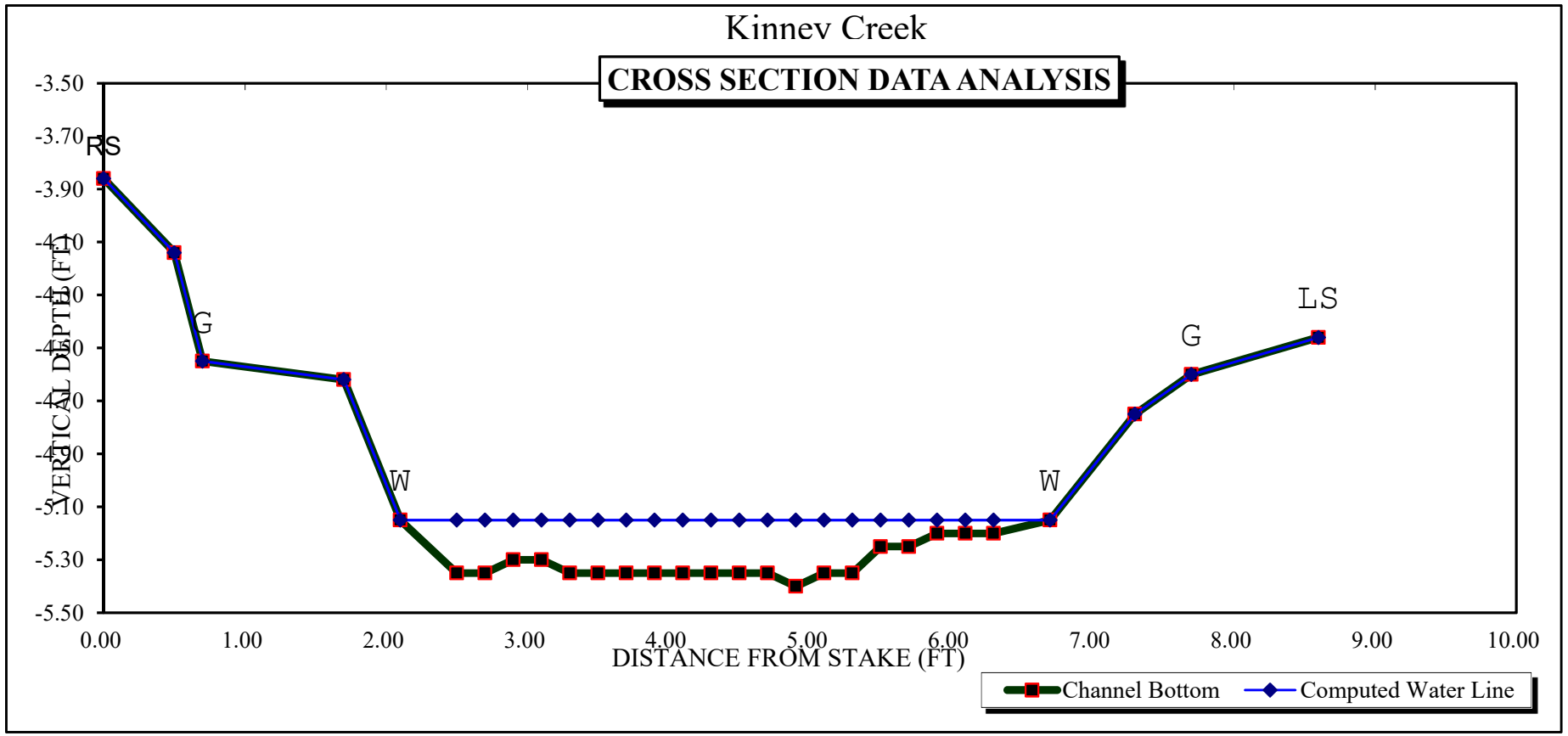
RECOMMENDATION BY: ……..……..…..... AGENCY..……....……...…...…..... DATE:.....…..…....……

CWCB REVIEW BY: ..……...…….....…..... DATE:.....……..…


Kinnev Creek
CROSS SECTION DATA ANALYSIS
VERTICAL DEPTH (FT)
-3.50
-3.70
-3.90
-4.10
-4.30
-4.50
-4.70
-4.90
-5.10
-5.30
-5.50
RS
G
W
W
G
LS
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
8.00
9.00
10.00
DISTANCE FROM STAKE (FT)
Channel Bottom
Computed Water Line

STREAM NAME: Kinney Creek
XS LOCATION: UTM Zone 13 408478 4439769
XS NUMBER: 2

SUMMARY SHEET

MEASURED FLOW (Qm)=	0.93	cfs
CALCULATED FLOW (Qc)=	0.93	cfs
(Qm-Qc)/Qm * 100 =	0.0	%
MEASURED WATERLINE (WLm)=	5.95	ft
CALCULATED WATERLINE (WLc)=	5.95	ft
(WLm-WLc)/WLm * 100 =	0.0	%
MAX MEASURED DEPTH (Dm)=	0.35	ft
MAX CALCULATED DEPTH (Dc)=	0.35	ft
(Dm-Dc)/Dm * 100	0.0	%
MEAN VELOCITY=	0.86	ft/sec
MANNING'S N=	0.064	
SLOPE=	0.0124	ft/ft
.4 * Qm =	0.4	cfs
2.5 * Qm=	2.3	cfs

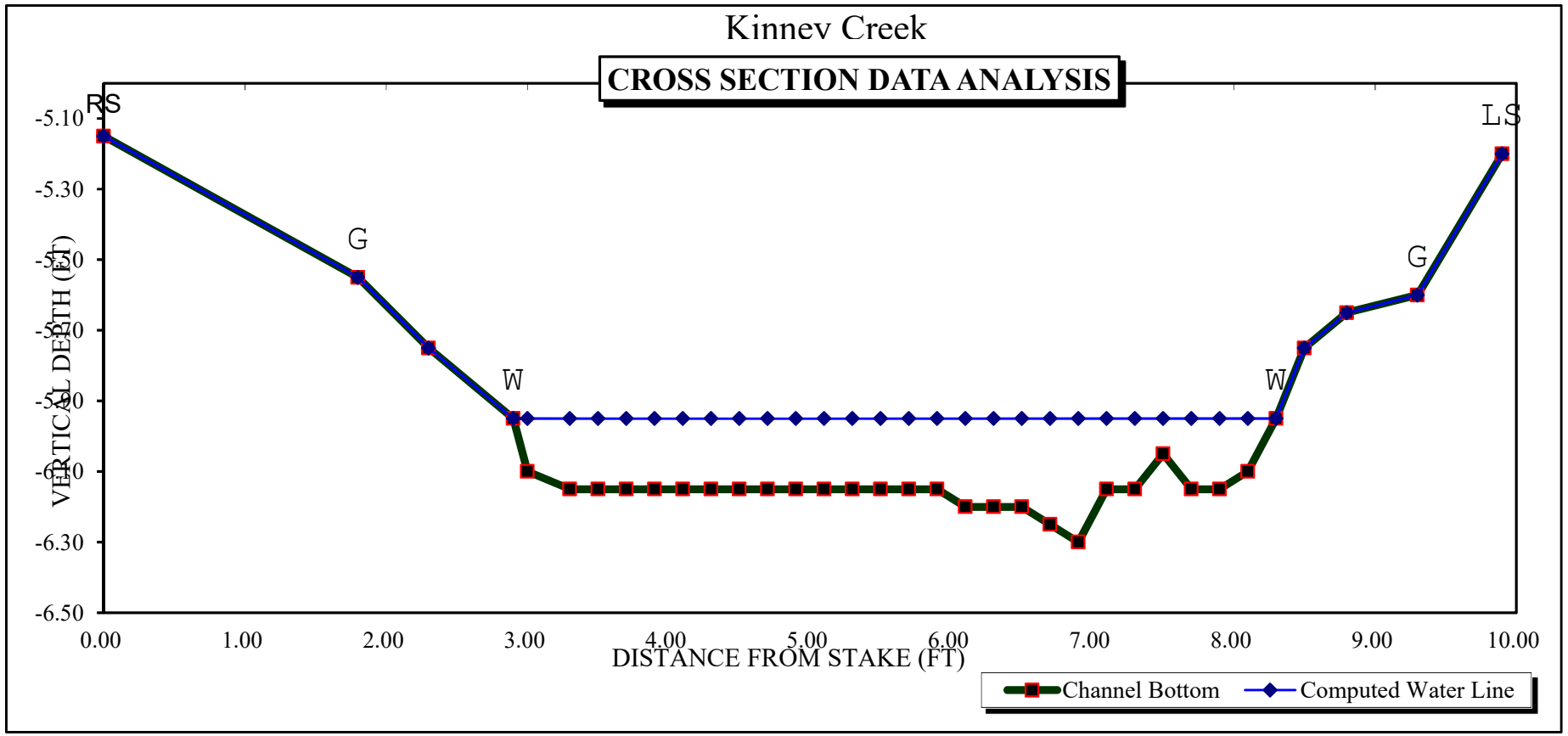
RECOMMENDED INSTREAM FLOW:
==========

FLOW (CFS)	PERIOD
==========	========
_____	_____
_____	_____
_____	_____

RATIONALE FOR RECOMMENDATION:
==========

RECOMMENDATION BY: …….……..……..……..... AGENCY..……....……...…...……..... DATE:.....…..…...…..……

CWCB REVIEW BY: ..……...……..…….....……..……..... DATE:.....……..…


Kinnev Creek
CROSS SECTION DATA ANALYSIS
RS
G
W
W
G
LS
-5.10
-5.30
-5.50
-5.70
-5.90
-6.10
-6.30
-6.50
VERTICAL DEPTH (FT)
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
8.00
9.00
10.00
DISTANCE FROM STAKE (FT)
Channel Bottom
Computed Water Line