United States Department of the Interior

BUREAU OF LAND MANAGEMENT
Colorado State Office
2850 Youngfield Street
Lakewood, Colorado 80215-7210

In Reply Refer To:
7250 (CO-932)

Mr. Rob Viehl
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 rights on Piceance Creek, located in Water Division 6.

Location and Land Status. Piceance Creek originates on the east side of the Grand Hogback, approximately 20 miles northwest of Rifle. This instream flow recommendation focuses on two separate reaches of Piceance Creek. The first reach begins at the headwaters and extends downstream to unnamed tributary located immediately adjacent to State Highway 13, a distance of approximately 7.0 miles. The second reach begins at the unnamed tributary adjacent to State Highway 13 and extends downstream to the headgate of Piceance Ditch, approximately 3.65 miles. Within the first reach, the BLM manages approximately 0.6 miles, the U.S. Forest Service manages approximately 0.4 miles, and 6.0 miles are in private ownership. Within the second reach, BLM manages 1.1 miles, while 2.55 miles are in private ownership.

Biological Summary. This portion of Piceance Creek is a cold-water, high gradient stream. The first reach flows through a broad canyon with a valley floor approximately 1000 to 3000 feet in width. The stream cuts through alluvial deposits in the valley and is confined by bedrock in some locations. The second reach begins in a broad valley that is more than a mile in width, where several small tributaries converge. The second reach then enters a narrow valley approximately 1,000 feet in width. The stream reaches generally have small-sized substrate, consisting of gravels, small cobbles, and small boulders.

Fisheries surveys have revealed a self-sustaining native fish population comprised of speckled dace and mountain suckers. Intensive macro-invertebrate surveys have not been conducted, but spot samples have revealed various species of mayfly, caddisfly, and stonefly.

The riparian community is generally comprised of coyote willow, Geyer's willow, sedges and rushes. The riparian community is in good condition and provides shading and cover for fish

habitat. The stream has a good mix of pools, small riffles, and runs. While deep pool habitat is absent, the existing pools are sufficient for overwintering fish.

R2Cross Analysis. The BLM collected the following R2Cross data from Piceance Creek:

First Reach – Headwaters to unnamed tributary below Highway 13

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)
06/15/2015 #2	3.91 cfs	6.7 feet	0.52 cfs	1.78 cfs
06/15/2015 #3	3.73 cfs	7.0 feet	0.47 cfs	2.22 cfs
07/07/2015 #2	1.98 cfs	7.4 feet	0.84 cfs	1.35 cfs
07/20/2022 #1	0.11 cfs	4.1 feet	0.47 cfs	0.90 cfs
07/20/2022 #2	0.11 cfs	4.0 feet	0.31 cfs	1.03 cfs
		Averages:	0.52 cfs	1.46 cfs

Second Reach – Confluence with unnamed tributary below State Highway 13 to headgate of Piceance Ditch

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)
06/15/2015 #1	5.83 cfs	8.1 feet	1.4 cfs	2.50 cfs
07/072015 #1	3.25 cfs	12.5 feet	0.23 cfs	3.33 cfs
		Averages:	0.82cfs	2.92cfs

BLM's analysis of this data indicates that the following flows are needed to protect the fishery and natural environment to a reasonable degree. Please note that many of the flow rates recommended below are based on limited water availability that was documented during an extreme drought period. If flow data collected at a later time indicates that additional water is available during non-drought periods, BLM may submit a recommendation for an increase in the protected flow rates.

First Reach – Headwaters to unnamed tributary below State Highway 13

1.5 cubic feet per second is recommended during the beginning of the snowmelt runoff period from April 1 through April 30. This recommendation is variously driven by the mean depth criteria, mean velocity criteria, or wetted perimeter criteria, depending on the cross section surveyed. This portion of the creek is small and habitat availability is very susceptible to even small changes in flow from diversions. It is important to protect a flow rate that makes most of this habitat available to the fish population while they are completing critical life history functions during the warm weather months.

1.4 cubic feet per second is recommended from May 1 to May 31. The rationale for this flow rate is the same as the rationale for the April 1 to April 30 recommendation, except that the flow rate has been slightly reduced because of more limited water availability.

0.8 cubic feet per second is recommended during the conclusion of the snowmelt runoff period from June 1 through June 30. This flow rate doesn't meet all three instream flow criteria, but it exceeds two of three instream flow criteria and provides a transitional flow rate between maximum habitat availability during snowmelt runoff and limited habitat availability during the base flow period.

0.2 cubic feet per second is recommended during the base flow period from July 1 through February 29. This recommendation is driven by very limited water availability. This flow rate should maintain pool habitat during the late summer and fall and prevent pools from freezing during the extended cold weather period, allowing the fish population to successfully overwinter. Even though the base flow in this creek is small, it persists even during drought conditions, allowing the fishery to continue.

0.8 cubic feet per second is recommended during the low elevation snowmelt period from March 1 through March 31. This flow rate doesn't meet all three instream flow criteria, but it exceeds two of three instream flow criteria and provides a transitional flow rate between limited habitat availability during the winter and maximum habitat availability during peak snowmelt runoff.

<u>Second Reach – Confluence with unnamed tributary below State Highway 13 to headgate of Piceance Ditch</u>

2.9 cubic feet per second is recommended during the beginning of the snowmelt runoff period from April 1 through May 31. This recommendation is driven by the average velocity and wetted perimeter criteria. This portion of the creek is small and habitat availability is very susceptible to even small changes in flow from diversions. It is important to protect a flow rate that makes most of this habitat available to the fish population while they are completing critical life history functions during the warm weather months.

1.5 cubic feet per second is recommended during the conclusion of the snowmelt runoff period from June 1 through June 30. This flow rate doesn't meet all three instream flow criteria, but it exceeds two of three instream flow criteria and provides a transitional flow rate between maximum habitat availability during snowmelt runoff and limited habitat availability during the base flow period.

0.4 cubic feet per second is recommended during the base flow period from July 1 through February 29. This recommendation is driven by very limited water availability. This flow rate should maintain pool habitat during the late summer and fall and prevent pools from freezing during the extended cold weather period,

allowing the fish population to successfully overwinter. Even though the base flow in this creek is small, it can persist during drought periods, allowing the fishery to continue.

1.5 cubic feet per second is recommended during the low elevation snowmelt period from March 1 through March 31. This flow rate doesn't meet all three instream flow criteria, but it exceeds two of three instream flow criteria and provides a transitional flow rate between limited habitat availability during the winter and maximum habitat availability during peak snowmelt runoff.

Water Availability. The BLM does not recommend relying upon USGS Gage 09306200 for Piceance Creek below Ryan Gulch. This gage is heavily influenced by irrigation diversions and would not give an accurate picture of water availability higher in the watershed. Instead, BLM recommends reliance upon a temporary stream flow gage cooperatively installed and operated by BLM and CWCB staff, as well as review of spot discharge measurements collected by BLM and CWCB staff. BLM notes that flow data from this gage was collected during an extreme drought period and likely underestimates the amount of flow in the two stream reaches during more typical conditions.

The BLM is aware of the following water rights within the two proposed instream flow reaches:

Wilcoxson Ditch #1 – 0.39 cfs, absolute and 1.5 cfs conditional (1991 priority)
Wilcoxson Ditch #2 – 1.0 cfs conditional (1999 priority)
Larson Ditch – 2.5 cfs (1886 priority)
Morgan Ditch 1– 1.0 cfs (1883 priority)
Morgan Ditch 2 – 0.40 cfs (1886 priority)
Ryan S. Pond Feeder Ditch – 1.25 cfs (2001 priority)

Relationship to Land Management Plans. The BLM's management plan calls for protection and enhancement of native fish populations. In addition, the BLM calls for making instream flow recommendations to the Colorado Water Conservation Board to meet minimum instream flow requirements to maintain native fisheries. Finally, the plan calls for maintaining and improving the function of riparian areas to achieve advanced ecological stage for the riparian community. 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 have been previously provided to the CWCB staff. 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,

Alan Bittner
Deputy State Director

Resources

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

COLORADO WATER CONSERVATION BOARD

FIELD DATA FOR INSTREAM FLOW DETERMINATIONS

COLORADO DIVISION OF WILDLIFE

LOCATION INFORMATION

STREAM NAME: Piceance Creek - Upper						CROSS-SECTION NO.: 1
CROSS-SECTION LOCATION: Adjacent to Piceance Creek Road - approx. 2.5 miles down from State Highway 13						
DATE: 6-15-15	OBSERVERS: R. Smith, K. Sauder					
LEGAL DESCRIPTION	¼ SECTION: NW	SECTION: 6	TOWNSHIP: 4 N/S	RANGE: 95 E/W	PM: 6th	
COUNTY: Rio Blanco	WATERSHED: White River	WATER DIVISION: 6	DOW WATER CODE: 25343			
MAP(S): USGS:	Zone 13 243837 4402140					
USFS:						

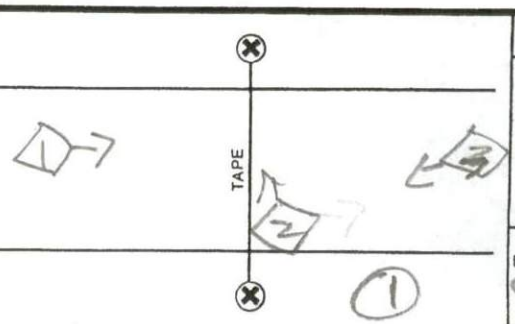
SUPPLEMENTAL DATA

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 & sand	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	5.95 / 5.95
② WS Upstream	5.10	5.92
③ WS Downstream	5.00	6.03
SLOPE	0.11 / 10.10 = .01	

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:

COMMENTS

Ph = 8.38
Temp = 17.5° C
Cond = 840
Salinity = 0.4 ppt

FORM #ISF FD 1-85

DISCHARGE/CROSS SECTION NOTES

STREAM NAME: Piceance Creek - upper | CROSS-SECTION NO.: 1 | DATE: 6-15-15 | SHEET ___ OF ___

BEGINNING OF MEASUREMENT | EDGE OF WATER LOOKING DOWNSTREAM: (0.0 AT STAKE) LEFT / RIGHT | Gage Reading: _____ ft | TIME: 2:20 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) At Point	Velocity (ft/sec) Mean in Vertical	Area (ft^2)	Discharge (cfs)
RS	0.0		5.04								
G	0.9		5.57								
W	1.1		5.95								
	1.4		6.35	.4				.16			
	1.7		6.6	.65				.49			
	2.0		6.6	.65				1.14			
	2.3		6.75	.80				1.51			
	2.6		6.75	.80				1.62			
	2.9		6.75	.80				1.72			
	3.2		6.85	.90				1.73			
	3.5		6.85	.90				1.81			
	3.8		6.75	.80				1.01			
	4.1		6.75	.80				1.44			
	4.4		6.75	.80				1.85			
	4.7		6.80	.85				1.64			
	5.0		6.85	.90				1.52			
	5.3		6.85	.90				1.59			
	5.6		6.85	.90				1.51			
	5.9		6.75	.80				1.35			
	6.2		6.80	.85				0.98			
	6.5		6.60	.65				0.42			
	6.8		6.25	.30				0.17			
	7.1		6.15	.20				0.00			
W	7.3		5.95								
G	9.0		5.57								
LS	10.0		5.10								
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: Piceance Creek – Upper						CROSS-SECTION NO.: 2
CROSS-SECTION LOCATION: Approx. 3/4 mile upstream from State Hwy 13						
DATE: 6-15-15	OBSERVERS: R. Smith, K. Sauder					
LEGAL DESCRIPTION	¼ SECTION: NW	SECTION: 3	TOWNSHIP: 4 N/S	RANGE: 95 E/W	PM: 6th	
COUNTY: Garfield	WATERSHED: White River	WATER DIVISION: 6	DOW WATER CODE: 25343			
MAP(S): USGS:			248524			
USFS:			4402001			

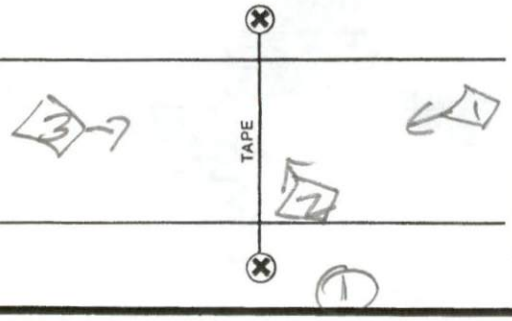
SUPPLEMENTAL DATA

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	7.15 / 7.15
② WS Upstream	19.5	7.05
③ WS Downstream	10.0	7.23
SLOPE	0.48 / 39.5 = .012	

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, beetles

COMMENTS

Riparian = willow, sedges, rushes

FORM #ISF FD 1-85

DISCHARGE/CROSS SECTION NOTES

STREAM NAME: Piceance Creek – Upper	CROSS-SECTION NO.: 2	DATE: 6-15-15	SHEET ___ OF ___
BEGINNING OF MEASUREMENT	EDGE OF WATER LOOKING DOWNSTREAM: (0.0 AT STAKE) LEFT / RIGHT	Gage Reading: ____ ft	TIME: 3:45 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) At Point	Velocity (ft/sec) Mean in Vertical	Area (ft^2)	Discharge (cfs)
RS	0.0		5.60								
G	0.3		6.45								
W	1.0		7.15								
	1.3		7.65	.5				0.78			
	1.6		7.85	.7				1.01			
	1.9		8.0	.85				2.06			
	2.2		7.95	.80				2.20			
	2.5		7.85	.70				1.70			
	2.8		7.85	.70				1.78			
	3.1		7.75	.60				1.79			
	3.4		7.65	.50				1.62			
	3.7		7.70	.55				1.96			
	4.0		7.45	.30				1.79			
	4.3		7.55	.40				1.13			
	4.6		7.60	.45				1.53			
	4.9		7.50	.35				1.26			
	5.2		7.50	.35				1.01			
	5.5		7.50	.35				0.92			
	5.8		7.50	.35				0.58			
	6.1		7.40	.25				0.20			
W	6.2		7.15								
G	7.0		6.45								
LS	9.0		6.26								
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: Avearce Creek - Upper						CROSS-SECTION NO.: 3
CROSS-SECTION LOCATION: Approx. 3/4 mile upstream from State Hwy 13						
DATE: 6-15-15	OBSERVERS: R. Smith, K. Sauter					
LEGAL DESCRIPTION	¼ SECTION: NW	SECTION: 3	TOWNSHIP: 4 N/S	RANGE: 95 E/W	PM: 6th	
COUNTY: Garfield	WATERSHED: White River	WATER DIVISION: 6	DOW WATER CODE: 25343			
MAP(S):	USGS:					
	USFS:					

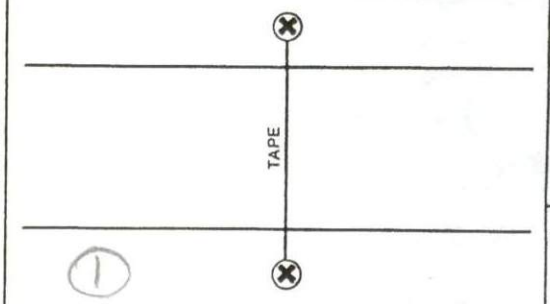
SUPPLEMENTAL DATA

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	6.30 / 6.30
② WS Upstream	11.2	6.24
③ WS Downstream	8.2	6.60
SLOPE	0.36 / 19.4 = 0.018	

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

FORM #ISF FD 1-85

DISCHARGE/CROSS SECTION NOTES

STREAM NAME: Piceance Creek - Upper	CROSS-SECTION NO.: 3	DATE: 6-15-15	SHEET ___ OF ___
BEGINNING OF MEASUREMENT	EDGE OF WATER LOOKING DOWNSTREAM: (0.0 AT STAKE) LEFT / RIGHT	Gage Reading: ____ ft	TIME: 4:15

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)
G & RS	0.0		5.61								
W	0.3		6.30								
	0.6		6.65	.35				.82			
	0.9		6.6	.30				1.04			
	1.2		6.8	.50				1.02			
	1.5		6.8	.50				1.34			
	1.8		6.85	.55				0.76			
	2.1		6.85	.55				1.48			
	2.4		6.8	.50				1.55			
	2.7		6.85	.55				1.49			
	3.0		7.0	.70				1.41			
	3.3		7.0	.70				1.62			
	3.6		7.0	.70				1.72			
	3.9		7.0	.70				1.53			
	4.2		6.9	.60				1.58			
	4.5		6.9	.60				1.33			
	4.8		6.65	.35				1.35			
	5.1		6.65	.35				1.23			
	5.4		6.60	.30				1.26			
	5.7		6.55	.25				1.04			
	6.0		6.5	.20				.78			
	6.3		6.5	.20				0			
W	6.5		6.30								
G	7.0		5.55								
LS	7.3		5.40								
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: Piceance Creek - Upper						CROSS-SECTION NO.: 1	
CROSS-SECTION LOCATION: Approx 2.5 miles downstream from State Highway 13 crossing							
DATE: 7-7-15	OBSERVERS: R. Smith, B. Logan, B. Epstein						
LEGAL DESCRIPTION	¼ SECTION: NW	SECTION: 6	TOWNSHIP: 4 N/S	RANGE: 95 E/W	PM: 6th		
COUNTY: Rio Blanco	WATERSHED: White River	WATER DIVISION: 6	DOW WATER CODE: 25343				
MAP(S): USGS:				243913			
USFS:				4402157			

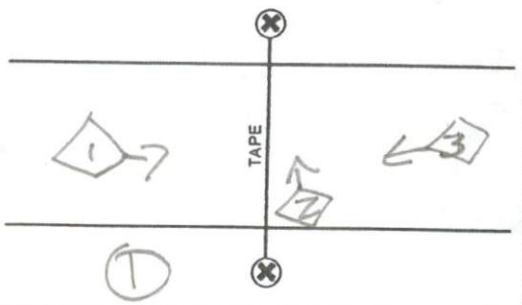
SUPPLEMENTAL DATA

SAG TAPE SECTION SAME AS DISCHARGE SECTION: YES / NO	METER TYPE: Flowmate			
METER NUMBER:	DATE RATED:	CALIB/SPIN: ____ sec	TAPE WEIGHT: surveyed ____ lbs/foot	TAPE TENSION: surveyed ____ lbs
CHANNEL BED MATERIAL SIZE RANGE: gravel to 3" 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	5.10 / 5.10
② WS Upstream	29.0	5.01
③ WS Downstream	70.5	5.43
SLOPE	0.42 / 39.5 = 0.01	

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:

COMMENTS

FORM #ISF FD 1-85

DISCHARGE/CROSS SECTION NOTES

STREAM NAME: Piceance Creek-Upper	CROSS-SECTION NO.: 1	DATE: 7-7-15	SHEET ___ OF ___
BEGINNING OF MEASUREMENT	EDGE OF WATER LOOKING DOWNSTREAM: LEFT / RIGHT (0.0 AT STAKE)	Gage Reading: _____ ft	TIME: 2 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) At Point	Velocity (ft/sec) Mean in Vertical	Area (ft^2)	Discharge (cfs)
RS	0.0		2.96								
G	1.5		4.33								
W	2.3		5.10								
	2.5		5.30	.20				1.18			
	2.7		5.33	.23				1.76			
	2.9		5.38	.28				1.36			
	3.1		5.36	.26				1.04			
	3.3		5.33	.23				1.83			
	3.5		5.33	.23				1.69			
	3.7		5.33	.23				1.51			
	3.9		5.36	.26				1.72			
	4.1		5.40	.30				1.65			
	4.3		5.45	.35				1.41			
	4.5		5.47	.37				1.66			
	4.7		5.50	.40				1.91			
	4.9		5.53	.43				2.02			
	5.1		5.58	.48				1.92			
	5.3		5.60	.50				1.92			
	5.5		5.55	.45				1.88			
	5.7		5.50	.40				2.02			
	5.9		5.50	.40				1.59			
	6.1		5.44	.34				1.89			
	6.3		5.41	.31				1.96			
	6.5		5.36	.26				1.97			
	6.7		5.35	.25				1.95			
	6.9		5.35	.25				1.83			
	7.1		5.36	.26				1.72			
	7.3		5.34	.24				1.86			
	7.5		5.34	.24				1.79			
	7.7		5.36	.26				1.82			
	7.9		5.33	.23				1.96			
	8.1		5.36	.26				1.71			
	8.3		5.40	.30				1.88			FTQ = 3.32
	8.5		5.30	.20				ϕ			
								ϕ			
W	8.7		5.10								
	10.6		4.80								
LSFG	14.2		4.30								
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: Piceance Creek - Upper

CROSS-SECTION NO.: 2

CROSS-SECTION LOCATION: 200 ft. downstream from Larson #1 Ditch headgate

DATE: 7-7-15

OBSERVERS: R. Smith, B. Logan, B. Epstein

LEGAL DESCRIPTION

¼ SECTION: NW

SECTION: 3

TOWNSHIP: 4 N/S

RANGE: 95 E/W

PM: 6th

COUNTY: Garfield

WATERSHED: White River

WATER DIVISION: 6

DOW WATER CODE: 25343

MAP(S):

USGS: 135 249550 7300 ft.

USFS: 4402022

SUPPLEMENTAL DATA

SAG TAPE SECTION SAME AS DISCHARGE SECTION: YES / NO

METER TYPE: FlowMate

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

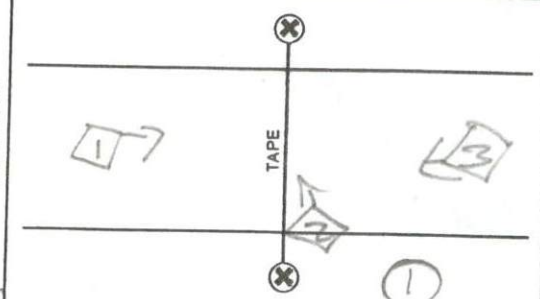
PHOTOGRAPHS TAKEN: YES/NO

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	7.30/7.30
② WS Upstream	6.2	7.10
③ WS Downstream	6.8	7.45
SLOPE	0.35/15.0 = 0.023	

SKETCH



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:

COMMENTS

FORM #ISF FD 1-85

DISCHARGE/CROSS SECTION NOTES

STREAM NAME: Piceance Creek - Upper | CROSS-SECTION NO.: 2 | DATE: 7-7 | SHEET ___ OF ___

BEGINNING OF MEASUREMENT | EDGE OF WATER LOOKING DOWNSTREAM: (0.0 AT STAKE) LEFT / RIGHT | Gage Reading: _____ ft | TIME: 4:30 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) At Point	Velocity (ft/sec) Mean in Vertical	Area (ft^2)	Discharge (cfs)
RS	0,0		5,70								
G	1,7		6,38								
W	2,2		7,30					0			
	2,4		7,77	,47				,68			
	2,6		7,63	,33				1,11			
	2,8		7,71	,41				1,70			
	3,0		7,75	,45				1,67			
	3,2		7,69	,39				1,61			
	3,4		7,7	,40				1,67			
	3,6		7,72	,42				1,62			
	3,8		7,64	,34				2,00			
	4,0		7,64	,34				2,38			
	4,2		7,72	,42				2,23			
	4,4		7,70	,40				1,91			
	4,6		7,61	,31				2,61			
	4,8		7,62	,32				2,50			
	5,0		7,58	,28				0,91			
	5,2		7,60	,30				1,45			
	5,4		7,56	,26				0,92			
	5,6		7,50	,20				0,13			
	5,8		7,48	,18				0,08			
	6,0		7,41	,11				0			
W	6,2		7,30					0			FTQ = 1,975
	6,4		7,24								
	8,8		6,91								
G	9,1		6,45								
LS	11,0		5,74								
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: Piceance Creek – Upper						CROSS-SECTION NO.: 1	
CROSS-SECTION LOCATION: Approx. 3/4 mile upstream from State Highway 13							
DATE: 7-20-22	OBSERVERS: V.L. Smith, C. Brady						
LEGAL DESCRIPTION	¼ SECTION: NW	SECTION: 3	TOWNSHIP: 4 N/S	RANGE: 95 E/W	PM: 6		
COUNTY: Garfield	WATERSHED: White River	WATER DIVISION: 6	DOW WATER CODE:				
MAP(S): USGS:				39.73104			
USFS:				-107.93398			

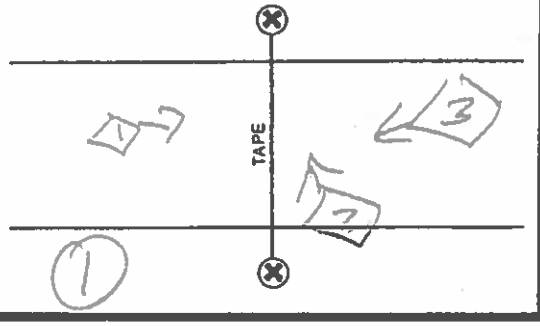
SUPPLEMENTAL DATA

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 18" 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	6.65 / 6.65
2 WS Upstream	13.4'	6.32
3 WS Downstream	16.6'	6.98
SLOPE	0.66 / 30.0' =	

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: Hydropsychidae (Trichoptera), Plecoptera, Ephemeroptera (x3 species), Simuliidae, water skippers

COMMENTS

Temp. 17.1°(C)
Spec. Cond. 1695
Salinity 0.4 parts/1000
pH 8.5
Riparian: Coyote willow, beaked sedge, gooseberry currant, wild rose, milkweed, equisetum, yellow sweet clover, thistles, snowberry, baltic rush, mullein, hawthorne, +/- larson ditch not operating, geranium, yarrow, twinberry, honeysuckle, another species of willow, dorrey's, mint, hound's tongue

DISCHARGE/CROSS SECTION NOTES

STREAM NAME:	CROSS-SECTION NO:	DATE:	SHEET __ OF __
Piceance Creek	1	7-20-22	

BEGINNING OF MEASUREMENT	EDGE OF WATER LOOKING DOWNSTREAM: (0.0 AT STAKE) LEFT / RIGHT	Gage Reading: ____ ft	TIME: 12:06

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 (ft^2)	Discharge (cfs)
								At Point	Mean in Vertical		
LS	0.0		5.02								
	1.2		5.37								
RB	3.0		6.00								
	3.2		6.27								
LW	3.5		6.65								
	3.9		6.7	0.05				0			
	4.1		6.7	0.05				0			
	4.3		6.7	0.05				0.09			
	4.5		6.75	0.1				0.10			
	4.7		6.75	0.1				0.17			
	4.9		6.75	0.1				0.20			
	5.1		6.7	0.05				0.18			
	5.3		6.75	0.1				0.17			
	5.5		6.75	0.1				0.17			
	5.7		6.8	0.15				0.44			
	5.9		6.8	0.15				0.50			
	6.1		6.85	0.2				0.26			
	6.3		6.80	0.15				0.23			
LW	6.7		6.65								
RB	7.1		5.90								
	7.6		5.26								
	8.3		5.04								
LS	8.8		4.84								
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: Piceance Creek - Upper						CROSS-SECTION NO.: 2	
CROSS-SECTION LOCATION: Approx. 3/4 mile upstream from State Highway 13							
DATE: 7-20-22	OBSERVERS: R. Smith, C. Brady						
LEGAL DESCRIPTION	¼ SECTION: NW	SECTION: 3	TOWNSHIP: 4 N/S	RANGE: 95 E/W	PM: 6th		
COUNTY: Garfield	WATERSHED: White River	WATER DIVISION: 6	DOW WATER CODE:				
MAP(S): USGS:				39.73101			
USFS:				-107.93402			

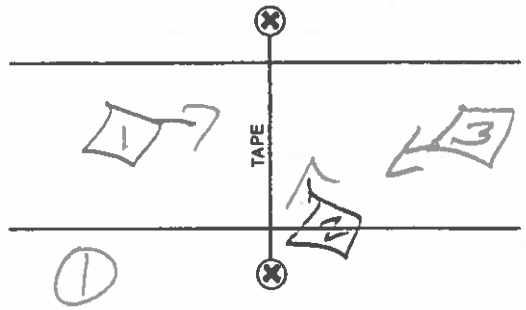
SUPPLEMENTAL DATA

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: ____ lbs
CHANNEL BED MATERIAL SIZE RANGE: gravel to 18" 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	7.25/7.25
② WS Upstream	3.1	7.27
③ WS Downstream	13.9	7.04
SLOPE	0.23/17.0 =	

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:

COMMENTS

Riparian - riptap

DISCHARGE/CROSS SECTION NOTES

STREAM NAME: Pierce Creek	CROSS-SECTION NO:	DATE: 7-20-22	SHEET ___ OF ___
BEGINNING OF MEASUREMENT	EDGE OF WATER LOOKING DOWNSTREAM: (0.0 AT STAKE) LEFT / RIGHT	Gage Reading: _____ ft	TIME: 12:50

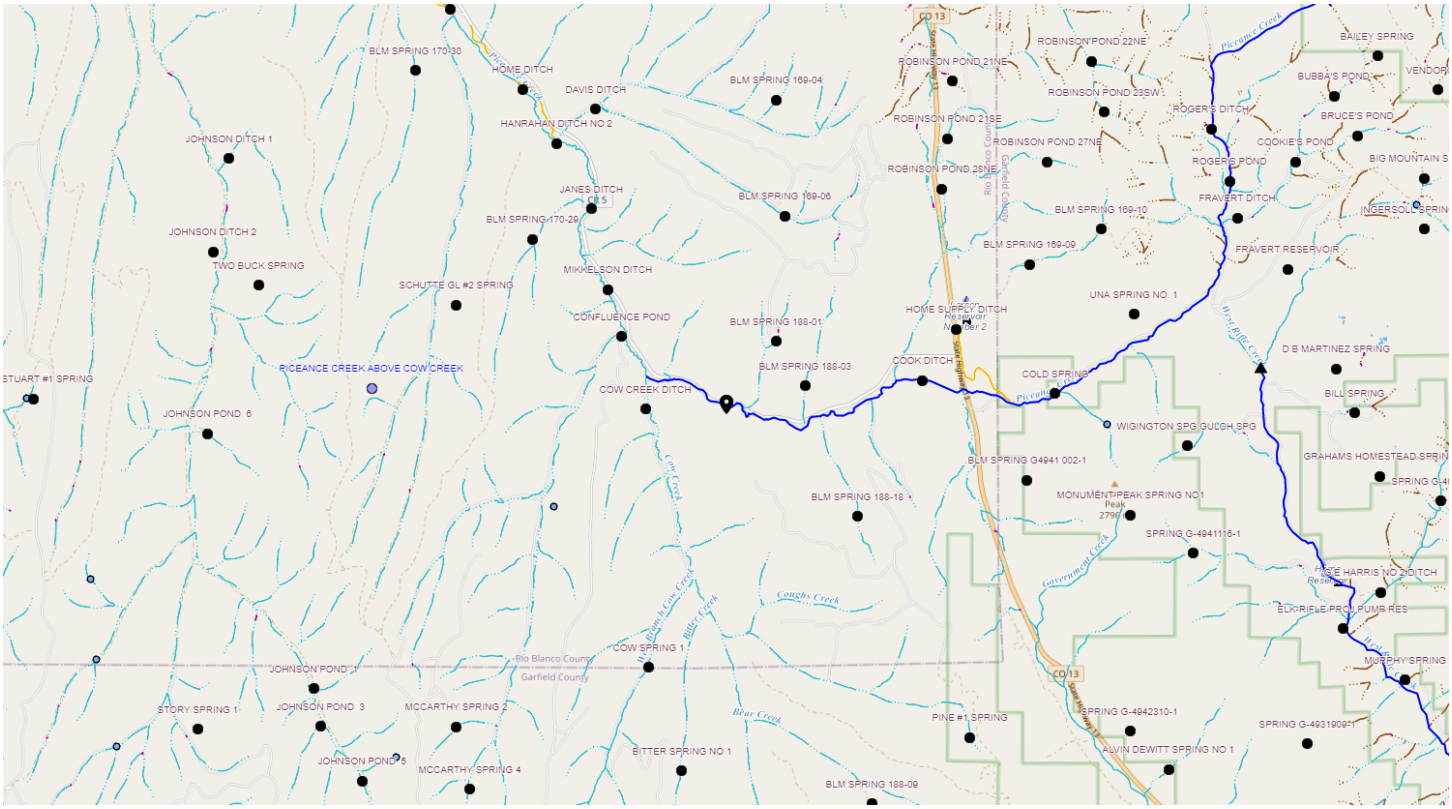
Features: Stake (S), Grassline (G), Waterline (W), Rock (R)	Distance From Initial Point (ft)	Width (ft)	Total Vertical Depth From Tape/Inst (ft)	Water Depth (ft)	Depth of Observation (ft)	Revolutions	Time (sec)	Velocity (ft/sec) At Point	Velocity (ft/sec) Mean in Vertical	Area (ft^2)	Discharge (cfs)
RLS	0.0		5.92								
	0.9		6.55								
RBF	1.2		6.74								
	2.0		7.11								
	2.7		7.20								
RLW	3.0		7.25								
	3.2		7.35	0.1				0			
	3.4		7.45	0.2				0.33			
	3.6		7.45	0.2				0.32			
	3.8		7.45	0.2				0.56			
	4.0		7.45	0.2				0.54			
	4.2		7.45	0.2				0.58			
	4.4		7.45	0.2				0.36			
	4.6		7.35	0.1				0.13			
								0.11 cfs			
LW	4.8		7.25								
RBF	5.2		6.76								
	5.6		6.50								
	7.0		6.39								
	4.6		6.30								
LS	4.2		5.90								
TOTALS:											

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

R2Cross RESULTS

Stream Name: Piceance Creek
Stream Locations: Approx 2.5 miles ds fr State Hwy 13
Fieldwork Date: 06/15/2015
Cross-section: 1
Observers: R. Smith, K. Sauter
Coordinate System: UTM Zone 13
X (easting): 243837
Y (northing): 4402140
Date Processed: 09/13/2022
Slope: 0.01
Discharge: R2Cross data file: 5.83 (cfs)
Computation method: Ferguson VPE
R2Cross data filename: Piceance Creek upper 6-15-15 #1.xlsx
R2Cross version: 2.0.0

LOCATION



ANALYSIS RESULTS

Habitat Criteria Results

Bankfull top width (ft) = 8.1

	Habitat Criteria	Discharge (cfs) Meeting Criteria
Mean Depth (ft)	0.2	0.23
Percent Wetted Perimeter (%)	50.0	0.12
Mean Velocity (ft/s)	1.0	3.33

STAGING TABLE

Feature	Distance to Water (ft)	Top Width (ft)	Mean Depth (ft)	Maximum Depth (ft)	Area (sq ft)	Wetted Perimeter (ft)	Percent Wetted Perimeter	Hydraulic Radius (ft)	Manning's n	Mean Velocity (ft/s)	Discharge (cfs)
Bankfull	5.57	8.1	0.88	1.28	7.1	9.08	100.0	0.78	0.07	1.75	12.43
	5.6	7.95	0.86	1.25	6.86	8.91	98.11	0.77	0.07	1.72	11.77
	5.65	7.7	0.84	1.2	6.47	8.62	94.97	0.75	0.07	1.66	10.73
	5.7	7.45	0.82	1.15	6.09	8.34	91.82	0.73	0.08	1.6	9.76
	5.75	7.2	0.8	1.1	5.73	8.05	88.67	0.71	0.08	1.55	8.85
	5.8	6.95	0.77	1.05	5.37	7.76	85.53	0.69	0.08	1.49	8.0
	5.85	6.7	0.75	1.0	5.03	7.48	82.38	0.67	0.08	1.44	7.22
	5.9	6.45	0.73	0.95	4.7	7.19	79.23	0.65	0.08	1.38	6.49
Waterline	5.95	6.2	0.71	0.9	4.39	6.91	76.08	0.63	0.08	1.33	5.83
	6.0	6.11	0.67	0.85	4.08	6.77	74.62	0.6	0.09	1.24	5.04
	6.05	6.03	0.63	0.8	3.77	6.64	73.15	0.57	0.09	1.14	4.31
	6.1	5.94	0.59	0.75	3.47	6.51	71.68	0.53	0.09	1.05	3.65
	6.15	5.85	0.54	0.7	3.18	6.37	70.22	0.5	0.1	0.96	3.04
	6.2	5.66	0.51	0.65	2.89	6.15	67.79	0.47	0.1	0.88	2.54
	6.25	5.48	0.48	0.6	2.61	5.93	65.36	0.44	0.11	0.8	2.1
	6.3	5.39	0.43	0.55	2.34	5.81	63.94	0.4	0.11	0.71	1.66
	6.35	5.31	0.39	0.5	2.07	5.68	62.53	0.37	0.12	0.62	1.28
	6.4	5.21	0.35	0.45	1.81	5.53	60.94	0.33	0.13	0.53	0.95
	6.45	5.11	0.3	0.4	1.55	5.39	59.36	0.29	0.15	0.44	0.68
	6.5	5.01	0.26	0.35	1.3	5.25	57.77	0.25	0.17	0.35	0.46
	6.55	4.9	0.21	0.3	1.05	5.1	56.19	0.21	0.19	0.27	0.28
	6.6	4.5	0.18	0.25	0.81	4.66	51.3	0.17	0.22	0.21	0.17
	6.65	4.33	0.14	0.2	0.59	4.46	49.07	0.13	0.28	0.14	0.08
	6.7	4.15	0.09	0.15	0.38	4.25	46.85	0.09	0.39	0.08	0.03
	6.75	2.78	0.06	0.1	0.17	2.85	31.41	0.06	0.52	0.04	0.01

	6.8	1.65	0.04	0.05	0.06	1.68	18.49	0.04	0.78	0.02	0.0
	6.83	1.12	0.01	0.01	0.02	1.13	12.49	0.01	1.86	0.0	0.0

This Manning's roughness coefficient was calculated based on velocity estimates from the Ferguson VPE method

MODEL SUMMARY

Measured Flow (Qm) =	5.83	(cfs)
Calculated Flow (Qc) =	5.83	(cfs)
(Qm-Qc)/Qm * 100 =	-0.00%	
Measured Waterline (WLm) =	5.95	(ft)
Calculated Waterline (WLc) =	5.95	(ft)
(WLm-WLc)/WLm * 100 =	0.00%	
Max Measured Depth (Dm) =	0.9	(ft)
Max Calculated Depth (Dc) =	0.9	(ft)
(Dm-Dc)/Dm * 100 =	-0.00%	
Mean Velocity =	1.33	(ft/s)
Manning's n =	0.083	
0.4 * Qm =	2.33	(cfs)
2.5 * Qm =	14.56	(cfs)

FIELD DATA

Feature	Station (ft)	Rod Height (ft)	Water depth (ft)	Velocity (ft/s)
	0	5.04		
Bankfull	0.9	5.57		
Waterline	1.1	5.95	0	0
	1.4	6.35	0.4	0.16
	1.7	6.6	0.65	0.49
	2	6.6	0.65	1.14
	2.3	6.75	0.8	1.51
	2.6	6.75	0.8	1.62
	2.9	6.75	0.8	1.72
	3.2	6.85	0.9	1.73
	3.5	6.85	0.9	1.81
	3.8	6.75	0.8	1.01
	4.1	6.75	0.8	1.44
	4.4	6.75	0.8	1.85
	4.7	6.8	0.85	1.64
	5	6.85	0.9	1.52
	5.3	6.85	0.9	1.59
	5.6	6.85	0.9	1.51
	5.9	6.75	0.8	1.35
	6.2	6.8	0.85	0.98
	6.5	6.6	0.65	0.42
	6.8	6.25	0.3	0.17
	7.1	6.15	0.2	0
Waterline	7.3	5.95	0	0
Bankfull	9	5.57		
	10	5.1		

COMPUTED FROM MEASURED FIELD DATA

Wetted Perimeter (ft)	Water Depth (ft)	Area (ft^2)	Discharge (cfs)	Percent Discharge
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0.5	0.4	0.12	0.02	0.33
0.39	0.65	0.2	0.1	1.64
0.3	0.65	0.2	0.22	3.82
0.34	0.8	0.24	0.36	6.22
0.3	0.8	0.24	0.39	6.67
0.3	0.8	0.24	0.41	7.09
0.32	0.9	0.27	0.47	8.02
0.3	0.9	0.27	0.49	8.39
0.32	0.8	0.24	0.24	4.16
0.3	0.8	0.24	0.35	5.93
0.3	0.8	0.24	0.44	7.62
0.3	0.85	0.26	0.42	7.18
0.3	0.9	0.27	0.41	7.04
0.3	0.9	0.27	0.43	7.37
0.3	0.9	0.27	0.41	7
0.32	0.8	0.24	0.32	5.56
0.3	0.85	0.26	0.25	4.29
0.36	0.65	0.2	0.08	1.41
0.46	0.3	0.09	0.02	0.26
0.32	0.2	0.05	0	0
0.28	0	0	0	0
0	0	0	0	0
0	0	0	0	0

DISCLAIMER

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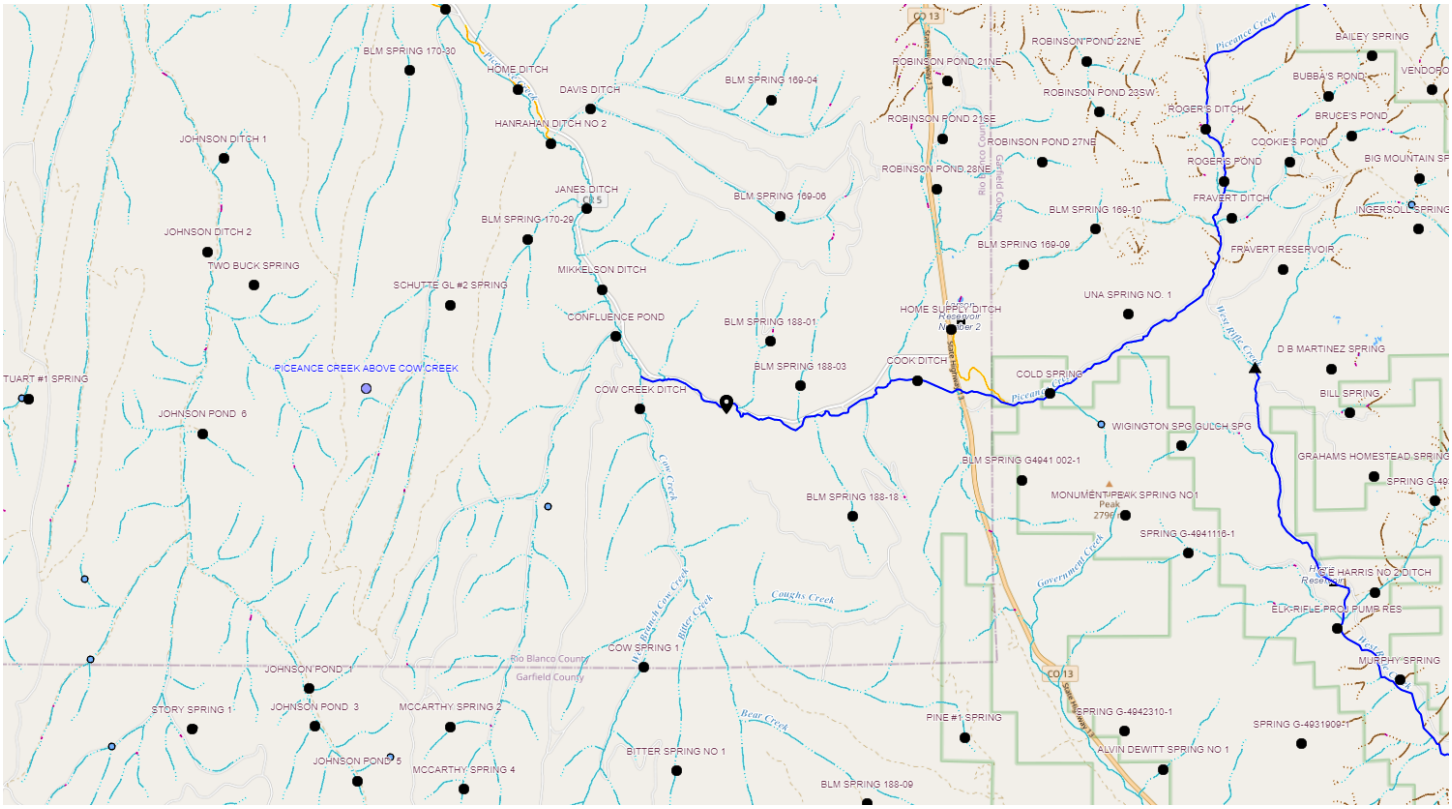
R2Cross RESULTS

Stream Name: Piceance Creek
Stream Locations: 2.5 mi dwnstr from State Hwy 13
Fieldwork Date: 07/07/2015
Cross-section: 1
Observers: R. Smith, B. Logan, B. Epstein
Coordinate System: UTM Zone 13
X (easting): 243913
Y (northing): 4402157
Date Processed: 09/13/2022
Slope: 0.01
Discharge: R2Cross data file: 3.25 (cfs)
Computation method: Ferguson VPE
R2Cross data filename: Piceance Creek upper #1 7-7-15.xlsx
R2Cross version: 2.0.0

LOCATION



ANALYSIS RESULTS

Habitat Criteria Results

Bankfull top width (ft) = 12.48

	Habitat Criteria	Discharge (cfs) Meeting Criteria
Mean Depth (ft)	0.2	1.41
Percent Wetted Perimeter (%)	50.0	2.5
Mean Velocity (ft/s)	1.0	1.13

STAGING TABLE

Feature	Distance to Water (ft)	Top Width (ft)	Mean Depth (ft)	Maximum Depth (ft)	Area (sq ft)	Wetted Perimeter (ft)	Percent Wetted Perimeter	Hydraulic Radius (ft)	Manning's n	Mean Velocity (ft/s)	Discharge (cfs)
Bankfull	4.33	12.48	0.73	1.27	9.09	13.12	100.0	0.69	0.03	3.97	36.08
	4.35	12.32	0.72	1.25	8.84	12.94	98.67	0.68	0.03	3.92	34.69
	4.4	11.91	0.69	1.2	8.24	12.51	95.35	0.66	0.03	3.81	31.36
	4.45	11.5	0.67	1.15	7.65	12.07	92.03	0.63	0.03	3.69	28.23
	4.5	11.08	0.64	1.1	7.09	11.64	88.71	0.61	0.03	3.57	25.3
	4.55	10.67	0.61	1.05	6.54	11.2	85.39	0.58	0.03	3.45	22.55
	4.6	10.26	0.59	1.0	6.02	10.76	82.07	0.56	0.03	3.32	19.99
	4.65	9.85	0.56	0.95	5.52	10.33	78.75	0.53	0.03	3.19	17.61
	4.7	9.44	0.53	0.9	5.03	9.89	75.43	0.51	0.03	3.06	15.41
	4.75	9.02	0.51	0.85	4.57	9.46	72.11	0.48	0.03	2.93	13.38
	4.8	8.61	0.48	0.8	4.13	9.02	68.79	0.46	0.03	2.79	11.51
	4.85	8.24	0.45	0.75	3.71	8.63	65.79	0.43	0.03	2.63	9.76
	4.9	7.87	0.42	0.7	3.31	8.24	62.8	0.4	0.03	2.47	8.16
	4.95	7.51	0.39	0.65	2.92	7.84	59.8	0.37	0.03	2.3	6.71
	5.0	7.14	0.36	0.6	2.56	7.45	56.81	0.34	0.03	2.12	5.41
	5.05	6.77	0.33	0.55	2.21	7.06	53.82	0.31	0.04	1.93	4.26
Waterline	5.1	6.4	0.29	0.5	1.88	6.67	50.82	0.28	0.04	1.73	3.25
	5.15	6.3	0.25	0.45	1.56	6.52	49.74	0.24	0.04	1.45	2.26
	5.2	6.2	0.2	0.4	1.25	6.38	48.67	0.2	0.04	1.15	1.43
	5.25	6.1	0.15	0.35	0.94	6.24	47.59	0.15	0.05	0.83	0.79
	5.3	6.0	0.11	0.3	0.64	6.1	46.51	0.1	0.06	0.52	0.33
	5.35	4.09	0.09	0.25	0.37	4.16	31.74	0.09	0.07	0.41	0.15
	5.4	2.24	0.1	0.2	0.23	2.28	17.41	0.1	0.07	0.47	0.11
	5.45	1.77	0.07	0.15	0.13	1.8	13.71	0.07	0.09	0.29	0.04
	5.5	1.0	0.05	0.1	0.05	1.02	7.79	0.05	0.11	0.19	0.01

	5.55	0.52	0.03	0.05	0.01	0.53	4.05	0.03	0.18	0.08	0.0
	5.58	0.21	0.01	0.01	0.0	0.21	1.62	0.01	0.53	0.01	0.0

This Manning's roughness coefficient was calculated based on velocity estimates from the Ferguson VPE method

MODEL SUMMARY

Measured Flow (Qm) =	3.25	(cfs)
Calculated Flow (Qc) =	3.25	(cfs)
(Qm-Qc)/Qm * 100 =	0.00%	
Measured Waterline (WLm) =	5.1	(ft)
Calculated Waterline (WLc) =	5.1	(ft)
(WLm-WLc)/WLm * 100 =	-0.00%	
Max Measured Depth (Dm) =	0.5	(ft)
Max Calculated Depth (Dc) =	0.5	(ft)
(Dm-Dc)/Dm * 100 =	0.00%	
Mean Velocity =	1.73	(ft/s)
Manning's n =	0.037	
0.4 * Qm =	1.3	(cfs)
2.5 * Qm =	8.13	(cfs)

FIELD DATA

Feature	Station (ft)	Rod Height (ft)	Water depth (ft)	Velocity (ft/s)
	0	2.96		
Bankfull	1.5	4.33		
Waterline	2.3	5.1	0	0
	2.5	5.3	0.2	1.18
	2.7	5.33	0.23	1.76
	2.9	5.38	0.28	1.36
	3.1	5.36	0.26	1.04
	3.3	5.33	0.23	1.83
	3.5	5.33	0.23	1.69
	3.7	5.33	0.23	1.51
	3.9	5.36	0.26	1.72
	4.1	5.4	0.3	1.65
	4.3	5.45	0.35	1.41
	4.5	5.47	0.37	1.66
	4.7	5.5	0.4	1.91
	4.9	5.53	0.43	2.02
	5.1	5.58	0.48	1.92
	5.3	5.6	0.5	1.92
	5.5	5.55	0.45	1.88
	5.7	5.5	0.4	2.02
	5.9	5.5	0.4	1.59
	6.1	5.44	0.34	1.89
	6.3	5.41	0.31	1.96
	6.5	5.36	0.26	1.97
	6.7	5.35	0.25	1.95
	6.9	5.35	0.25	1.83
	7.1	5.36	0.26	1.72
	7.3	5.34	0.24	1.86
	7.5	5.34	0.24	1.79
	7.7	5.36	0.26	1.82

	7.9	5.33	0.23	1.96
	8.1	5.36	0.26	1.71
	8.3	5.4	0.3	1.88
	8.5	5.3	0.2	0
Waterline	8.7	5.1	0	0
	10.6	4.8		
Bankfull	14.2	4.3		

COMPUTED FROM MEASURED FIELD DATA

Wetted Perimeter (ft)	Water Depth (ft)	Area (ft^2)	Discharge (cfs)	Percent Discharge
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0.28	0.2	0.04	0.05	1.45
0.2	0.23	0.05	0.08	2.49
0.21	0.28	0.06	0.08	2.34
0.2	0.26	0.05	0.05	1.66
0.2	0.23	0.05	0.08	2.59
0.2	0.23	0.05	0.08	2.39
0.2	0.23	0.05	0.07	2.13
0.2	0.26	0.05	0.09	2.75
0.2	0.3	0.06	0.1	3.04
0.21	0.35	0.07	0.1	3.03
0.2	0.37	0.07	0.12	3.78
0.2	0.4	0.08	0.15	4.7
0.2	0.43	0.09	0.17	5.34
0.21	0.48	0.1	0.18	5.67
0.2	0.5	0.1	0.19	5.9
0.21	0.45	0.09	0.17	5.2
0.21	0.4	0.08	0.16	4.97
0.2	0.4	0.08	0.13	3.91
0.21	0.34	0.07	0.13	3.95
0.2	0.31	0.06	0.12	3.73
0.21	0.26	0.05	0.1	3.15
0.2	0.25	0.05	0.1	3
0.2	0.25	0.05	0.09	2.81
0.2	0.26	0.05	0.09	2.75
0.2	0.24	0.05	0.09	2.74
0.2	0.24	0.05	0.09	2.64
0.2	0.26	0.05	0.09	2.91

0.2	0.23	0.05	0.09	2.77
0.2	0.26	0.05	0.09	2.73
0.2	0.3	0.06	0.11	3.47
0.22	0.2	0.04	0	0
0.28	0	0	0	0
0	0	0	0	0
0	0	0	0	0

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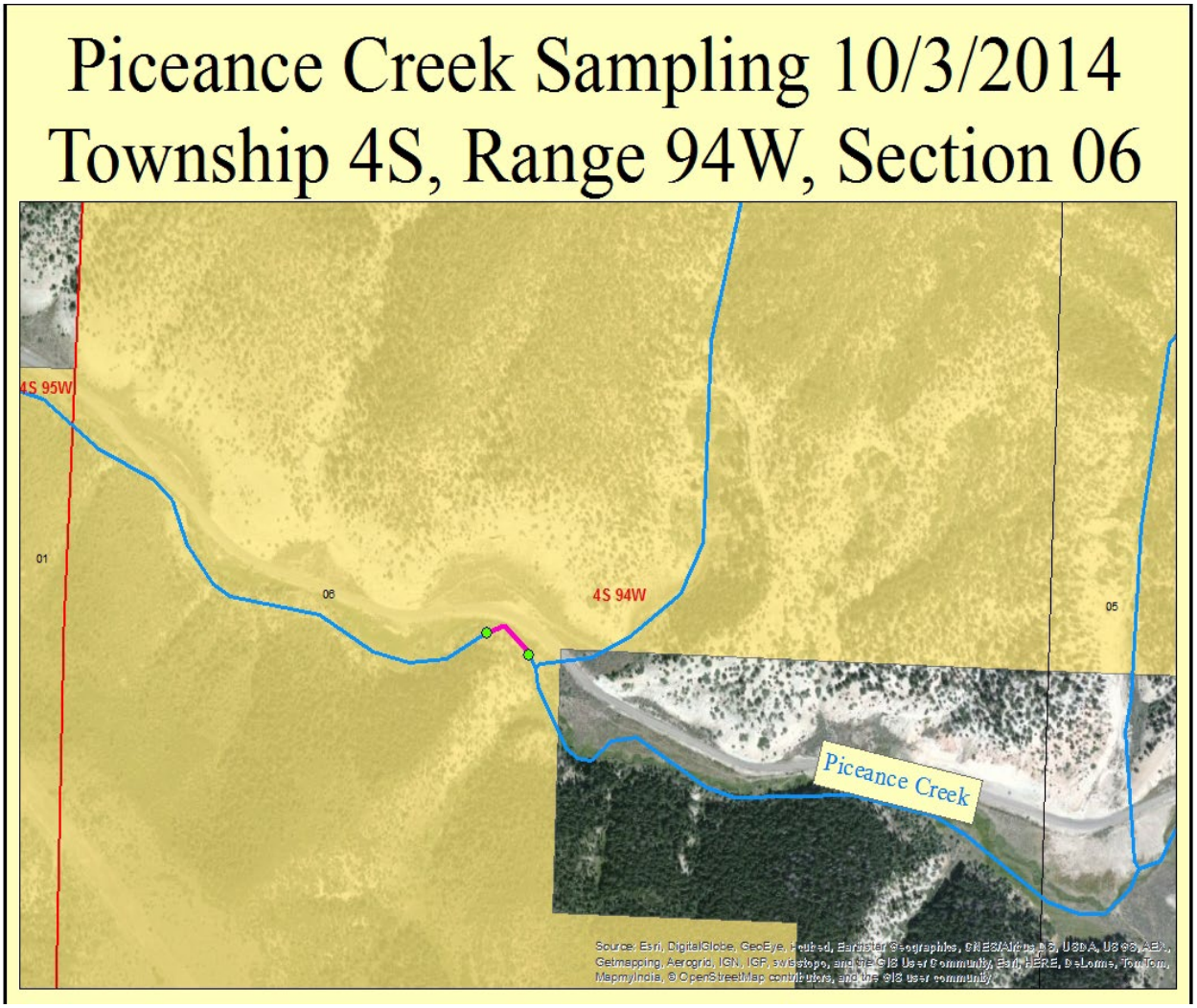
White River Field Office Stream Surveys
October 2014

Piceance Creek (Upper Site) - Water Code: 25343

Piceance Creek, located on BLM lands managed by the White River Field Office, was sampled on October 3, 2014. Piceance Creek is tributary to the White River. A two-pass removal method was used to determine species presence as well as estimate population size. The stream was sampled using one backpack electroshocker. Mountain sucker (*Catostomas platyrhynchus*, MOS) and speckled dace (*Rhinichthys osculus*, SPD) were the only species seen or collected. Personnel present included Lisa Belmonte, Heather Stewart, Tom Fresques, and Kristen Doyle, BLM.



Mountain sucker

Piceance Creek within the sample reach

STREAM SURVEY FISH SAMPLING FORM 2014									
WATER: Piceance Creek				**DATE: 10/3/14**			**GEAR: 1 BPE**		
Crew: Belmonte, Stewart, Fresques, Doyle					**Location: Adjacent to CR-5 above Cow Creek Confluence**				
#	**Pass**	**Species**	**Length**	**Weight**	**#**	**Pass**	**Species**	**Length**	**Weight**
1	1	SPD	79	4.8	76	1	MOS	96	9.1
2	1	SPD	65	1.6	77	1	SPD	27	
3	1	SPD	69	1.8	78	1	SPD	94	10.8
4	1	SPD	69	1.9	79	1	MOS	117	15.3
5	1	SPD	71	1.9	80	1	MOS	97	10.4
6	1	SPD	92	5.2	81	1	MOS	107	13.2
7	1	MOS	134	18.2	82	1	SPD	81	6.7
8	1	SPD	104	12.4	83	1	MOS	114	13.2
9	1	MOS	111	12.7	84	1	MOS	126	19.5
10	1	SPD	77	3.7	85	1	MOS	107	11.8
11	1	MOS	105	11.7	86	1	SPD	71	6.1
12	1	MOS	116	15.6	87	1	MOS	99	11.2
13	1	MOS	104	11.1	88	1	MOS	107	13.2
14	1	MOS	149	31.5	89	1	MOS	89	7.1
15	1	MOS	143	28.7	90	1	MOS	87	10.1
16	1	SPD	87	7.1	91	1	SPD	71	5.3
17	1	MOS	112	15.4	92	1	SPD	63	2.9
18	1	SPD	104	12.4	93	1	SPD	93	8.8
19	1	SPD	72	3.8	94	1	SPD	72	3.1
20	1	MOS	124	17.2	95	1	SPD	77	3.7
21	1	MOS	129	21.7	96	1	MOS	107	13
22	1	MOS	109	13.7	97	1	MOS	85	6.4
23	1	MOS	106	11.5	98	1	MOS	92	8.3
24	1	MOS	113	13.2	99	1	SPD	67	5.5
25	1	MOS	116	14.2	100	1	MOS	92	12
26	1	MOS	136	25.4	101	1	MOS	90	11.8
27	1	MOS	122	16.7	102	1	MOS	111	12.9
28	1	MOS	109	12.7	103	1	MOS	102	9.6
29	1	MOS	101	12.7	104	1	MOS	93	7.5
30	1	MOS	115	13.5	105	1	MOS	82	4.2
31	1	SPD	59	1.9	106	1	MOS	86	5.4
32	1	MOS	99	10.8	107	1	MOS	101	10.2
33	1	MOS	117	15.6	108	1	MOS	99	10.1
34	1	MOS	138	26.2	109	1	MOS	59	3.1
35	1	MOS	112	16.3	110	1	MOS	86	8.2
36	1	MOS	95	8	111	1	MOS	97	10.9
37	1	MOS	95	8.2	112	1	MOS	31	-
38	1	MOS	101	9.7	113	1	MOS	87	6.7
39	1	MOS	103	10.2	114	1	MOS	93	7.4
40	1	MOS	116	14.5	115	1	MOS	95	10

41	1	MOS	109	11.7	116	1	MOS	39	-
42	1	MOS	115	15.9	117	1	MOS	33	-
43	1	MOS	106	11.5	118	1	MOS	39	-
44	1	MOS	113	15.1	119	2	MOS	143	26.1
45	1	MOS	97	8.1	120	2	MOS	129	20.2
46	1	MOS	83	4.9	121	2	MOS	118	16.7
47	1	SPD	86	7.7	122	2	MOS	122	18.6
48	1	MOS	124	20.8	123	2	MOS	101	9.5
49	1	MOS	89	7.8	124	2	MOS	98	8.3
50	1	MOS	107	12.4	125	2	MOS	90	6.2
51	1	MOS	105	10.2	126	2	MOS	87	6.2
52	1	MOS	109	11.1	127	2	MOS	98	8.9
53	1	MOS	115	17.1	128	2	MOS	102	10.1
54	1	MOS	99	13.1	129	2	MOS	97	9.7
55	1	SPD	107	16.1	130	2	MOS	99	9.1
56	1	MOS	107	16	131	2	MOS	94	7.6
57	1	SPD	73	8	132	2	MOS	97	9.7
58	1	MOS	93	7.4	133	2	MOS	99	9.1
59	1	MOS	92	7.4	134	2	MOS	109	13.2
60	1	MOS	87	6.6	135	2	MOS	112	13.2
61	1	SPD	64	2.4	136	2	MOS	97	8.8
62	1	SPD	95	6.8	137	2	MOS	96	8.1
63	1	SPD	50	1.5	138	2	MOS	92	7.8
64	1	MOS	93	10	139	2	MOS	93	8.4
65	1	MOS	129	18.5	140	2	MOS	93	8.6
66	1	MOS	90	7.1	141				
67	1	MOS	95	8.7	142				
68	1	SPD	71	8.5	143				
69	1	SPD	69	2.5	144				
70	1	MOS	80	6.2	145				
71	1	MOS	98	9	146				
72	1	MOS	99	10.7	147				
73	1	SPD	83	9.8	148				
74	1	SPD	80	7.9	149				
75	1	MS	112	13.6	150				

GPS Coordinates:

H2O Temp: 45.3°F	**Reach Length**: 300’	**Stream**	1.
Conductivity: 923µs	**Shocker Settings**: 135 volts	**Widths**:	2.
Habitat (Riparian): Coyote willow – dominant. Sedge, Geyer’s willow, Baltic rush, canary reed grass (dominant), some Canada thistle			3.
			4.
			5.
			Avg: 3’

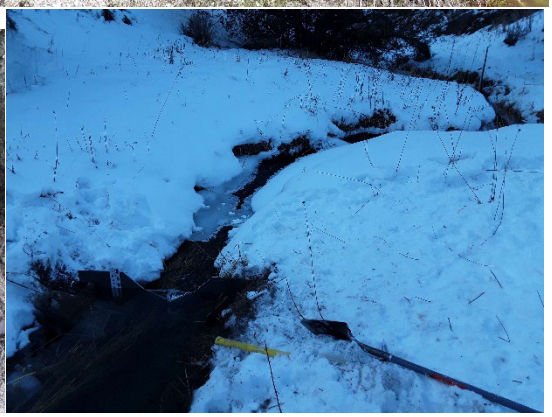
Habitat (Stream): Freshwater shrimp, freshwater snails, dragonfly larvae, good mix of riffles and runs, two pools about 3’ deep.

Discussion:
This site was sampled to monitor the known mountain sucker population. Habitat at the site was in good condition with a good mix of small riffles, larger runs, and deeper pools. Riparian vegetation was dense and robust and completely shaded the stream in most areas. Riparian vegetation consisted primarily of coyote willow, Geyer's willow, sedge, rush, canary reed grass, and some Canada thistle.

A two-pass population estimate was completed at the site. Based on the sample, the presumed adult population (fish $\geq$ to 100 mm) is 55 + or - 4 fish at the 95% confidence interval within the 300 foot sample reach, and extrapolated is 976 + or - 65 fish per mile at the 95% confidence interval. This is a robust population but probably somewhat misleading with regard to exptrapolation at the fish per mile scale as habitat both upstream and downstream for some distance on private lands is degraded with poor vegetative stream cover, overwidened channel, reduced depth, and reduced pool habitat.

Recommendations:

- Periodically monitor aquatic species and stream and riparian habitats



Discharge Measurment Field Visit Data Report *(Filters: Name begins with Piceance;)*

Div	Name	CWCB Case Number	Segment ID	Meas. Date	UTM	Location	Flow Amount (cfs)	Meas #	Rating	Station ID
6	Piceance Creek		17/6/A-002	07/07/2015	UTMx: 243913 UTMy: 4402156	Piceance Creek blw Hwy13 and 0.9 miles upstream of Cow Creek	3.33	1	f	
6	Piceance Creek		17/6/A-002	08/03/2016	UTMx: 244109 UTMy: 4402085	Piceance Creek at BLM gage location	0.81	2	f	UPPPICD6
6	Piceance Creek		17/6/A-002	08/09/2016	UTMx: 735676 UTMy: 4440004	Piceance Creek at CR253 road	0.06	3	p	UPPPICD6
6	Piceance Creek		17/6/A-002	08/29/2016	UTMx: 244109 UTMy: 4402085	Piceance Creek at BLM gage location	3.28	4	f	UPPPICD6
6	Piceance Creek		17/6/A-002	09/21/2016	UTMx: 244109 UTMy: 4402085	Piceance Creek at BLM gage location	0.44	5	f	UPPPICD6
6	Piceance Creek		17/6/A-002	11/21/2016	UTMx: 244109 UTMy: 4402085	Piceance Creek at BLM gage location	1.26	6	f	UPPPICD6
6	Piceance Creek		17/6/A-002	12/16/2016	UTMx: 244109 UTMy: 4402085	Piceance Creek at BLM gage location	3.28	7	f	UPPPICD6
6	Piceance Creek		17/6/A-002	12/16/2016	UTMx: 244109 UTMy: 4402085	Piceance Creek at BLM gage location	3.28	8	f	UPPPICD6
6	Piceance Creek		17/6/A-002	02/16/2017	UTMx: 244109 UTMy: 4402085	Piceance Creek at BLM gage location	3.53	9	f	UPPPICD6
6	Piceance Creek		17/6/A-002	06/22/2017	UTMx: 244109 UTMy: 4404085	Piceance Creek at BLM gage location	0.5	10	f	UPPPICD6
6	Piceance Creek		17/6/A-002	07/12/2017	UTMx: 244109 UTMy: 4404085	Piceance Creek at BLM gage location	0.11	11	f	UPPPICD6
6	Piceance Creek		17/6/A-002	08/22/2018	UTMx: 244175 UTMy: 4401941	Piceance Creek at BLM gage location	0.07	12	f	UPPPICD6
6	Piceance Creek		17/6/A-002	09/14/2018	UTMx: 244093 UTMy: 4402055	Piceance Creek at BLM gage location	0.06	13	f	UPPPICD6
6	Piceance Creek		17/6/A-002	09/14/2018	UTMx: 244093 UTMy: 4402055	Piceance Creek at BLM gage location	0.05	14	f	UPPPICD6
6	Piceance Creek		17/6/A-002	05/07/2019	UTMx: 244109 UTMy: 4402085	Piceance Creek at BLM gage location	7.7	15	f	UPPPICD6
6	Piceance Creek		17/6/A-002	07/09/2019	UTMx: 244109 UTMy: 4402085	Piceance Creek at BLM gage location	13.98	16	f	UPPPICD6
6	Piceance Creek		17/6/A-002	10/16/2019	UTMx: 244109 UTMy: 4402085	Piceance Creek at BLM gage location	0.6	17	p	UPPPICD6
6	Piceance Creek		17/6/A-002	12/04/2019	UTMx: 244109 UTMy: 4402085	Piceance Creek at BLM gage location	0.64	18	p	UPPPICD6
6	Piceance Creek		17/6/A-002	01/16/2020	UTMx: 244109 UTMy: 4402085	Piceance Creek at BLM gage location	0.53	19	f	UPPPICD6
6	Piceance Creek		17/6/A-002	02/11/2020	UTMx: 244109 UTMy: 4402085	Piceance Creek at BLM gage location	0.62	20	f	UPPPICD6
6	Piceance Creek		17/6/A-002	03/03/2020	UTMx: 244109 UTMy: 4402085	Piceance Creek at BLM gage location	0.9	21	p	UPPPICD6
6	Piceance Creek		17/6/A-002	05/28/2020	UTMx: 244109 UTMy: 4402085	Piceance Creek at BLM gage location	0.93	22	f	UPPPICD6

6	Piceance Creek		17/6/A-002	06/29/2020	UTMx: 244109 UTMy: 4402085	Piceance Creek at BLM gage location	0.08	23	f	UPPPICD6
6	Piceance Creek		17/6/A-002	09/21/2020	UTMx: 244109 UTMy: 4402085	Piceance Creek at BLM gage location	0.16	24	f	UPPPICD6
6	Piceance Creek		17/6/A-002	11/02/2022	UTMx: 243419 UTMy: 4402411	Piceance Creek roughly 2452ft downstream from BLM gage location	0.23	25	p	

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Department of Natural Resources

Discharge Measurement Summary

Date Generated: Fri Jul 10 2015

File Information

File Name	PICR2X01.001.WAD
Start Date and Time	2015/07/07 14:25:34

Site Details

Site Name	PICEANE CR R2X 01
Operator(s)	BRIAN EPSTEIN

System Information

Sensor Type	FlowTracker
Serial #	P2354
CPU Firmware Version	3.9
Software Ver	2.30
Mounting Correction	0.0%

Units (English Units)

Distance	ft
Velocity	ft/s
Area	ft^2
Discharge	cfs

Discharge Uncertainty

Category	ISO	Stats
Accuracy	1.0%	1.0%
Depth	0.3%	1.0%
Velocity	0.5%	1.8%
Width	0.1%	0.1%
Method	1.4%	-
# Stations	1.6%	-
Overall	**2.4%**	**2.3%**

Summary

Averaging Int.	40	# Stations	33
Start Edge	REW	Total Width	6.404
Mean SNR	32.6 dB	Total Area	1.881
Mean Temp	60.31 °F	Mean Depth	0.294
Disch. Equation	Mid-Section	Mean Velocity	1.7712
		Total Discharge	**3.3317**

Measurement Results

St	Clock	Loc	Method	Depth	%Dep	MeasD	Vel	CorrFact	MeanV	Area	Flow	%Q
0	14:25	2.30	None	0.000	0.0	0.0	0.0000	1.00	0.0000	0.000	0.0000	0.0
1	14:25	2.50	0.6	0.200	0.6	0.080	1.1821	1.00	1.1821	0.040	0.0473	1.4
2	14:26	2.70	0.6	0.230	0.6	0.092	1.7635	1.00	1.7635	0.046	0.0812	2.4
3	14:27	2.90	0.6	0.280	0.6	0.112	1.3629	1.00	1.3629	0.056	0.0763	2.3
4	14:28	3.10	0.6	0.260	0.6	0.104	1.0404	1.00	1.0404	0.052	0.0541	1.6
5	14:30	3.30	0.6	0.230	0.6	0.092	1.8294	1.00	1.8294	0.046	0.0842	2.5
6	14:31	3.50	0.6	0.230	0.6	0.092	1.6946	1.00	1.6946	0.046	0.0780	2.3
7	14:32	3.70	0.6	0.230	0.6	0.092	1.5108	1.00	1.5108	0.046	0.0695	2.1
8	14:33	3.90	0.6	0.260	0.6	0.104	1.7208	1.00	1.7208	0.052	0.0895	2.7
9	14:34	4.10	0.6	0.300	0.6	0.120	1.6539	1.00	1.6539	0.060	0.0993	3.0
10	14:36	4.30	0.6	0.350	0.6	0.140	1.4081	1.00	1.4081	0.070	0.0987	3.0
11	14:38	4.50	0.6	0.370	0.6	0.148	1.6634	1.00	1.6634	0.074	0.1232	3.7
12	14:40	4.70	0.6	0.400	0.6	0.160	1.9094	1.00	1.9094	0.080	0.1528	4.6
13	14:41	4.90	0.6	0.430	0.6	0.172	2.0164	1.00	2.0164	0.086	0.1736	5.2
14	14:42	5.10	0.6	0.480	0.6	0.192	1.9150	1.00	1.9150	0.096	0.1840	5.5
15	14:44	5.30	0.6	0.500	0.6	0.200	1.9180	1.00	1.9180	0.100	0.1919	5.8
16	14:45	5.50	0.6	0.450	0.6	0.180	1.8806	1.00	1.8806	0.090	0.1694	5.1
17	14:46	5.70	0.6	0.400	0.6	0.160	2.0177	1.00	2.0177	0.080	0.1615	4.8
18	14:47	5.90	0.6	0.400	0.6	0.160	1.5922	1.00	1.5922	0.080	0.1274	3.8
19	14:48	6.10	0.6	0.340	0.6	0.136	1.8927	1.00	1.8927	0.068	0.1287	3.9
20	14:49	6.30	0.6	0.310	0.6	0.124	1.9616	1.00	1.9616	0.062	0.1217	3.7
21	14:50	6.50	0.6	0.260	0.6	0.104	1.9734	1.00	1.9734	0.052	0.1026	3.1
22	14:52	6.70	0.6	0.250	0.6	0.100	1.9541	1.00	1.9541	0.050	0.0978	2.9
23	14:53	6.90	0.6	0.250	0.6	0.100	1.8350	1.00	1.8350	0.050	0.0918	2.8
24	14:54	7.10	0.6	0.260	0.6	0.104	1.7192	1.00	1.7192	0.052	0.0894	2.7
25	14:55	7.30	0.6	0.240	0.6	0.096	1.8589	1.00	1.8589	0.048	0.0893	2.7
26	14:56	7.50	0.6	0.240	0.6	0.096	1.7933	1.00	1.7933	0.048	0.0862	2.6
27	14:58	7.70	0.6	0.260	0.6	0.104	1.8169	1.00	1.8169	0.052	0.0945	2.8
28	14:59	7.90	0.6	0.230	0.6	0.092	1.9577	1.00	1.9577	0.046	0.0901	2.7
29	15:00	8.10	0.6	0.260	0.6	0.104	1.7146	1.00	1.7146	0.052	0.0892	2.7
30	*15:01*	*8.30*	*0.6*	*0.300*	*0.6*	*0.120*	*-1.8835*	*-1.00*	*1.8835*	*0.060*	*0.1130*	*3.4*
31	15:01	8.50	None	0.200	0.0	0.0	0.0000	1.00	1.8835	0.040	0.0754	2.3
32	15:01	8.70	None	0.000	0.0	0.0	0.0000	1.00	0.0000	0.000	0.0000	0.0

Rows in italics indicate a QC warning. See the Quality Control page of this report for more information.

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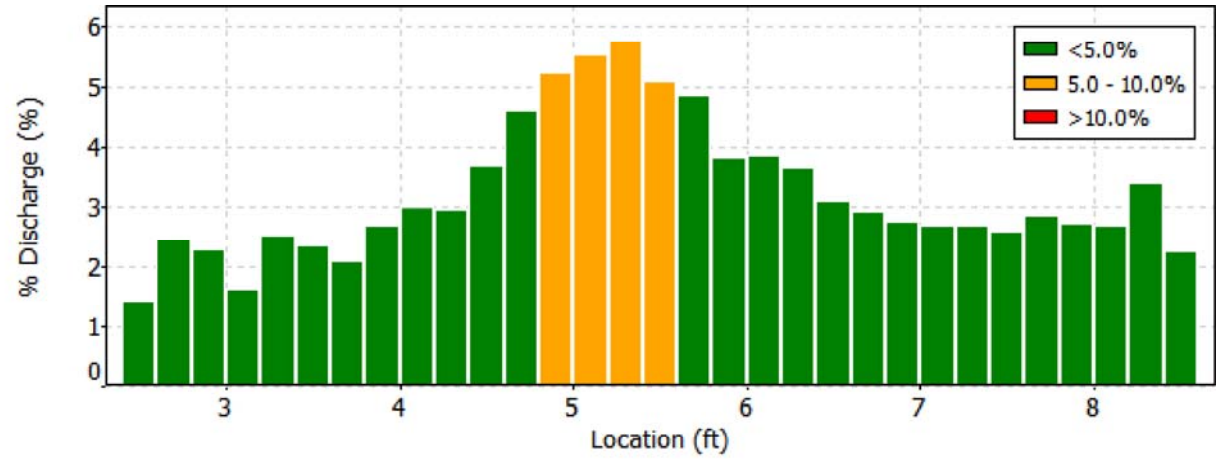
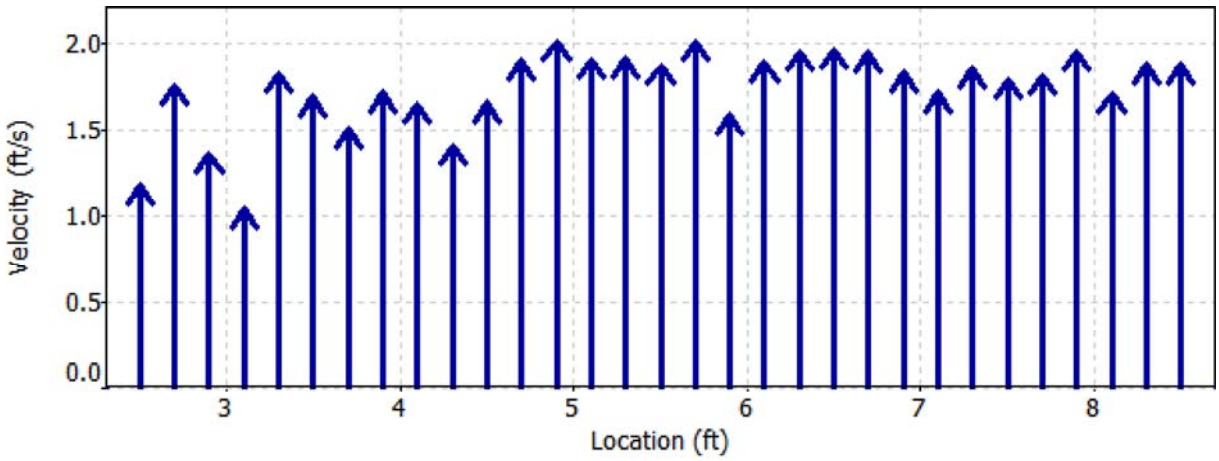
Department of Natural Resources

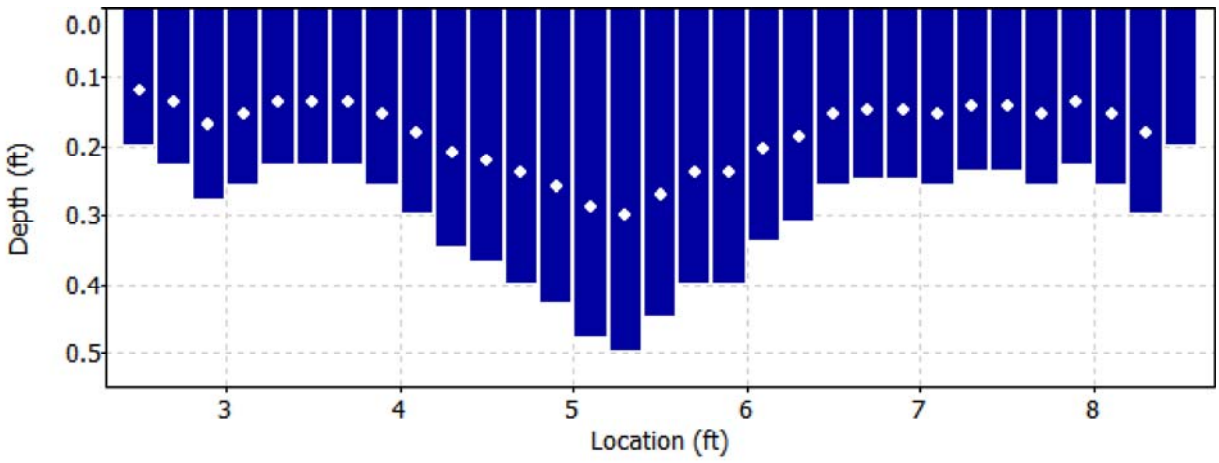
Discharge Measurement Summary

Date Generated: Fri Jul 10 2015

File Information		Site Details	
File Name	PICR2X01.001.WAD	Site Name	PICEANE CR R2X 01
Start Date and Time	2015/07/07 14:25:34	Operator(s)	BRIAN EPSTEIN







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Discharge Measurement Summary

Date Generated: Fri Jul 10 2015

File Information

File Name	PICR2X01.001.WAD
Start Date and Time	2015/07/07 14:25:34

Site Details

Site Name	PICEANE CR R2X 01
Operator(s)	BRIAN EPSTEIN

Quality Control

St	Loc	%Dep	Message
30	8.30	0.6	High angle: -178

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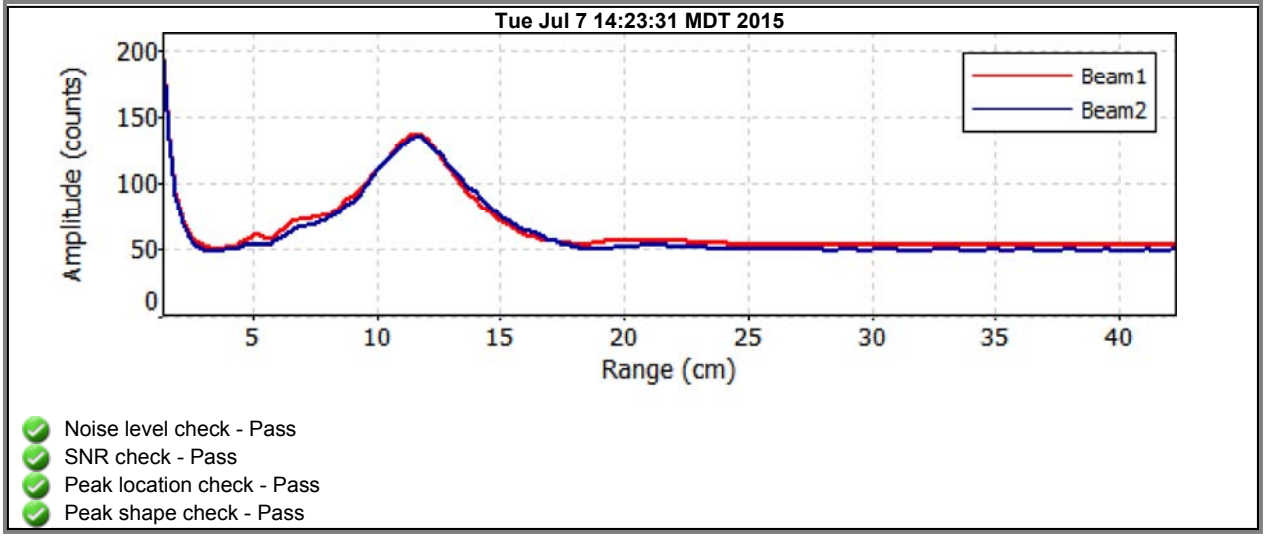
Department of Natural Resources

Discharge Measurement Summary

Date Generated: Fri Jul 10 2015

File Information		Site Details	
File Name	PICR2X01.001.WAD	Site Name	PICEANE CR R2X 01
Start Date and Time	2015/07/07 14:25:34	Operator(s)	BRIAN EPSTEIN

Automatic Quality Control Test (BeamCheck)



- Noise level check - Pass
- SNR check - Pass
- Peak location check - Pass
- Peak shape check - Pass

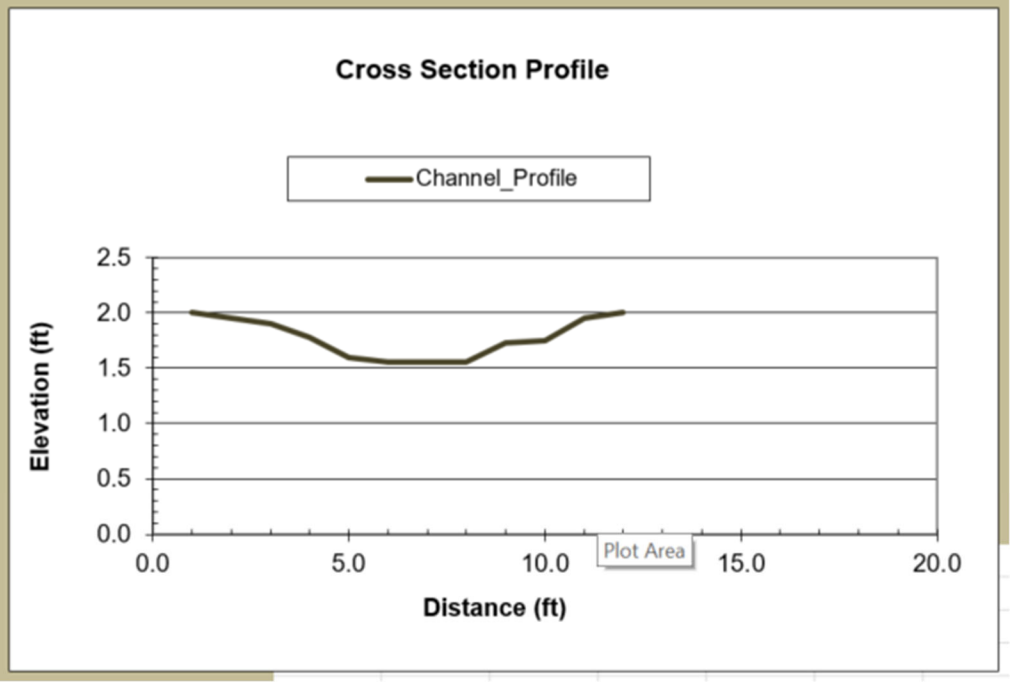
Discharge Calculation Worksheet

Stream Gauge: Piceance_Crk.
Date: 8/3/2016

SG_{start} 0.88
SG_{end} 0.88
1m = 3.28083 ft

Q_{tot} **0.806** ft^3

Tape	Distance	Depth	Elevation	V (m/s)	V (ft/s)	Comment	Q (cfs)
1.8	0.5	0.00	2.00	0.00	0.00	LEW	-
2.0	0.7	0.05	1.95	0.00	0.00		0.000
2.2	0.9	0.10	1.90	0.41	0.00		0.000
2.4	1.1	0.23	1.78	0.55	1.33		0.060
2.6	1.3	0.40	1.60	0.60	1.80		0.144
2.8	1.5	0.45	1.55	0.55	1.98		0.178
3.0	1.7	0.45	1.55	0.48	1.79		0.161
3.2	1.9	0.45	1.55	0.37	1.59		0.143
3.4	2.1	0.28	1.73	0.32	1.22		0.067
3.6	2.3	0.25	1.75	0.00	1.05		0.053
3.8	2.5	0.05	1.95	0.00	0.00		0.000
4.0	2.7	0.00	2.00		0.00		



Discharge Measurement Summary

Site name	PICEANCE CR AT CR253
Site number	
Operator(s)	BRIAN EPSTEIN
File name	PCRAT253.001.FlowTracker2.ft
Comment	

Start time	8/9/2016 12:30 PM
End time	8/9/2016 12:35 PM
Start location latitude	-
Start location longitude	-
Calculations engine	FlowTracker2

Sensor type	Unknown
Handheld serial number	n/a
Probe serial number	P2354
Probe firmware	3.90
Handheld software	n/a

# Stations	Avg interval (s)	Total discharge (ft³/s)
6	40	0.0628

Total width (ft)	Total area (ft²)	Wetted Perimeter (ft)
1.600	0.3151	1.762

Mean SNR (dB)	Mean depth (ft)	Mean velocity (ft/s)
32	0.197	0.1994

Mean temp (°F)	Max depth (ft)	Max velocity (ft/s)
63.662	0.300	0.4700

Discharge Uncertainty		
Category	**ISO**	**IVE**
Accuracy	1.0%	1.0%
Depth	0.8%	17.2%
Velocity	5.0%	22.5%
Width	0.3%	0.3%
Method	4.1%	
# Stations	9.4%	
Overall	**11.5%**	**28.4%**

Discharge equation	Mid Section
Discharge uncertainty	ISO
Discharge reference	Measured

Data Collection Settings	
Salinity	0.000 PSS-78
Temperature	-
Sound speed	-
Mounting correction	0.000 %

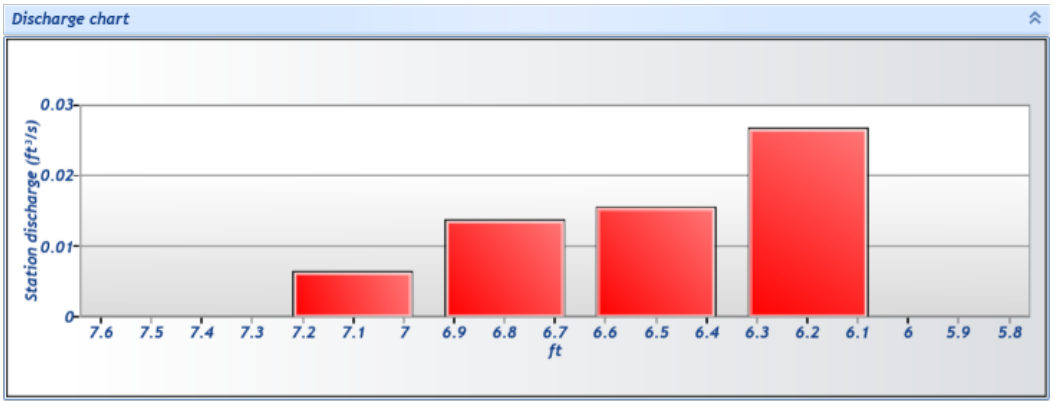
Summary overview

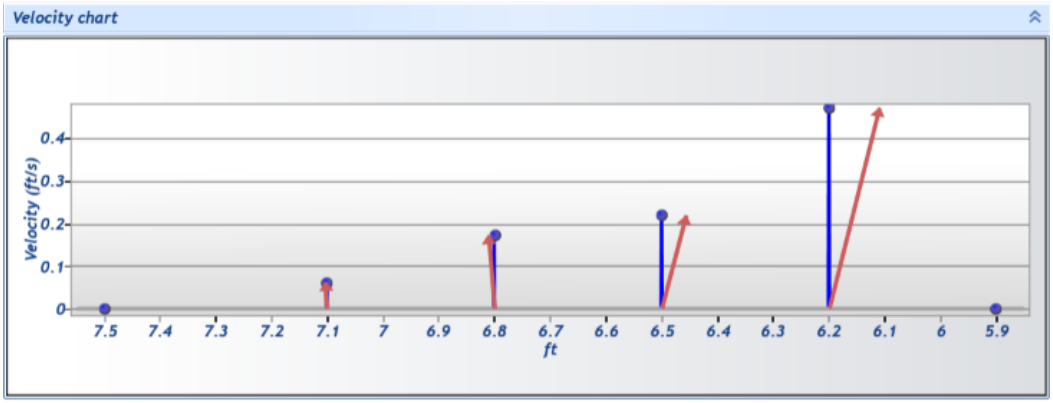
No changes were made to this file
Quality control warnings

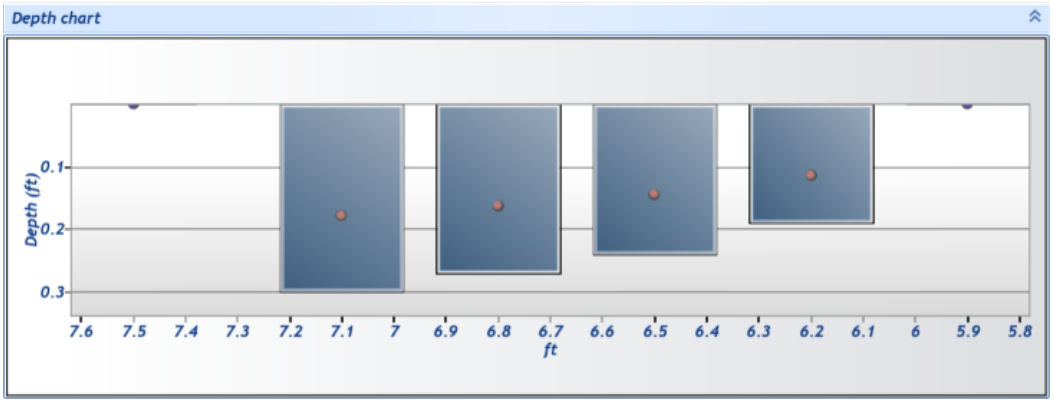
Discharge Measurement Summary

Site name	PICEANCE CR AT CR253
Site number	
Operator(s)	BRIAN EPSTEIN
File name	PCRAT253.001.FlowTracker2.ft
Comment	

Station Warning Settings	
Station discharge OK	Station discharge < 2.50%
Station discharge caution	2.50% >= Station discharge < 5.00%
Station discharge warning	Station discharge >= 5.00%







Discharge Measurement Summary

Site name	PICEANCE CR AT CR253
Site number	
Operator(s)	BRIAN EPSTEIN
File name	PCRAT253.001.FlowTracker2.ft
Comment	

Measurement results

St#	Time	Location (ft)	Method	Depth (ft)	%Depth	Measured Depth (ft)	Samples	Velocity (ft/s)	Correction	Mean Velocity (ft/s)	Area (ft²)	Flow (ft³/s)	%Q	
0	12:30 PM	5.900	None	0.000	0.0000	0.000	0	0.0000	1.0000	0.4700	0.0000	0.0000	0.00	✓
1	12:32 PM	6.200	0.6	0.190	0.6000	0.114	40	0.4700	1.0000	0.4700	0.0570	0.0268	42.65	✓
2	12:33 PM	6.500	0.6	0.240	0.6000	0.144	40	0.2179	1.0000	0.2179	0.0721	0.0157	25.00	✓
3	12:34 PM	6.801	0.6	0.270	0.6000	0.162	40	0.1711	1.0000	0.1711	0.0811	0.0139	22.07	✓
4	12:35 PM	7.101	0.6	0.300	0.6000	0.180	40	0.0616	1.0000	0.0616	0.1049	0.0065	10.28	✓
5	12:35 PM	7.500	None	0.000	0.0000	0.000	0	0.0000	1.0000	0.0616	0.0000	0.0000	0.00	✓

Discharge Measurement Summary

Site name	PICEANCE CR AT CR253
Site number	
Operator(s)	BRIAN EPSTEIN
File name	PCRAT253.001.FlowTracker2.ft
Comment	

Quality Control Settings	
Maximum depth change	50.00%
Maximum spacing change	100.00%
SNR threshold	4 dB
Standard error threshold	0.0328 ft/s
Spike threshold	10.00%
Maximum velocity angle	20.0 deg
Maximum tilt angle	5.0 deg

Quality control warnings

St#	Time	Location (ft)	Method	Depth (ft)	%Depth	Measured Depth (ft)	Warnings
1	12:32 PM	6.200	0.6	0.190	0.6000	0.114	SNR Threshold Variation,High Stn % Discharge
2	12:33 PM	6.500	0.6	0.240	0.6000	0.144	SNR Threshold Variation,High Stn % Discharge
3	12:34 PM	6.801	0.6	0.270	0.6000	0.162	SNR Threshold Variation,High Stn % Discharge
4	12:35 PM	7.101	0.6	0.300	0.6000	0.180	Large SNR Variation,SNR Threshold Variation,High Stn % Discharge

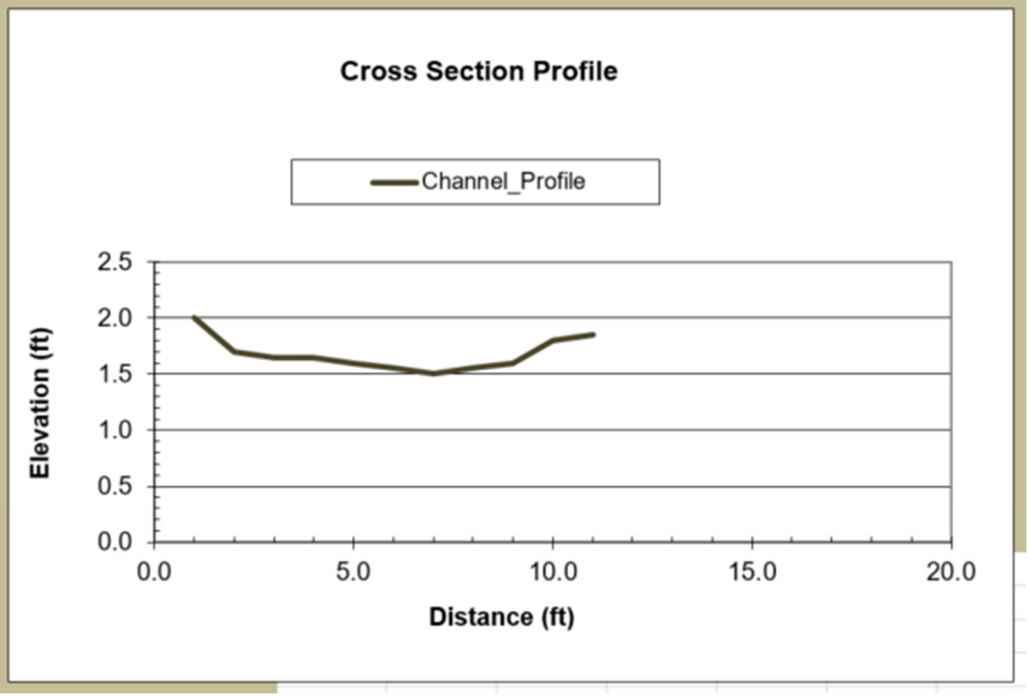
Discharge Calculation Worksheet

Stream Gauge: Piceance_Crk.
Date: 8/29/2016

SG_{start} 0.88
SG_{end} 0.88
1m = 3.28083 ft

Q_{tot} **1.003** ft^3

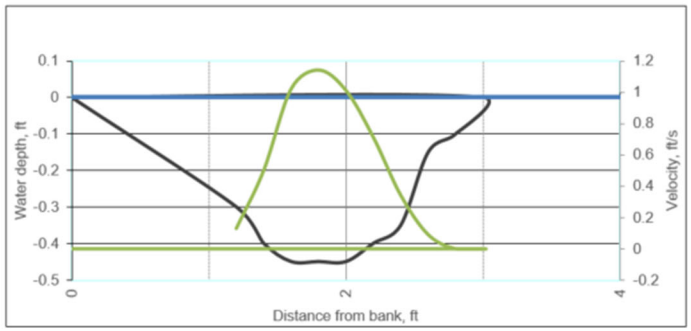
Tape	Distance	Depth	Elevation	V (m/s)	V (ft/s)	Comment	Q (cfs)
0.0	0.5	0.00	2.00	0.10	0.00	LEW	-
3.8	4.3	0.30	1.70	0.20	0.32		0.192
4.0	4.5	0.35	1.65	0.25	0.66		0.046
4.2	4.7	0.35	1.65	0.34	0.82		0.057
4.4	4.9	0.40	1.60	0.45	1.12		0.090
4.6	5.1	0.45	1.55	0.53	1.47		0.132
4.8	5.3	0.50	1.50	0.57	1.73		0.173
5.0	5.5	0.45	1.55	0.52	1.88		0.169
5.2	5.7	0.40	1.60	0.17	1.72		0.138
5.4	5.9	0.20	1.80	0.01	0.55		0.022
5.6	6.1	0.15	1.85	0.00	0.04		-0.016



Flow Measurement Calculations

Stream: Piceance Creek
Date: 9/21/2016 **Time:** 11:30 AM
Observers:
County:
Water Division: 6
Latitude:
Longitude:
Location Description: At BLM temporary gage
Comments: Data collected by BLM
Other:

Station, ft	Width, ft	Depth, ft	Velocity, ft/s	Area, ft2	Discharge, cfs	%
0	water line	0	0			
1.2	0.7	0.3	0.13	0.21	0.0273	6.3%
1.4	0.2	0.4	0.5	0.08	0.04	9.2%
1.6	0.2	0.45	1.02	0.09	0.0918	21.1%
1.8	0.2	0.45	1.14	0.09	0.1026	23.5%
2	0.2	0.45	1.01	0.09	0.0909	20.9%
2.2	0.2	0.4	0.71	0.08	0.0568	13.0%
2.4	0.2	0.35	0.34	0.07	0.0238	5.5%
2.6	0.2	0.15	0.09	0.03	0.0027	0.6%
2.8	0.2	0.1	0	0.02	0	0.0%
3		0	0	0	0	0.0%
				0	0	0.0%
				0	0	0.0%
				0	0	0.0%
				0	0	0.0%
				0	0	0.0%
	water line	0	0	0	0	0.0%
				FLOW =	**0.44**	



Graph Data

Bed elevation		Waterline	
0	0	0	0
1.2	-0.3	12.2	0
1.4	-0.4		
1.6	-0.45		
1.8	-0.45		
2	-0.45		
2.2	-0.4		
2.4	-0.35		
2.6	-0.15		
2.8	-0.1		
3	0		
0	0		
0	0		
0	0		
0	0		
0	0		

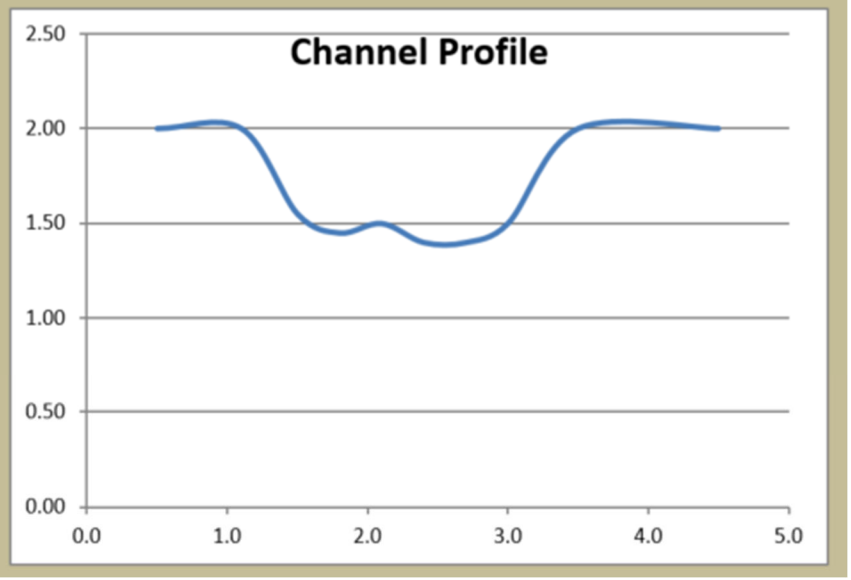
Discharge Calculation Worksheet

Stream Gauge: Upper_Piceance_Crk.
Date: 11/21/2016

SG_{start} 0.92
SG_{end} 0.92
1m = 3.28083 ft

Q_{tot} **1.26** ft^3

Tape	Distance	Depth	Elevation	V (m/s)	V (ft/s)	Comment	Q (cfs)
12.0	0.5	0.00	2.00	0.00	0.00		-
12.6	1.1	0.00	2.00	0.10	0.00	LEW	0.000
13.0	1.5	0.45	1.55	0.40	0.34		0.054
13.3	1.8	0.55	1.45	0.53	1.30		0.215
13.6	2.1	0.50	1.50	0.37	1.75		0.263
13.9	2.4	0.60	1.40	0.44	1.22		0.220
14.2	2.7	0.60	1.40	0.37	1.45		0.261
14.5	3.0	0.50	1.50	0.00	1.22	REW	0.244
15.0	3.5	0.00	2.00	0.00	0.00		0.000
16.0	4.5	0.00	2.00	0.00	0.00		0.000



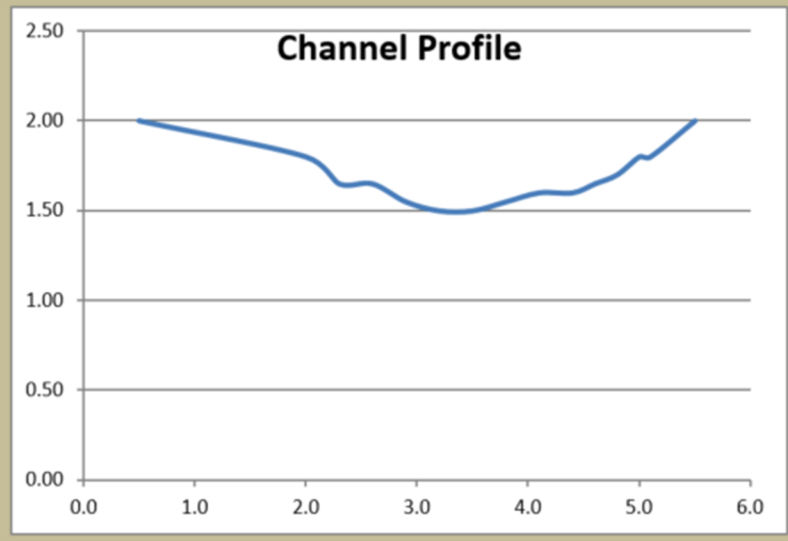
Discharge Calculation Worksheet

Stream Gauge: Upper_Piceance_Crk.
Date: 12/16/2016

SG_{start} 0.92
SG_{end} 0.92
1m = 3.28083 ft

Q_{tot} **1.16** ft^3

Tape	Distance	Depth	Elevation	V (m/s)	V (ft/s)	Comment	Q (cfs)
0.0	0.5	0.00	2.00	0.05	0.00		-
1.5	2.0	0.20	1.80	0.09	0.15	LEW	0.027
1.8	2.3	0.35	1.65	0.27	0.29		0.030
2.1	2.6	0.35	1.65	0.37	0.87		0.091
2.4	2.9	0.45	1.55	0.37	1.21		0.163
2.7	3.2	0.50	1.50	0.34	1.20		0.180
3.0	3.5	0.50	1.50	0.37	1.11		0.167
3.3	3.8	0.45	1.55	0.36	1.23		0.166
3.6	4.1	0.40	1.60	0.33	1.19		0.143
3.9	4.4	0.40	1.60	0.29	1.08		0.108
4.1	4.6	0.35	1.65		0.95		0.067
4.3	4.8	0.30	1.70		0.35		0.021
4.5	5	0.20	1.80		0.00		0.000
4.6	5.1	0.20	1.80		0.00	REW	0.000
5.0	5.5	0.00	2.00		0.00		0.000



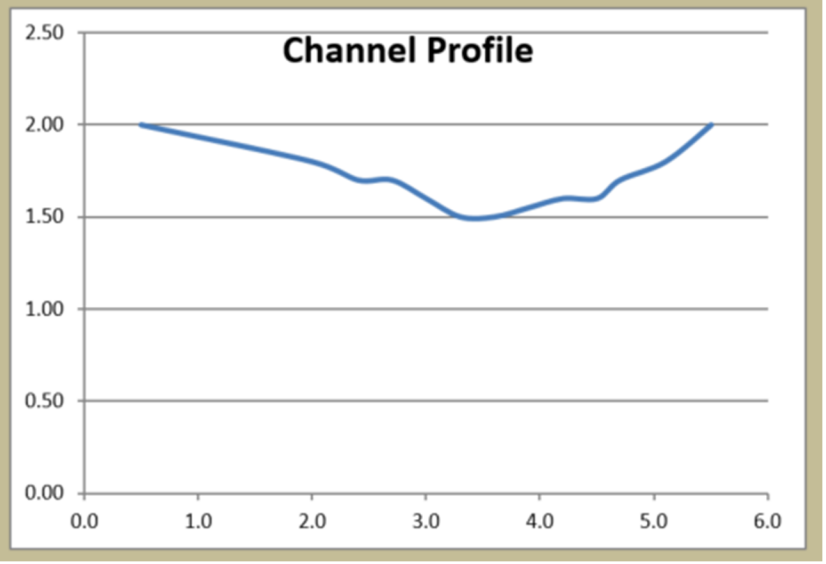
Discharge Calculation Worksheet

Stream Gauge: Upper_Piceance_Crk.
Date: 12/16/2016

SG_{start} 0.92
SG_{end} 0.92
1m = 3.28083 ft

Q_{tot} **1.18** ft^3

Tape	Distance	Depth	Elevation	V (m/s)	V (ft/s)	Comment	Q (cfs)
0.0	0.5	0.00	2.00	0.05	0.00	LEW	-
1.5	2.0	0.20	1.80	0.05	0.16		0.030
1.9	2.4	0.30	1.70	0.37	0.17		0.018
2.2	2.7	0.30	1.70	0.40	1.20		0.108
2.5	3.0	0.40	1.60	0.39	1.32		0.158
2.8	3.3	0.50	1.50	0.38	1.27		0.191
3.1	3.6	0.50	1.50	0.39	1.25		0.188
3.4	3.9	0.45	1.55	0.35	1.28		0.173
3.7	4.2	0.40	1.60	0.32	1.16		0.139
4.0	4.5	0.40	1.60	0.00	1.04		0.104
4.2	4.7	0.30	1.70		0.82		0.074
4.6	5.1	0.20	1.80		0.00		0.000
5.0	5.5	0.00	2.00		0.00	REW	0.000



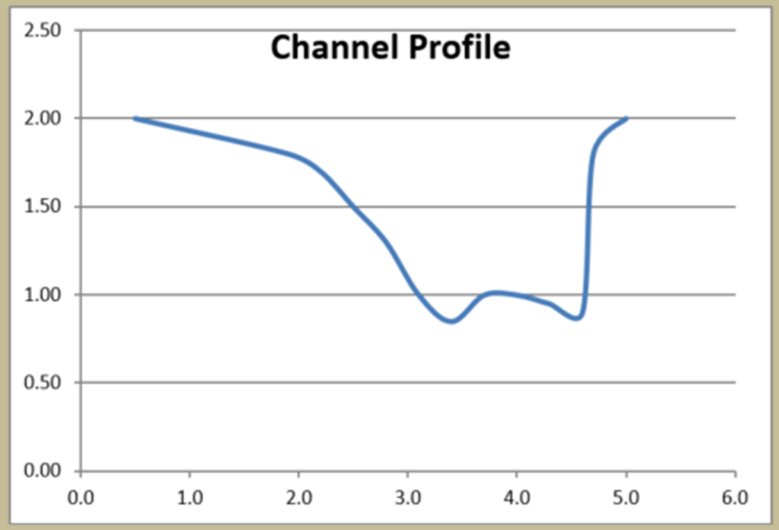
Discharge Calculation Worksheet

Stream Gauge: Upper_Piceance_Crk.
Date: 2/16/2017

SG_{start} 1.5
SG_{end} 1.5
1m = 3.28083 ft

Q_{tot} **3.53** ft^3

Tape	Distance	Depth	Elevation	V (m/s)	V (ft/s)	Comment	Q (cfs)
0.0	0.5	0.00	2.00	0.00	0.00	LEW	-
1.4	1.9	0.20	1.80	0.09	0.01		0.001
1.7	2.2	0.30	1.70	0.15	0.29		0.026
2.0	2.5	0.50	1.50	0.44	0.50		0.075
2.3	2.8	0.70	1.30	0.51	1.43		0.300
2.6	3.1	1.00	1.00	0.62	1.68		0.504
2.9	3.4	1.15	0.85	0.60	2.02		0.697
3.2	3.7	1.00	1.00	0.58	1.96		0.588
3.5	4.0	1.00	1.00	0.48	1.91		0.573
3.8	4.3	1.05	0.95	0.00	1.56		0.491
4.1	4.6	1.10	0.90	0.00	1.24		0.273
4.2	4.7	0.20	1.80	0.00	0.13		0.005
4.5	5	0.00	2.00	0.00	0.00	REW	0.000



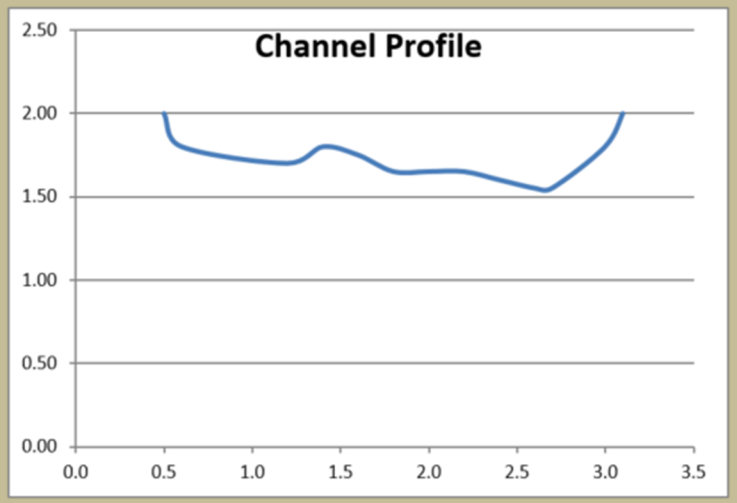
Discharge Calculation Worksheet

Stream Gauge: Upper_Piceance_Crk.
Date: 6/22/2017

SG_{start} 0.72
SG_{end} 0.72
1m = 3.28083 ft

Q_{tot} **0.50** ft^3

Tape	Distance	Depth	Elevation	V (m/s)	V (ft/s)	Comment	Q (cfs)
1.0	0.5	0.00	2.00	0.00	0.00	LEW	-
1.1	0.6	0.20	1.80	0.05	0.00		0.000
1.7	1.2	0.30	1.70	0.24	0.16		0.019
1.9	1.4	0.20	1.80	0.29	0.78		0.031
2.1	1.6	0.25	1.75	0.33	0.96		0.048
2.3	1.8	0.35	1.65	0.35	1.08		0.076
2.5	2.0	0.35	1.65	0.31	1.15		0.081
2.7	2.2	0.35	1.65	0.26	1.01		0.071
2.9	2.4	0.40	1.60	0.21	0.84		0.067
3.1	2.6	0.45	1.55	0.00	0.68		0.046
3.2	2.7	0.45	1.55	0.00	0.62		0.056
3.5	3	0.20	1.80	0.00	0.13	REW	0.005
3.6	3.1	0.00	2.00	0.00	0.00		0.000



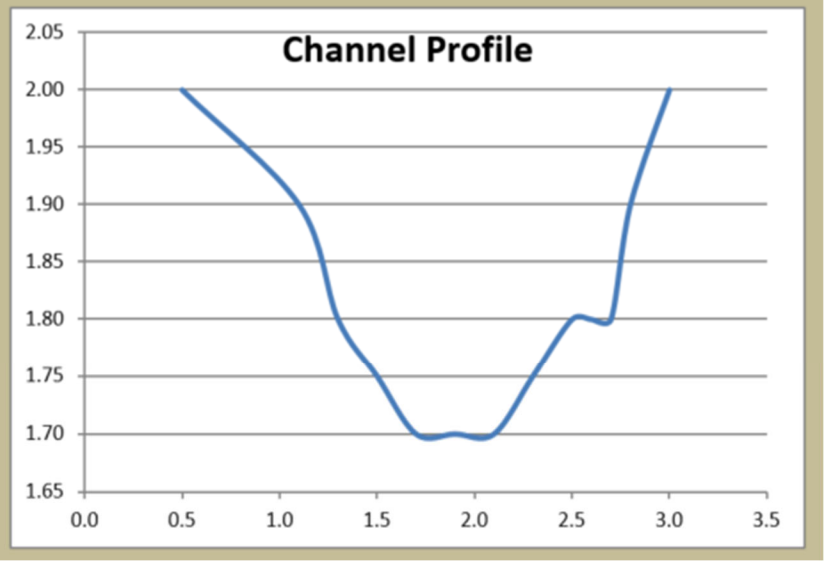
Discharge Calculation Worksheet

Stream Gauge: Upper_Piceance_Crk.
Date: 7/12/2017

SG_{start} 0.58
SG_{end} 0.58
1m = 3.28083 ft

Q_{tot} **0.11** ft^3

Tape	Distance	Depth	Elevation	V (m/s)	V (ft/s)	Comment	Q (cfs)
0.0	0.5	0.00	2.00	0.00	0.00	LEW	-
0.6	1.1	0.10	1.90	0.04	0.00		0.000
0.8	1.3	0.20	1.80	0.08	0.14		0.006
1.0	1.5	0.25	1.75	0.13	0.25		0.013
1.2	1.7	0.30	1.70	0.14	0.42		0.025
1.4	1.9	0.30	1.70	0.11	0.45		0.027
1.6	2.1	0.30	1.70	0.11	0.35		0.021
1.8	2.3	0.25	1.75	0.04	0.37		0.019
2.0	2.5	0.20	1.80	0.01	0.13		0.004
2.1	2.6	0.20	1.80	0.00	0.04		0.001
2.2	2.7	0.20	1.80	0.00	0.00		0.000
2.3	2.8	0.10	1.90	0.00	0.00	REW	0.000
2.5	3	0.00	2.00	0.00	0.00		0.000



Discharge Measurement Summary

Site name	Upper Piceance Creek - D6
Site number	01
Operator(s)	Jack Landers
File name	Upper Piceance Creek - D6_20180822-092953.ft
Comment	Temp gage

Start time	8/22/2018 9:18 AM
End time	8/22/2018 9:24 AM
Start location latitude	39.729
Start location longitude	-107.985
Calculations engine	FlowTracker2

Sensor type	Top Setting
Handheld serial number	FT2H1747037
Probe serial number	FT2P1747048
Probe firmware	1.23
Handheld software	1.4

# Stations	Avg interval (s)	Total discharge (ft³/s)
6	40	0.0690

Total width (ft)	Total area (ft²)	Wetted Perimeter (ft)
1.600	0.3775	1.830

Mean SNR (dB)	Mean depth (ft)	Mean velocity (ft/s)
41	0.236	0.1827

Mean temp (°F)	Max depth (ft)	Max velocity (ft/s)
56.252	0.350	-2.4545

Discharge Uncertainty		
Category	**ISO**	**IVE**
Accuracy	1.0%	1.0%
Depth	5.7%	133.9%
Velocity	45.8%	182.9%
Width	1.9%	1.9%
Method	28.6%	
# Stations	9.4%	
Overall	**55.2%**	**226.6%**

Discharge equation	Mid Section
Discharge uncertainty	IVE
Discharge reference	Rated

Data Collection Settings	
Salinity	0.000 PSS-78
Temperature	-
Sound speed	-
Mounting correction	0.000 %

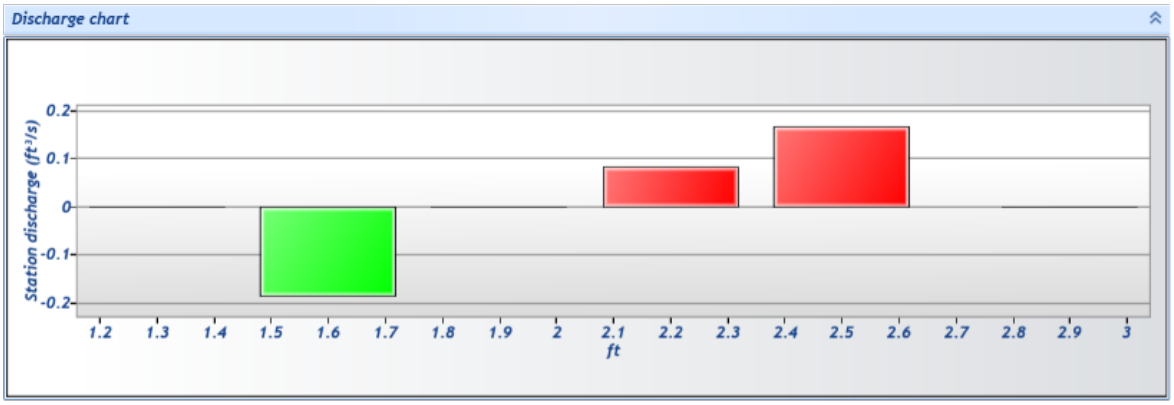
Summary overview

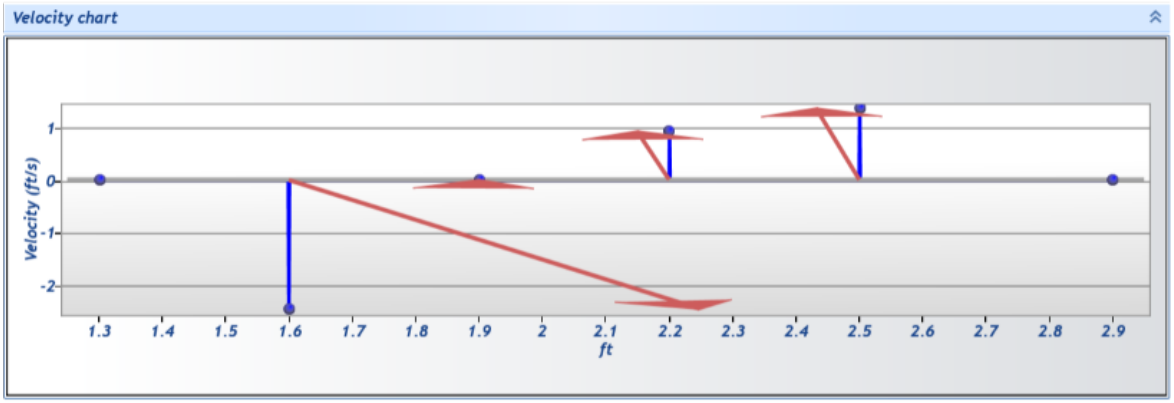
No changes were made to this file
Quality control warnings

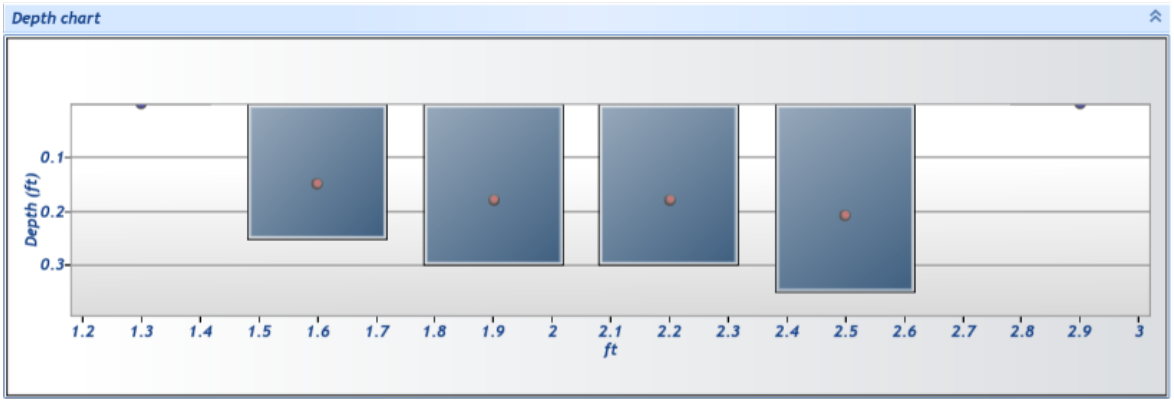
Discharge Measurement Summary

Site name	Upper Piceance Creek - D6
Site number	01
Operator(s)	Jack Landers
File name	Upper Piceance Creek - D6_20180822-092953.ft
Comment	Temp gage

Station Warning Settings		
Station discharge OK	Station discharge < 5.00%	
Station discharge caution	5.00% >= Station discharge < 10.00%	
Station discharge warning	Station discharge >= 10.00%	







Discharge Measurement Summary

Site name	Upper Piceance Creek - D6
Site number	01
Operator(s)	Jack Landers
File name	Upper Piceance Creek - D6_20180822-092953.ft
Comment	Temp gage

Measurement results

St#	Time	Location (ft)	Method	Depth (ft)	%Depth	Measured Depth (ft)	Samples	Velocity (ft/s)	Correction	Mean Velocity (ft/s)	Area (ft^2)	Flow (ft^3/s)	%Q	
0	9:18 AM	1.300	None	0.000	0.0000	0.000	0	0.0000	1.0000	-2.4545	0.0000	0.0000	0.00	✓
1	9:18 AM	1.600	0.6	0.250	0.6000	0.150	80	-2.4545	1.0000	-2.4545	0.0750	-0.1841	-266.98	✓
2	9:20 AM	1.900	0.6	0.300	0.6000	0.180	80	0.0069	1.0000	0.0069	0.0900	0.0006	0.90	✓
3	9:21 AM	2.200	0.6	0.300	0.6000	0.180	80	0.9363	1.0000	0.9363	0.0900	0.0843	122.21	✓
4	9:22 AM	2.500	0.6	0.350	0.6000	0.210	80	1.3727	1.0000	1.3727	0.1225	0.1682	243.87	✓
5	9:24 AM	2.900	None	0.000	0.0000	0.000	0	0.0000	1.0000	1.3727	0.0000	0.0000	0.00	✓

Discharge Measurement Summary

Site name	Upper Piceance Creek - D6
Site number	01
Operator(s)	Jack Landers
File name	Upper Piceance Creek - D6_20180822-092953.ft
Comment	Temp gage

Quality Control Settings	
Maximum depth change	50.00%
Maximum spacing change	100.00%
SNR threshold	10 dB
Standard error threshold	0.0328 ft/s
Spike threshold	10.00%
Maximum velocity angle	20.0 deg
Maximum tilt angle	5.0 deg

Quality control warnings

St#	Time	Location (ft)	Method	Depth (ft)	%Depth	Measured Depth (ft)	Warnings
1	9:18 AM	1.600	0.6	0.250	0.6000	0.150	Standard Error > QC,Velocity Angle > QC
2	9:20 AM	1.900	0.6	0.300	0.6000	0.180	Boundary Interference
3	9:21 AM	2.200	0.6	0.300	0.6000	0.180	SNR Threshold Variation,High Stn % Discharge
4	9:22 AM	2.500	0.6	0.350	0.6000	0.210	High Stn % Discharge

Discharge Measurement Summary

Site name	Upper Piceance Creek - D6
Site number	01
Operator(s)	Jack Landers
File name	Upper Piceance Creek - D6_20180822-092953.ft
Comment	Temp gage

Supplemental data summary

Gauge height time	Gauge height (ft)	Rated discharge (ft³/s)	Temperature (°F)	Salinity (PSS-78)	Gauge height comments
8/22/2018 9:28 AM	0.690				

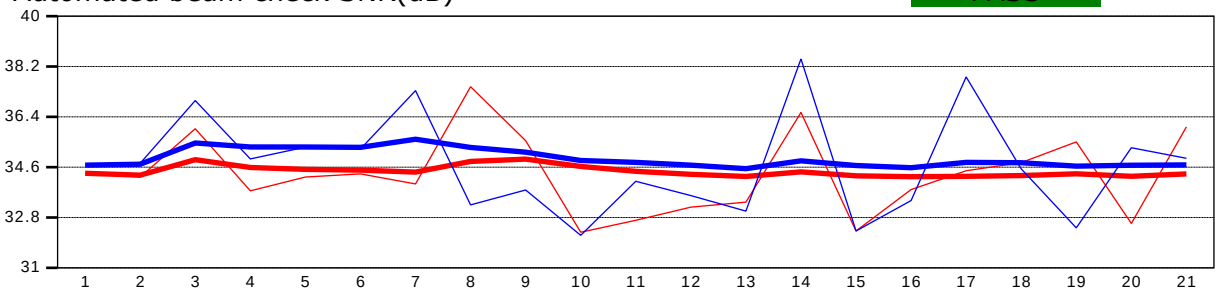
Discharge Measurement Summary

Site name	Upper Piceance Creek - D6
Site number	01
Operator(s)	Jack Landers
File name	Upper Piceance Creek - D6_20180822-092953.ft
Comment	Temp gage

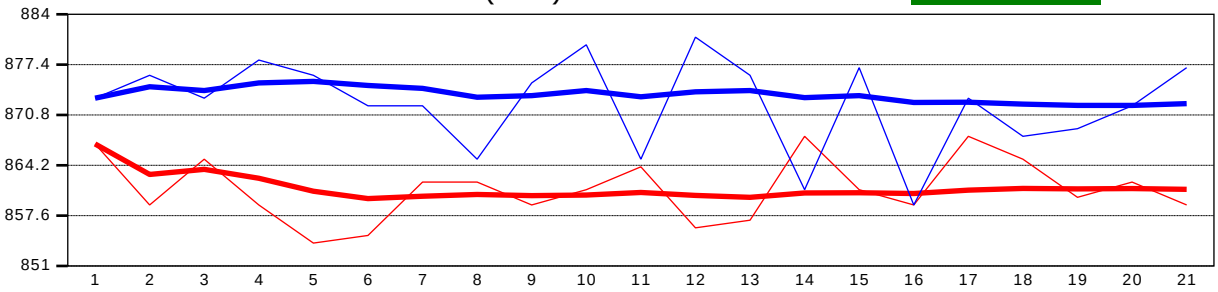
Beam 1	
Beam 2	

Automated beam check Start time 8/22/2018 9:17:38 AM

Automated beam check SNR(dB) PASS



Automated beam check Noise level(cnts) PASS



Automated beam check Quality control warnings

No quality control warnings

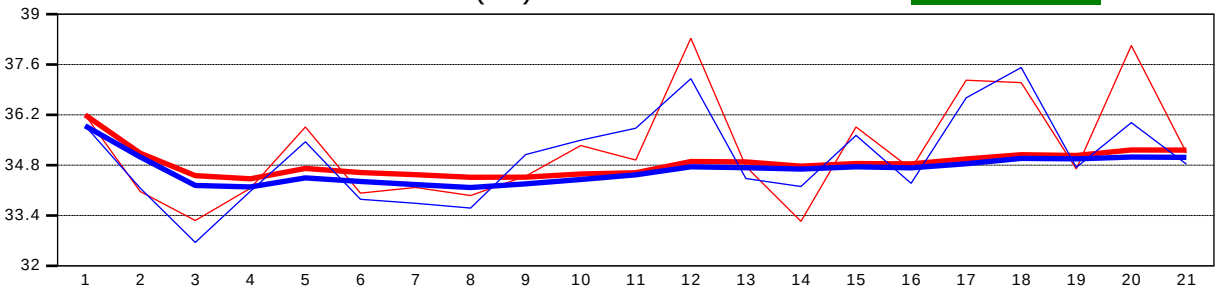
Discharge Measurement Summary

Site name	Upper Piceance Creek - D6
Site number	01
Operator(s)	Jack Landers
File name	Upper Piceance Creek - D6_20180822-092953.ft
Comment	Temp gage

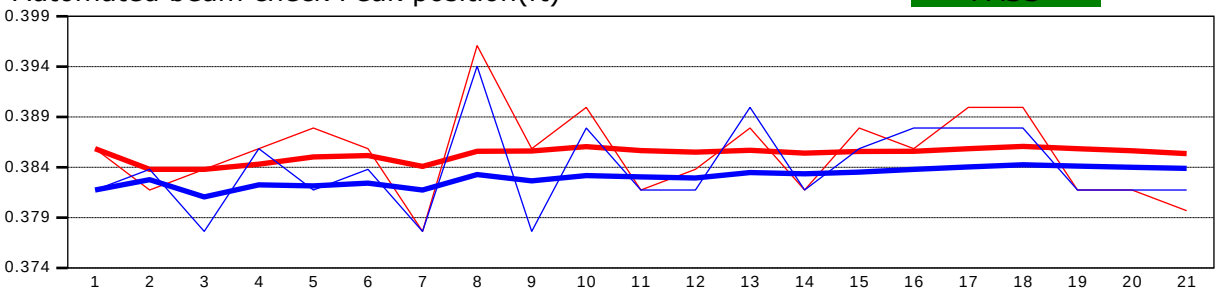
Beam 1	
Beam 2	

Automated beam check Start time 8/22/2018 9:17:38 AM

Automated beam check Peak level(dB) PASS



Automated beam check Peak position(ft) PASS



Automated beam check Quality control warnings

No quality control warnings

Discharge Measurement Summary

Site name	Upper Piceance Creek - D6
Site number	914
Operator(s)	Jack Landers
File name	PiceanceUpperDivision6_2018Sep14.ft
Comment	Temp gage

Start time	9/14/2018 10:15 AM
End time	9/14/2018 10:20 AM
Start location latitude	39.730
Start location longitude	-107.986
Calculations engine	FlowTracker2

Sensor type	Top Setting
Handheld serial number	FT2H1747037
Probe serial number	FT2P1747048
Probe firmware	1.23
Handheld software	1.4

# Stations	Avg interval (s)	Total discharge (ft³/s)
6	40	0.0508

Total width (ft)	Total area (ft²)	Wetted Perimeter (ft)
1.600	0.1875	1.664

Mean SNR (dB)	Mean depth (ft)	Mean velocity (ft/s)
28	0.117	0.2710

Mean temp (°F)	Max depth (ft)	Max velocity (ft/s)
47.664	0.200	0.5986

Discharge Uncertainty		
Category	**ISO**	**IVE**
Accuracy	1.0%	1.0%
Depth	1.1%	47.6%
Velocity	1.9%	31.5%
Width	0.4%	0.4%
Method	5.4%	
# Stations	9.4%	
Overall	**11.1%**	**57.0%**

Discharge equation	Mid Section
Discharge uncertainty	IVE
Discharge reference	Rated

Data Collection Settings	
Salinity	0.000 PSS-78
Temperature	-
Sound speed	-
Mounting correction	0.000 %

Summary overview

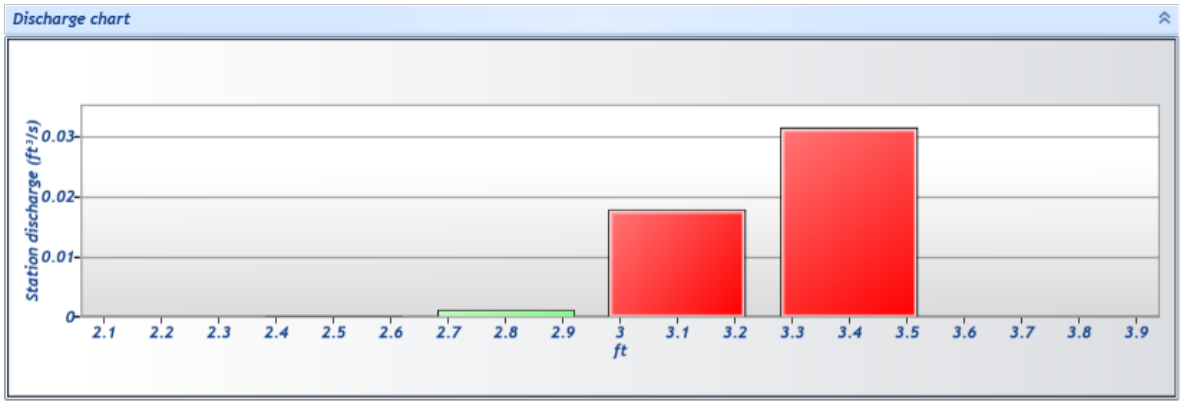
No changes were made to this file
Quality control warnings

Discharge Measurement Summary

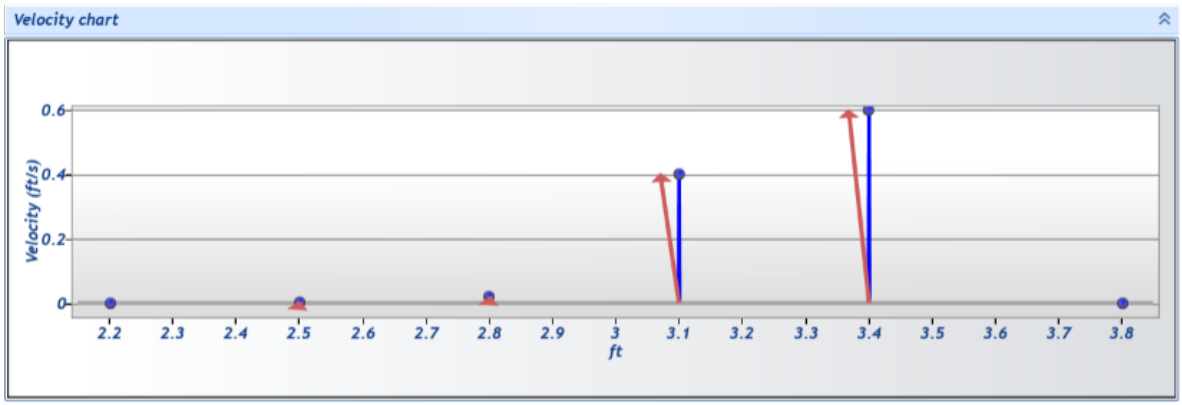
Site name	Upper Piceance Creek - D6
Site number	914
Operator(s)	Jack Landers
File name	PiceanceUpperDivision6_2018Sep14.ft
Comment	Temp gage

Station Warning Settings		
Station discharge OK	Station discharge < 5.00%	
Station discharge caution	5.00% >= Station discharge < 10.00%	
Station discharge warning	Station discharge >= 10.00%	

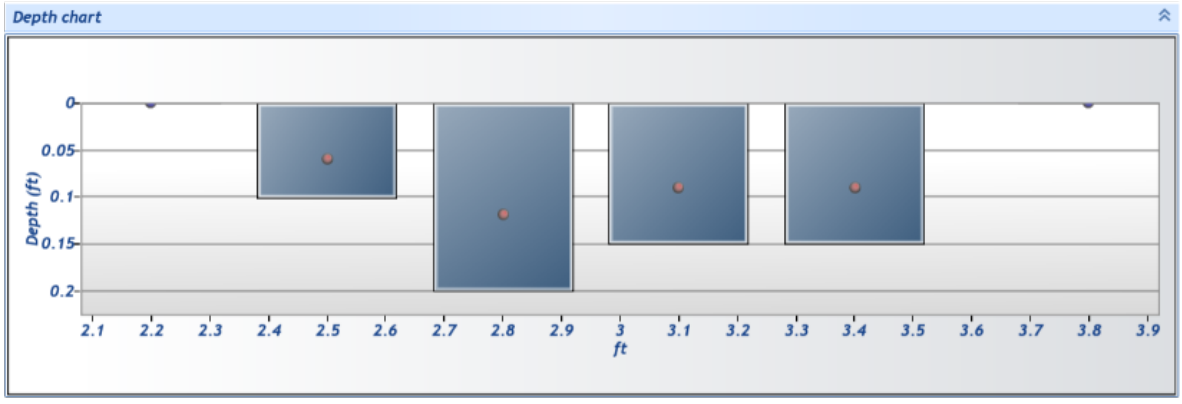
Discharge chart



Velocity chart



Depth chart



Discharge Measurement Summary

Site name	Upper Piceance Creek - D6
Site number	914
Operator(s)	Jack Landers
File name	PiceanceUpperDivision6_2018Sep14.ft
Comment	Temp gage

Measurement results

St#	Time	Location (ft)	Method	Depth (ft)	%Depth	Measured Depth (ft)	Samples	Velocity (ft/s)	Correction	Mean Velocity (ft/s)	Area (ft^2)	Flow (ft^3/s)	%Q	
0	10:15 AM	2.200	None	0.000	0.0000	0.000	0	0.0000	1.0000	0.0042	0.0000	0.0000	0.00	✓
1	10:15 AM	2.500	0.6	0.100	0.6000	0.060	80	0.0042	1.0000	0.0042	0.0300	0.0001	0.25	✓
2	10:17 AM	2.800	0.6	0.200	0.6000	0.120	80	0.0205	1.0000	0.0205	0.0600	0.0012	2.43	✓
3	10:18 AM	3.100	0.6	0.150	0.6000	0.090	80	0.4004	1.0000	0.4004	0.0450	0.0180	35.47	✓
4	10:19 AM	3.400	0.6	0.150	0.6000	0.090	80	0.5986	1.0000	0.5986	0.0525	0.0314	61.86	✓
5	10:20 AM	3.800	None	0.000	0.0000	0.000	0	0.0000	1.0000	0.5986	0.0000	0.0000	0.00	✓

Discharge Measurement Summary

Site name	Upper Piceance Creek - D6
Site number	914
Operator(s)	Jack Landers
File name	PiceanceUpperDivision6_2018Sep14.ft
Comment	Temp gage

Quality Control Settings	
Maximum depth change	50.00%
Maximum spacing change	100.00%
SNR threshold	10 dB
Standard error threshold	0.0328 ft/s
Spike threshold	10.00%
Maximum velocity angle	20.0 deg
Maximum tilt angle	5.0 deg

Quality control warnings

St#	Time	Location (ft)	Method	Depth (ft)	%Depth	Measured Depth (ft)	Warnings
1	10:15 AM	2.500	0.6	0.100	0.6000	0.060	Boundary Interference
3	10:18 AM	3.100	0.6	0.150	0.6000	0.090	Boundary Interference,High Stn % Discharge
4	10:19 AM	3.400	0.6	0.150	0.6000	0.090	High Stn % Discharge

Discharge Measurement Summary

Site name	Upper Piceance Creek - D6
Site number	914
Operator(s)	Jack Landers
File name	PiceanceUpperDivision6_2018Sep14.ft
Comment	Temp gage

Supplemental data summary

Gauge height time	Gauge height (ft)	Rated discharge (ft³/s)	Temperature (°F)	Salinity (PSS-78)	Gauge height comments
9/14/2018 10:15 AM	0.590				

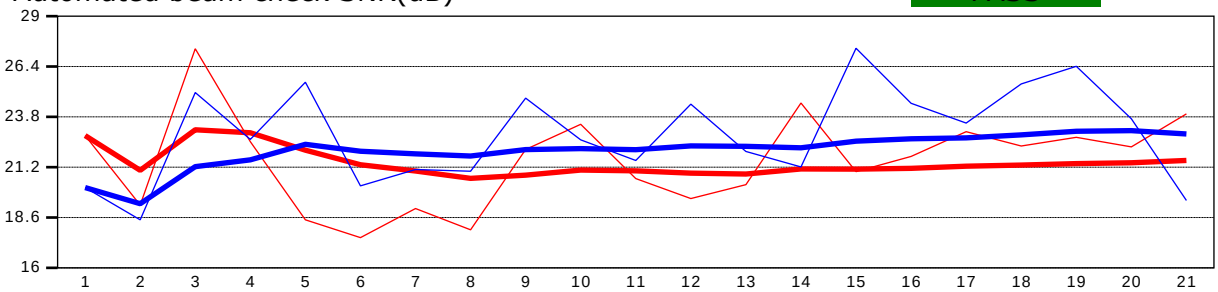
Discharge Measurement Summary

Site name	Upper Piceance Creek - D6
Site number	914
Operator(s)	Jack Landers
File name	PiceanceUpperDivision6_2018Sep14.ft
Comment	Temp gage

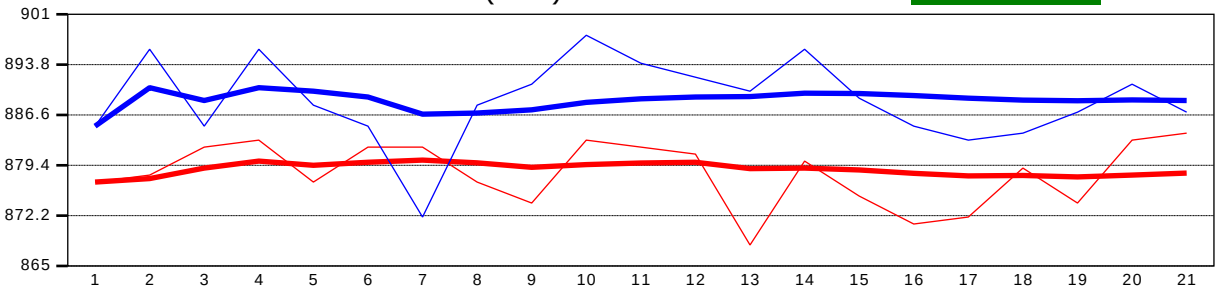
Beam 1	
Beam 2	

Automated beam check Start time 9/14/2018 10:14:43 AM

Automated beam check SNR(dB) PASS



Automated beam check Noise level(cnts) PASS



Automated beam check Quality control warnings

No quality control warnings

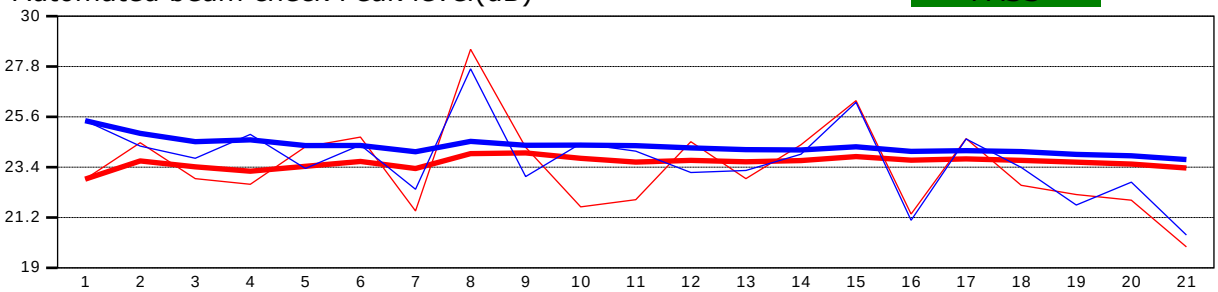
Discharge Measurement Summary

Site name	Upper Piceance Creek - D6
Site number	914
Operator(s)	Jack Landers
File name	PiceanceUpperDivision6_2018Sep14.ft
Comment	Temp gage

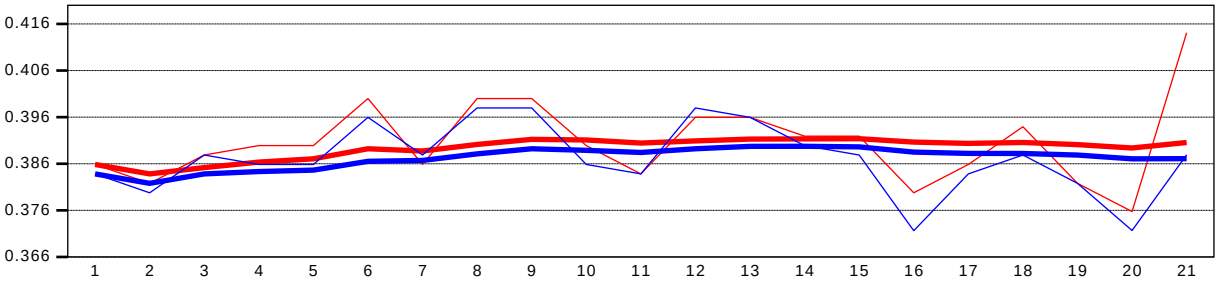
Beam 1	
Beam 2	

Automated beam check Start time 9/14/2018 10:14:43 AM

Automated beam check Peak level(dB) PASS



Automated beam check Peak position(ft) PASS



Automated beam check Quality control warnings

No quality control warnings

Discharge Measurement Summary

Site name	Upper Piceance Creek - D6
Site number	91402
Operator(s)	Jack Landers
File name	PiceanceUpperDivision6_2018Sep14 (2).ft
Comment	2nd meas

Start time	9/14/2018 10:22 AM
End time	9/14/2018 10:27 AM
Start location latitude	39.730
Start location longitude	-107.986
Calculations engine	FlowTracker2

Sensor type	Top Setting
Handheld serial number	FT2H1747037
Probe serial number	FT2P1747048
Probe firmware	1.23
Handheld software	1.4

# Stations	Avg interval (s)	Total discharge (ft³/s)
6	40	0.0579

Total width (ft)	Total area (ft²)	Wetted Perimeter (ft)
1.600	0.1900	1.672

Mean SNR (dB)	Mean depth (ft)	Mean velocity (ft/s)
38	0.119	0.3046

Mean temp (°F)	Max depth (ft)	Max velocity (ft/s)
48.222	0.200	0.5829

Discharge Uncertainty		
Category	**ISO**	**IVE**
Accuracy	1.0%	1.0%
Depth	1.1%	40.3%
Velocity	1.1%	28.9%
Width	0.4%	0.4%
Method	5.7%	
# Stations	9.4%	
Overall	**11.2%**	**49.6%**

Discharge equation	Mid Section
Discharge uncertainty	IVE
Discharge reference	Rated

Data Collection Settings	
Salinity	0.000 PSS-78
Temperature	-
Sound speed	-
Mounting correction	0.000 %

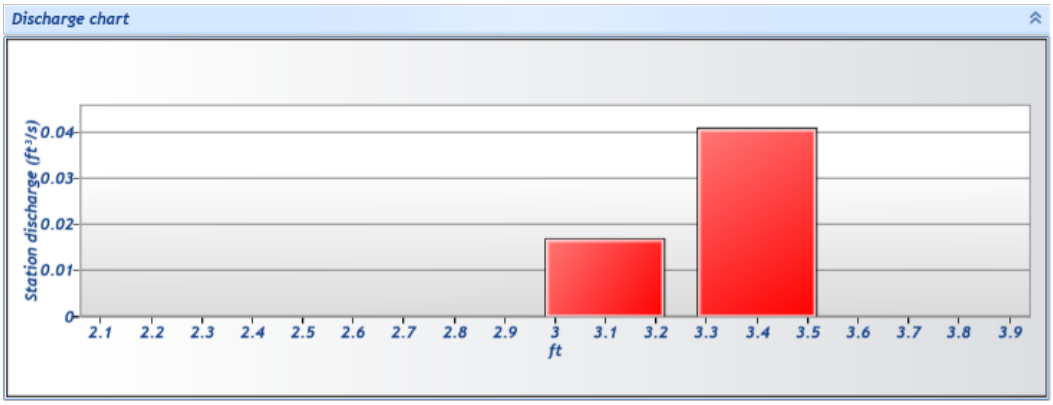
Summary overview

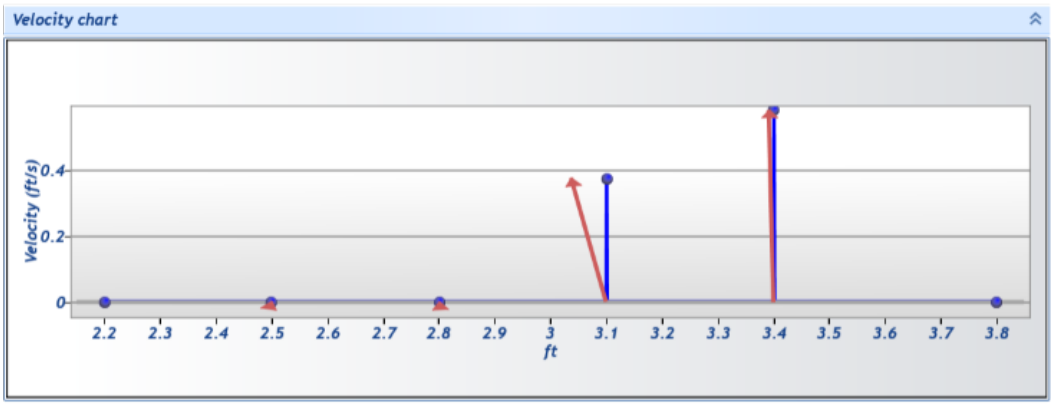
No changes were made to this file
Quality control warnings

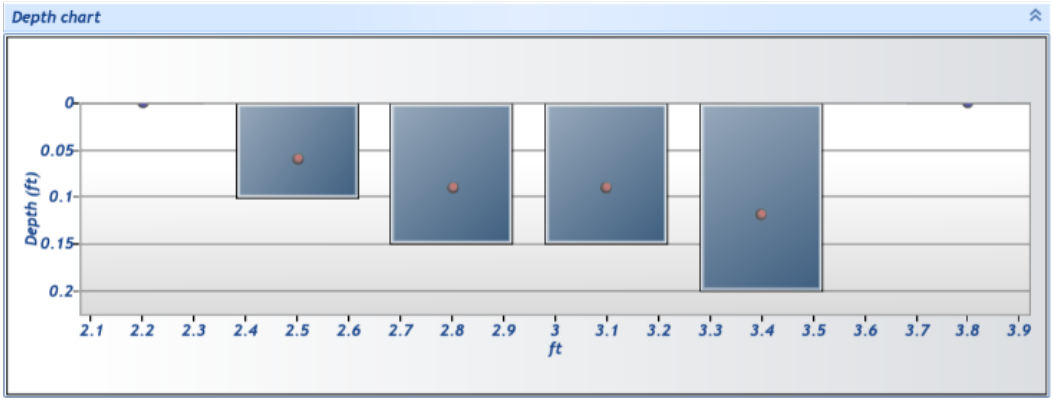
Discharge Measurement Summary

Site name	Upper Piceance Creek - D6
Site number	91402
Operator(s)	Jack Landers
File name	PiceanceUpperDivision6_2018Sep14 (2).ft
Comment	2nd meas

Station Warning Settings	
Station discharge OK	Station discharge < 5.00%
Station discharge caution	5.00% >= Station discharge < 10.00%
Station discharge warning	Station discharge >= 10.00%







Discharge Measurement Summary

Site name	Upper Piceance Creek - D6
Site number	91402
Operator(s)	Jack Landers
File name	PiceanceUpperDivision6_2018Sep14 (2).ft
Comment	2nd meas

Measurement results

St#	Time	Location (ft)	Method	Depth (ft)	%Depth	Measured Depth (ft)	Samples	Velocity (ft/s)	Correction	Mean Velocity (ft/s)	Area (ft²)	Flow (ft³/s)	%Q	
0	10:22 AM	2.200	None	0.000	0.0000	0.000	0	0.0000	1.0000	0.0012	0.0000	0.0000	0.00	✓
1	10:23 AM	2.500	0.6	0.100	0.6000	0.060	80	0.0012	1.0000	0.0012	0.0300	0.0000	0.06	✓
2	10:24 AM	2.800	0.6	0.150	0.6000	0.090	80	0.0013	1.0000	0.0013	0.0450	0.0001	0.10	✓
3	10:25 AM	3.100	0.6	0.150	0.6000	0.090	80	0.3771	1.0000	0.3771	0.0450	0.0170	29.33	✓
4	10:26 AM	3.400	0.6	0.200	0.6000	0.120	80	0.5829	1.0000	0.5829	0.0700	0.0408	70.51	✓
5	10:27 AM	3.800	None	0.000	0.0000	0.000	0	0.0000	1.0000	0.5829	0.0000	0.0000	0.00	✓

Discharge Measurement Summary

Site name	Upper Piceance Creek - D6
Site number	91402
Operator(s)	Jack Landers
File name	PiceanceUpperDivision6_2018Sep14 (2).ft
Comment	2nd meas

Quality Control Settings	
Maximum depth change	50.00%
Maximum spacing change	100.00%
SNR threshold	10 dB
Standard error threshold	0.0328 ft/s
Spike threshold	10.00%
Maximum velocity angle	20.0 deg
Maximum tilt angle	5.0 deg

Quality control warnings

St#	Time	Location (ft)	Method	Depth (ft)	%Depth	Measured Depth (ft)	Warnings
1	10:23 AM	2.500	0.6	0.100	0.6000	0.060	Boundary Interference
2	10:24 AM	2.800	0.6	0.150	0.6000	0.090	Boundary Interference,Large SNR Variation,SNR Threshold Variation
3	10:25 AM	3.100	0.6	0.150	0.6000	0.090	Boundary Interference,SNR Threshold Variation,High Stn % Discharge
4	10:26 AM	3.400	0.6	0.200	0.6000	0.120	SNR Threshold Variation,High Stn % Discharge

Discharge Measurement Summary

Site name	Upper Piceance Creek - D6
Site number	001
Operator(s)	Jack Landers
File name	Upper Piceance Creek - D6_20190507-151727.ft
Comment	Temp gage

Start time	5/7/2019 3:01 PM
End time	5/7/2019 3:16 PM
Start location latitude	39.736
Start location longitude	-107.992
Calculations engine	FlowTracker2

Sensor type	Top Setting
Handheld serial number	FT2H1747037
Probe serial number	FT2P1747048
Probe firmware	1.23
Handheld software	1.4

# Stations	Avg interval (s)	Total discharge (ft³/s)
15	40	7.6962

Total width (ft)	Total area (ft²)	Wetted Perimeter (ft)
5.600	4.6750	6.671

Mean SNR (dB)	Mean depth (ft)	Mean velocity (ft/s)
41	0.835	1.6463

Mean temp (°F)	Max depth (ft)	Max velocity (ft/s)
58.112	1.400	2.3314

Discharge Uncertainty		
Category	**ISO**	**IVE**
Accuracy	1.0%	1.0%
Depth	0.2%	2.8%
Velocity	0.5%	7.4%
Width	0.2%	0.2%
Method	2.4%	
# Stations	3.3%	
Overall	**4.3%**	**8.0%**

Discharge equation	Mid Section
Discharge uncertainty	IVE
Discharge reference	Rated

Data Collection Settings	
Salinity	0.000 PSS-78
Temperature	-
Sound speed	-
Mounting correction	0.000 %

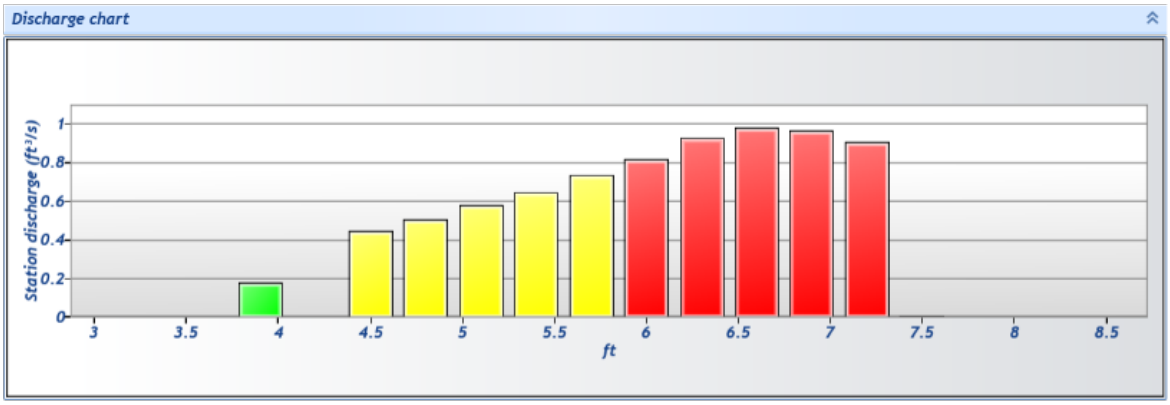
Summary overview

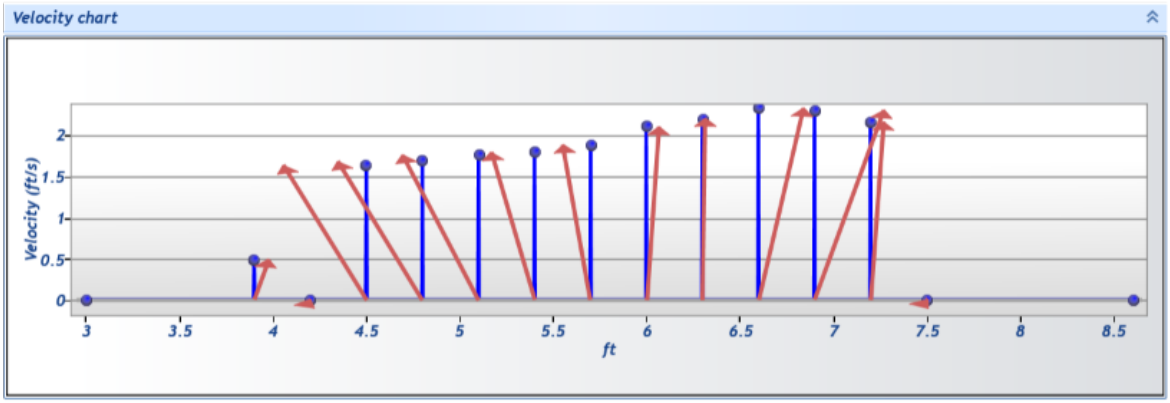
No changes were made to this file
Quality control warnings

Discharge Measurement Summary

Site name	Upper Piceance Creek - D6
Site number	001
Operator(s)	Jack Landers
File name	Upper Piceance Creek - D6_20190507-151727.ft
Comment	Temp gage

Station Warning Settings		
Station discharge OK	Station discharge < 5.00%	
Station discharge caution	5.00% >= Station discharge < 10.00%	
Station discharge warning	Station discharge >= 10.00%	





Discharge Measurement Summary

Site name	Upper Piceance Creek - D6
Site number	001
Operator(s)	Jack Landers
File name	Upper Piceance Creek - D6_20190507-151727.ft
Comment	Temp gage

Measurement results

St#	Time	Location (ft)	Method	Depth (ft)	%Depth	Measured Depth (ft)	Samples	Velocity (ft/s)	Correction	Mean Velocity (ft/s)	Area (ft²)	Flow (ft³/s)	%Q	
0	3:01 PM	3.000	None	0.000	0.0000	0.000	0	0.0000	1.0000	0.4892	0.0000	0.0000	0.00	✓
1	3:01 PM	3.900	0.6	0.600	0.6000	0.360	80	0.4892	1.0000	0.4892	0.3600	0.1761	2.29	✓
2	3:02 PM	4.200	0.6	0.700	0.6000	0.420	80	0.0077	1.0000	0.0077	0.2100	0.0016	0.02	✓
3	3:04 PM	4.500	0.6	0.900	0.6000	0.540	80	1.6394	1.0000	1.6394	0.2700	0.4426	5.75	✓
4	3:05 PM	4.800	0.6	1.000	0.6000	0.600	80	1.6849	1.0000	1.6849	0.3000	0.5055	6.57	✓
5	3:06 PM	5.100	0.6	1.100	0.6000	0.660	80	1.7571	1.0000	1.7571	0.3300	0.5798	7.53	✓
6	3:07 PM	5.400	0.6	1.200	0.6000	0.720	80	1.7963	1.0000	1.7963	0.3600	0.6467	8.40	✓
7	3:08 PM	5.700	0.6	1.300	0.6000	0.780	80	1.8872	1.0000	1.8872	0.3900	0.7360	9.56	✓
8	3:10 PM	6.000	0.6	1.300	0.6000	0.780	80	2.1046	1.0000	2.1046	0.3900	0.8208	10.67	✓
9	3:11 PM	6.300	0.6	1.400	0.6000	0.840	80	2.2056	1.0000	2.2056	0.4200	0.9263	12.04	✓
10	3:12 PM	6.600	0.6	1.400	0.6000	0.840	80	2.3314	1.0000	2.3314	0.4200	0.9792	12.72	✓
11	3:13 PM	6.900	0.6	1.400	0.6000	0.840	80	2.3058	1.0000	2.3058	0.4200	0.9684	12.58	✓
12	3:14 PM	7.200	0.6	1.400	0.6000	0.840	80	2.1661	1.0000	2.1661	0.4200	0.9097	11.82	✓
13	3:15 PM	7.500	0.6	0.550	0.6000	0.330	80	0.0088	1.0000	0.0088	0.3850	0.0034	0.04	✓
14	3:16 PM	8.600	None	0.000	0.0000	0.000	0	0.0000	1.0000	0.0088	0.0000	0.0000	0.00	✓

Discharge Measurement Summary

Site name	Upper Piceance Creek - D6
Site number	001
Operator(s)	Jack Landers
File name	Upper Piceance Creek - D6_20190507-151727.ft
Comment	Temp gage

Quality Control Settings	
Maximum depth change	50.00%
Maximum spacing change	100.00%
SNR threshold	10 dB
Standard error threshold	0.0328 ft/s
Spike threshold	10.00%
Maximum velocity angle	20.0 deg
Maximum tilt angle	5.0 deg

Quality control warnings

St#	Time	Location (ft)	Method	Depth (ft)	%Depth	Measured Depth (ft)	Warnings
1	3:01 PM	3.900	0.6	0.600	0.6000	0.360	Boundary Interference
2	3:02 PM	4.200	0.6	0.700	0.6000	0.420	Beam SNRs Not Similar,Large SNR Variation
3	3:04 PM	4.500	0.6	0.900	0.6000	0.540	Stn Spacing > QC
8	3:10 PM	6.000	0.6	1.300	0.6000	0.780	Standard Error > QC,High Stn % Discharge
9	3:11 PM	6.300	0.6	1.400	0.6000	0.840	High Stn % Discharge
10	3:12 PM	6.600	0.6	1.400	0.6000	0.840	High Stn % Discharge
11	3:13 PM	6.900	0.6	1.400	0.6000	0.840	High Stn % Discharge
12	3:14 PM	7.200	0.6	1.400	0.6000	0.840	Standard Error > QC,High Stn % Discharge
13	3:15 PM	7.500	0.6	0.550	0.6000	0.330	Boundary Interference,SNR Threshold Variation,High % Spikes
14	3:16 PM	8.600	None	0.000	0.0000	0.000	Stn Spacing > QC

Discharge Measurement Summary

Site name	Upper Piceance Creek - D6
Site number	001
Operator(s)	Jack Landers
File name	Upper Piceance Creek - D6_20190507-151727.ft
Comment	Temp gage

Supplemental data summary

Gauge height time	Gauge height (ft)	Rated discharge (ft³/s)	Temperature (°F)	Salinity (PSS-78)	Gauge height comments
5/7/2019 3:01 PM	1.940				

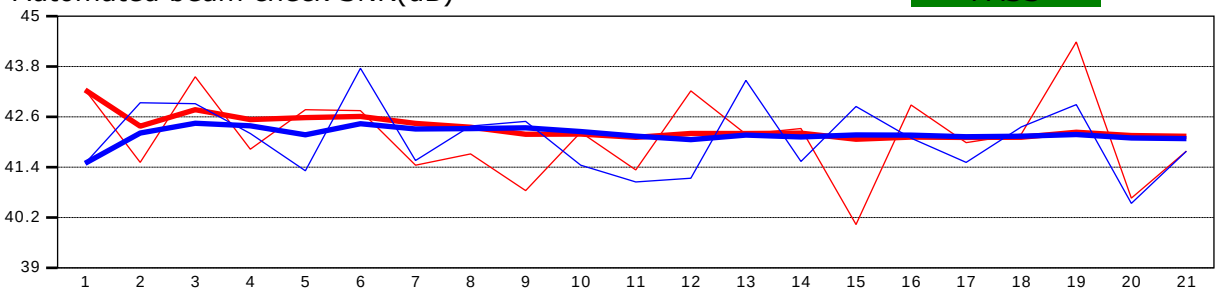
Discharge Measurement Summary

Site name	Upper Piceance Creek - D6
Site number	001
Operator(s)	Jack Landers
File name	Upper Piceance Creek - D6_20190507-151727.ft
Comment	Temp gage

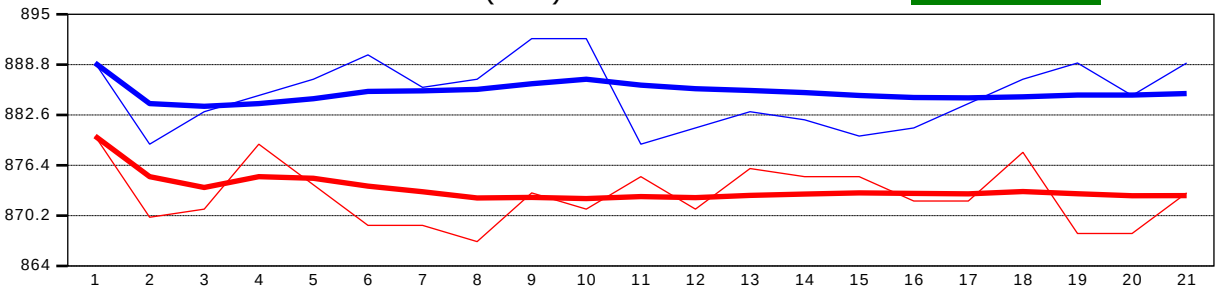
Beam 1	
Beam 2	

Automated beam check Start time 5/7/2019 3:00:47 PM

Automated beam check SNR(dB) PASS



Automated beam check Noise level(cnts) PASS



Automated beam check Quality control warnings

No quality control warnings

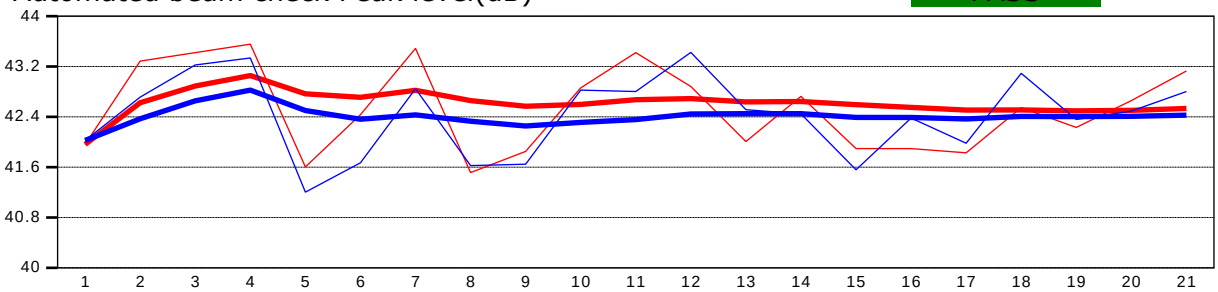
Discharge Measurement Summary

Site name	Upper Piceance Creek - D6
Site number	001
Operator(s)	Jack Landers
File name	Upper Piceance Creek - D6_20190507-151727.ft
Comment	Temp gage

Beam 1	
Beam 2	

Automated beam check Start time 5/7/2019 3:00:47 PM

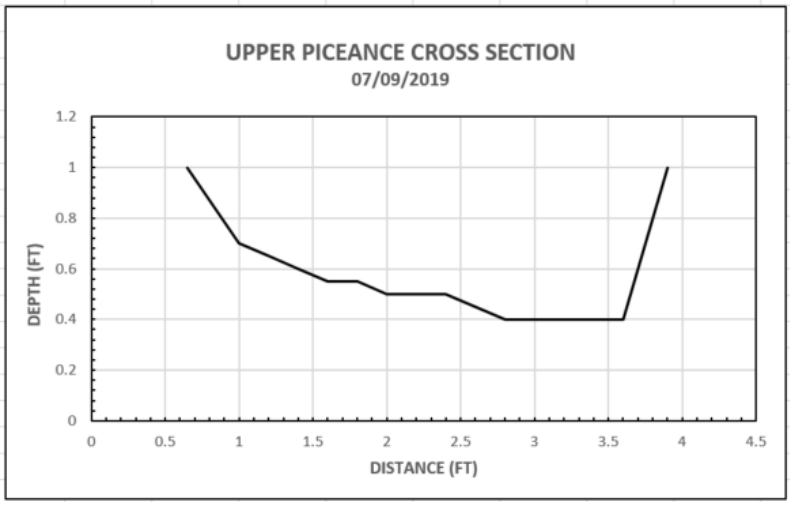
Automated beam check Peak level(dB) PASS



Automated beam check Peak position(ft) PASS

Automated beam check Quality control warnings

No quality control warnings



				TOTAL Q (CFS)	13.98
	TAPE (FT)	DISTANCE (FT)	DEPTH (FT)	ELEVATION (FT)	Q(CFS)
REW	2.65	0.65	0	1	0
1	3.00	1	0.3	0.7	0.7
2	3.20	1.2	0.35	0.65	0.66
3	3.40	1.4	0.4	0.6	0.84
4	3.60	1.6	0.45	0.55	0.95
5	3.80	1.8	0.45	0.55	1.06
6	4.00	2	0.5	0.5	1.12
7	4.20	2.2	0.5	0.5	1.18
8	4.40	2.4	0.5	0.5	1.17
9	4.60	2.6	0.55	0.45	1.1
10	4.80	2.8	0.6	0.4	1.08
11	5.00	3	0.6	0.4	1.08
12	5.20	3.2	0.6	0.4	1.14
13	5.40	3.4	0.6	0.4	1.14
14	5.60	3.6	0.6	0.4	0.76
LEW	5.90	3.9	0	1	0

WATER QUALITY

07/09/2019

	11:14 AM	11:34 AM
Temp (°C)	13.2	13.5
mmHg	591.9	591.9
DO (%L)	108.2	114.4
DO (mg?L)	8.86	9.27
SPC (µS/cm)	915	914
C (µS/cm)	708	714
TDS (mg/L)	591.5	591.5
pH	8.18	8.3

Discharge Measurement Summary

Site name	Upper Piceance Creek below Hwy
Site number	1016
Operator(s)	Jack Landers
File name	PiceanceUpperBlwHwy13_2019Oct16At164016.ft
Comment	Gage

Start time	10/16/2019 4:33 PM
End time	10/16/2019 4:39 PM
Start location latitude	39.730
Start location longitude	-107.986
Calculations engine	FlowTracker2

Sensor type	Top Setting
Handheld serial number	FT2H1747037
Probe serial number	FT2P1747048
Probe firmware	1.23
Handheld software	1.4

# Stations	Avg interval (s)	Total discharge (ft³/s)
6	40	0.5988

Total width (ft)	Total area (ft²)	Wetted Perimeter (ft)
1.500	0.3180	1.679

Mean SNR (dB)	Mean depth (ft)	Mean velocity (ft/s)
41	0.212	1.8831

Mean temp (°F)	Max depth (ft)	Max velocity (ft/s)
39.184	0.290	2.8691

Discharge Uncertainty		
Category	**ISO**	**IVE**
Accuracy	1.0%	1.0%
Depth	0.9%	22.0%
Velocity	1.1%	19.5%
Width	0.3%	0.3%
Method	4.3%	
# Stations	9.4%	
Overall	**10.5%**	**29.4%**

Discharge equation	Mid Section
Discharge uncertainty	IVE
Discharge reference	Rated

Data Collection Settings	
Salinity	0.000 PSS-78
Temperature	-
Sound speed	-
Mounting correction	0.000 %

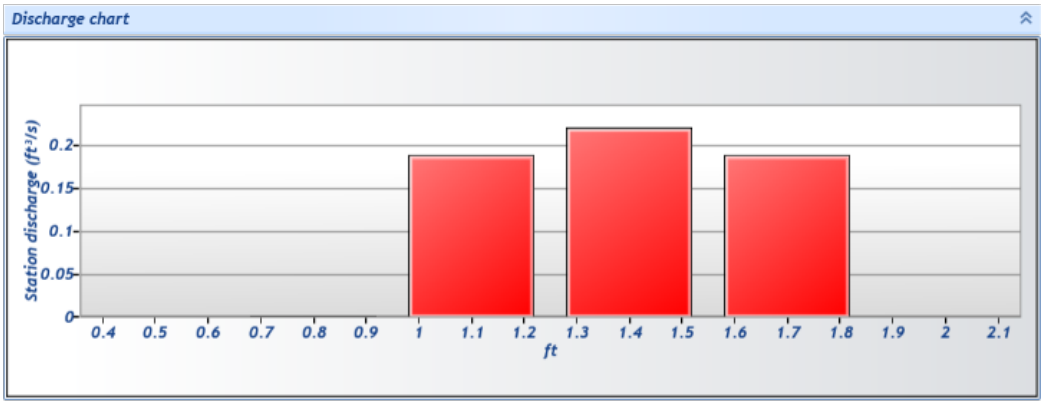
Summary overview

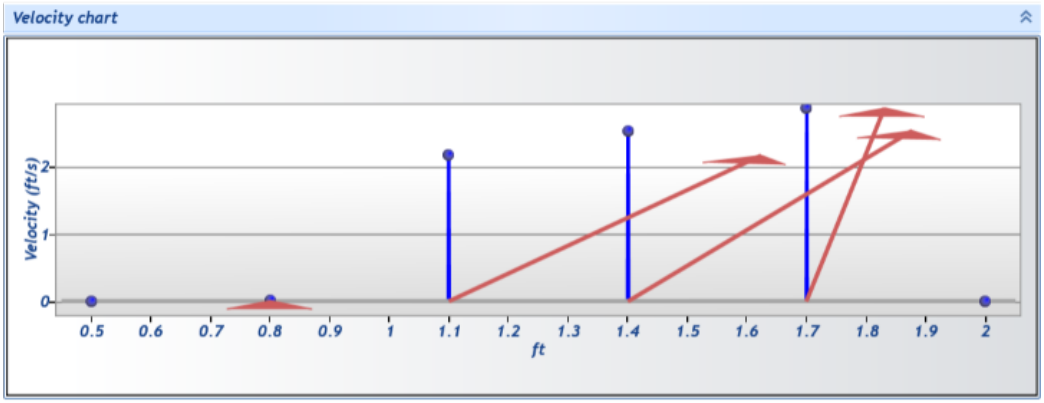
No changes were made to this file
Quality control warnings

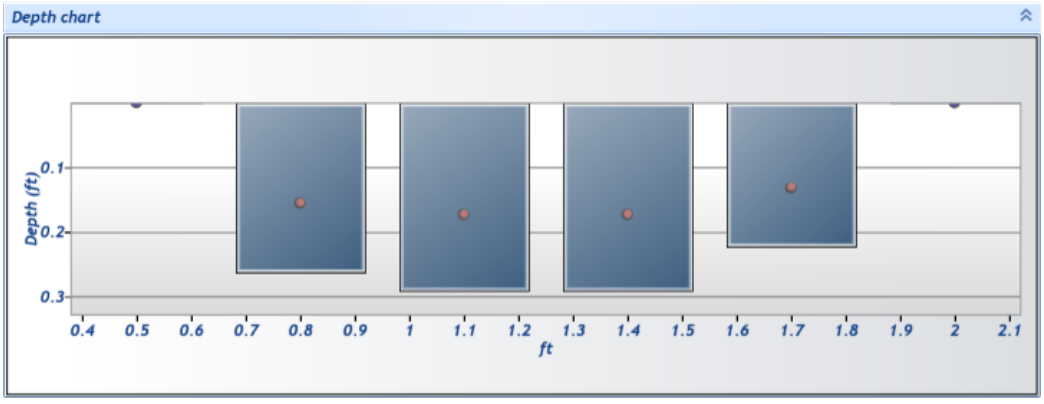
Discharge Measurement Summary

Site name	Upper Piceance Creek below Hwy
Site number	1016
Operator(s)	Jack Landers
File name	PiceanceUpperBlwHwy13_2019Oct16At164016.ft
Comment	Gage

Station Warning Settings		
Station discharge OK	Station discharge < 5.00%	
Station discharge caution	5.00% >= Station discharge < 10.00%	
Station discharge warning	Station discharge >= 10.00%	







Discharge Measurement Summary

Site name	Upper Piceance Creek below Hwy
Site number	1016
Operator(s)	Jack Landers
File name	PiceanceUpperBlwHwy13_2019Oct16At164016.ft
Comment	Gage

Measurement results

St#	Time	Location (ft)	Method	Depth (ft)	%Depth	Measured Depth (ft)	Samples	Velocity (ft/s)	Correction	Mean Velocity (ft/s)	Area (ft²)	Flow (ft³/s)	%Q	
0	4:33 PM	0.500	None	0.000	0.0000	0.000	0	0.0000	1.0000	0.0124	0.0000	0.0000	0.00	✓
1	4:34 PM	0.800	0.6	0.260	0.6000	0.156	80	0.0124	1.0000	0.0124	0.0780	0.0010	0.16	✓
2	4:35 PM	1.100	0.6	0.290	0.6000	0.174	80	2.1649	1.0000	2.1649	0.0870	0.1883	31.45	✓
3	4:36 PM	1.400	0.6	0.290	0.6000	0.174	80	2.5306	1.0000	2.5306	0.0870	0.2202	36.77	✓
4	4:38 PM	1.700	0.6	0.220	0.6000	0.132	80	2.8691	1.0000	2.8691	0.0660	0.1894	31.62	✓
5	4:39 PM	2.000	None	0.000	0.0000	0.000	0	0.0000	1.0000	2.8691	0.0000	0.0000	0.00	✓

Discharge Measurement Summary

Site name	Upper Piceance Creek below Hwy
Site number	1016
Operator(s)	Jack Landers
File name	PiceanceUpperBlwHwy13_2019Oct16At164016.ft
Comment	Gage

Quality Control Settings	
Maximum depth change	50.00%
Maximum spacing change	100.00%
SNR threshold	10 dB
Standard error threshold	0.0328 ft/s
Spike threshold	10.00%
Maximum velocity angle	20.0 deg
Maximum tilt angle	5.0 deg

Quality control warnings

St#	Time	Location (ft)	Method	Depth (ft)	%Depth	Measured Depth (ft)	Warnings
1	4:34 PM	0.800	0.6	0.260	0.6000	0.156	SNR Threshold Variation
2	4:35 PM	1.100	0.6	0.290	0.6000	0.174	Standard Error > QC,High Stn % Discharge
3	4:36 PM	1.400	0.6	0.290	0.6000	0.174	Standard Error > QC,High Stn % Discharge
4	4:38 PM	1.700	0.6	0.220	0.6000	0.132	High Stn % Discharge

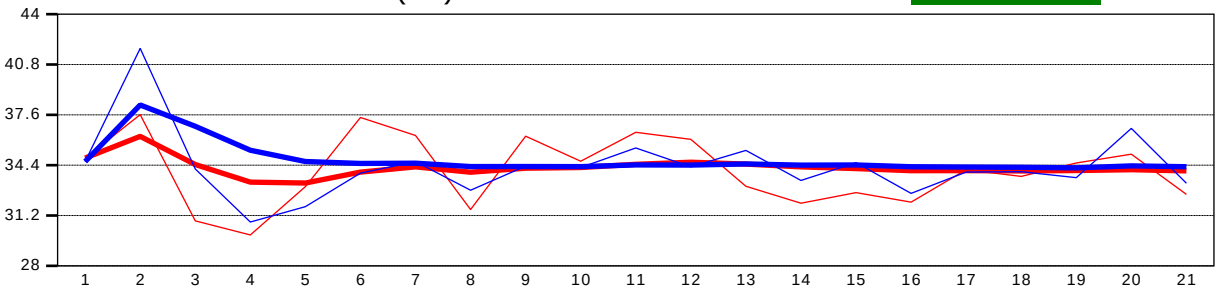
Discharge Measurement Summary

Site name	Upper Piceance Creek below Hwy
Site number	1016
Operator(s)	Jack Landers
File name	PiceanceUpperBlwHwy13_2019Oct16At164016.ft
Comment	Gage

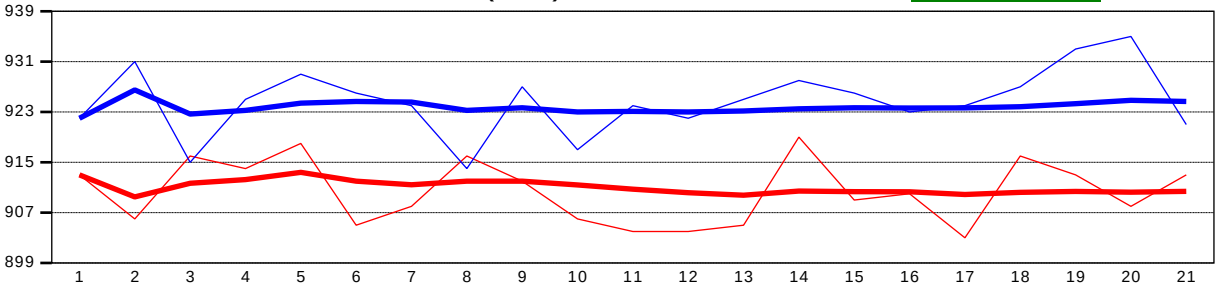
Beam 1	
Beam 2	

Automated beam check Start time 10/16/2019 4:33:30 PM

Automated beam check SNR(dB) PASS



Automated beam check Noise level(cnts) PASS



Automated beam check Quality control warnings

No quality control warnings

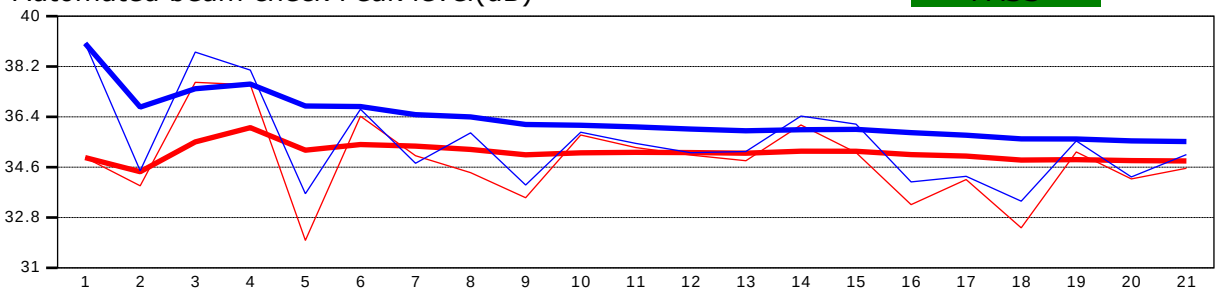
Discharge Measurement Summary

Site name	Upper Piceance Creek below Hwy
Site number	1016
Operator(s)	Jack Landers
File name	PiceanceUpperBlwHwy13_2019Oct16At164016.ft
Comment	Gage

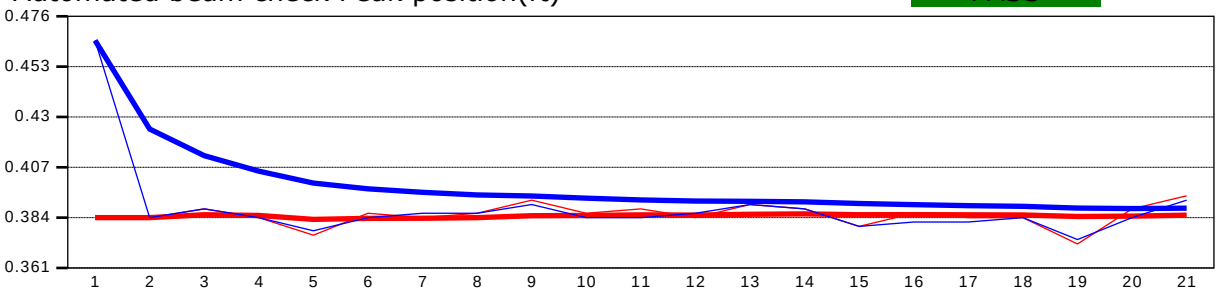
Beam 1	
Beam 2	

Automated beam check Start time 10/16/2019 4:33:30 PM

Automated beam check Peak level(dB) PASS



Automated beam check Peak position(ft) PASS



Automated beam check Quality control warnings

No quality control warnings

Discharge Measurement Summary

Site name	Piceance Cr
Site number	124
Operator(s)	JEL
File name	Piceance Cr_20191204-145308.ft
Comment	BLM gage

Start time	12/4/2019 2:41 PM
End time	12/4/2019 2:51 PM
Start location latitude	39.730
Start location longitude	-107.986
Calculations engine	FlowTracker2

Sensor type	Top Setting
Handheld serial number	FT2H1747037
Probe serial number	FT2P1747048
Probe firmware	1.23
Handheld software	1.4

# Stations	Avg interval (s)	Total discharge (ft³/s)
10	40	0.6400

Total width (ft)	Total area (ft²)	Wetted Perimeter (ft)
2.700	1.5115	3.448

Mean SNR (dB)	Mean depth (ft)	Mean velocity (ft/s)
39	0.560	0.4234

Mean temp (°F)	Max depth (ft)	Max velocity (ft/s)
32.518	0.750	0.9357

Discharge Uncertainty		
Category	**ISO**	**IVE**
Accuracy	1.0%	1.0%
Depth	0.8%	7.2%
Velocity	1.1%	10.3%
Width	0.3%	0.3%
Method	3.8%	
# Stations	5.1%	
Overall	**6.6%**	**12.6%**

Discharge equation	Mid Section
Discharge uncertainty	IVE
Discharge reference	Rated

Data Collection Settings	
Salinity	0.000 PSS-78
Temperature	-
Sound speed	-
Mounting correction	0.000 %

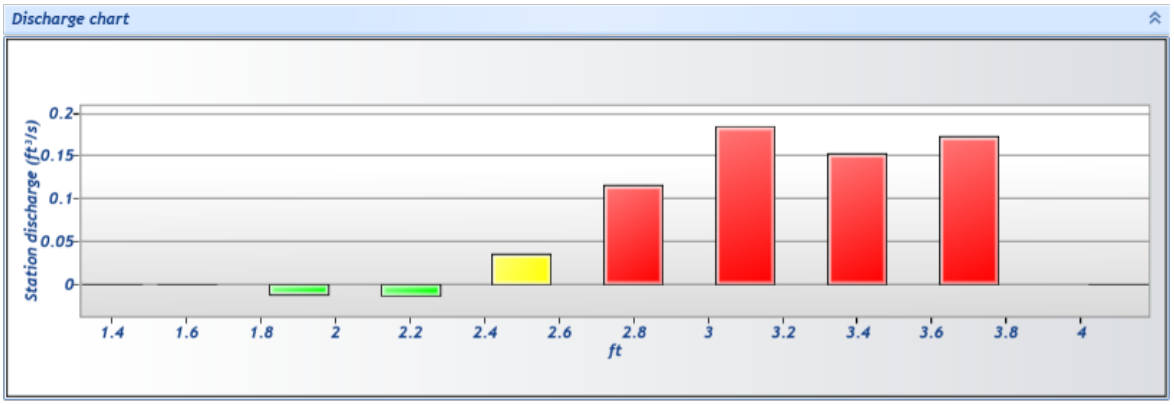
Summary overview

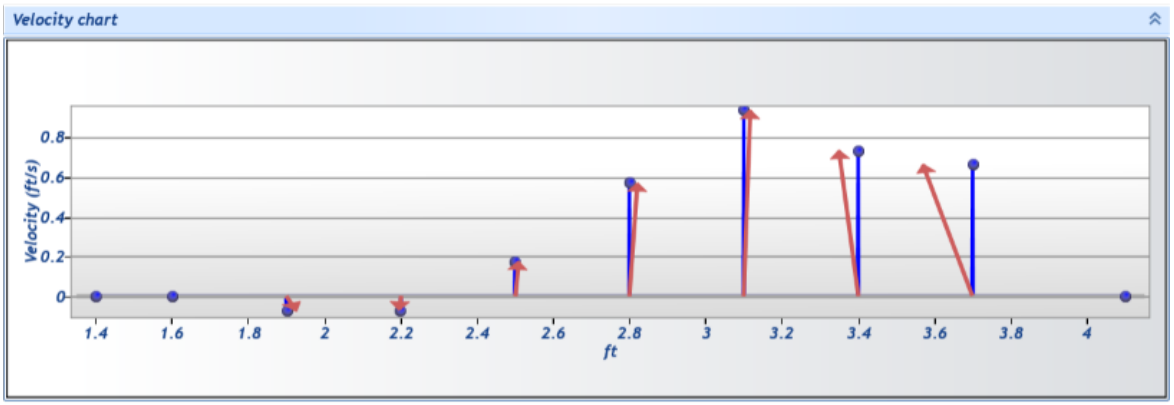
No changes were made to this file
Quality control warnings

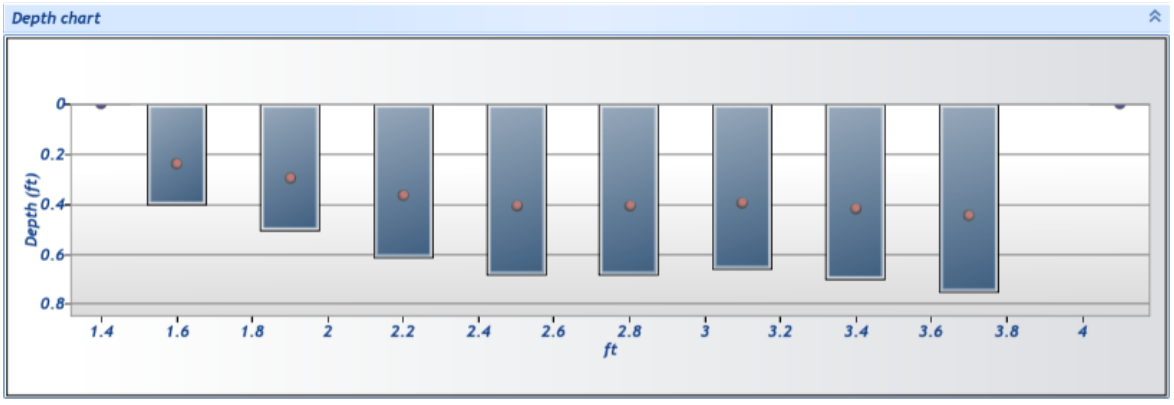
Discharge Measurement Summary

Site name	Piceance Cr
Site number	124
Operator(s)	JEL
File name	Piceance Cr_20191204-145308.ft
Comment	BLM gage

Station Warning Settings		
Station discharge OK	Station discharge < 5.00%	
Station discharge caution	5.00% >= Station discharge < 10.00%	
Station discharge warning	Station discharge >= 10.00%	







Discharge Measurement Summary

Site name	Piceance Cr
Site number	124
Operator(s)	JEL
File name	Piceance Cr_20191204-145308.ft
Comment	BLM gage

Measurement results

St#	Time	Location (ft)	Method	Depth (ft)	%Depth	Measured Depth (ft)	Samples	Velocity (ft/s)	Correction	Mean Velocity (ft/s)	Area (ft²)	Flow (ft³/s)	%Q	
0	2:41 PM	1.400	None	0.000	0.0000	0.000	0	0.0000	1.0000	-0.0005	0.0000	0.0000	0.00	✓
1	2:42 PM	1.600	0.6	0.400	0.6000	0.240	80	-0.0005	1.0000	-0.0005	0.1000	0.0000	-0.01	✓
2	2:43 PM	1.900	0.6	0.500	0.6000	0.300	80	-0.0740	1.0000	-0.0740	0.1500	-0.0111	-1.73	✓
3	2:44 PM	2.200	0.6	0.610	0.6000	0.366	80	-0.0707	1.0000	-0.0707	0.1830	-0.0129	-2.02	✓
4	2:46 PM	2.500	0.6	0.680	0.6000	0.408	80	0.1755	1.0000	0.1755	0.2040	0.0358	5.59	✓
5	2:47 PM	2.800	0.6	0.680	0.6000	0.408	80	0.5673	1.0000	0.5673	0.2040	0.1157	18.08	✓
6	2:48 PM	3.100	0.6	0.660	0.6000	0.396	80	0.9357	1.0000	0.9357	0.1980	0.1853	28.94	✓
7	2:49 PM	3.400	0.6	0.700	0.6000	0.420	80	0.7321	1.0000	0.7321	0.2100	0.1537	24.02	✓
8	2:50 PM	3.700	0.6	0.750	0.6000	0.450	80	0.6613	1.0000	0.6613	0.2625	0.1736	27.12	✓
9	2:51 PM	4.100	None	0.000	0.0000	0.000	0	0.0000	1.0000	0.6613	0.0000	0.0000	0.00	✓

Discharge Measurement Summary

Site name	Piceance Cr
Site number	124
Operator(s)	JEL
File name	Piceance Cr_20191204-145308.ft
Comment	BLM gage

Quality Control Settings	
Maximum depth change	50.00%
Maximum spacing change	100.00%
SNR threshold	10 dB
Standard error threshold	0.0328 ft/s
Spike threshold	10.00%
Maximum velocity angle	20.0 deg
Maximum tilt angle	5.0 deg

Quality control warnings

St#	*Time*	*Location (ft)*	*Method*	*Depth (ft)*	*%Depth*	*Measured Depth (ft)*	*Warnings*
1	2:42 PM	1.600	0.6	0.400	0.6000	0.240	High % Spikes
2	2:43 PM	1.900	0.6	0.500	0.6000	0.300	Boundary Interference,Velocity Angle > QC
3	2:44 PM	2.200	0.6	0.610	0.6000	0.366	Velocity Angle > QC
5	2:47 PM	2.800	0.6	0.680	0.6000	0.408	High Stn % Discharge
6	2:48 PM	3.100	0.6	0.660	0.6000	0.396	High Stn % Discharge
7	2:49 PM	3.400	0.6	0.700	0.6000	0.420	High Stn % Discharge
8	2:50 PM	3.700	0.6	0.750	0.6000	0.450	High Stn % Discharge
9	2:51 PM	4.100	None	0.000	0.0000	0.000	Water Depth > QC

Discharge Measurement Summary

Site name	Piceance Cr
Site number	124
Operator(s)	JEL
File name	Piceance Cr_20191204-145308.ft
Comment	BLM gage

Supplemental data summary

Gauge height time	Gauge height (ft)	Rated discharge (ft³/s)	Temperature (°F)	Salinity (PSS-78)	Gauge height comments
12/4/2019 2:51 PM	0.900				

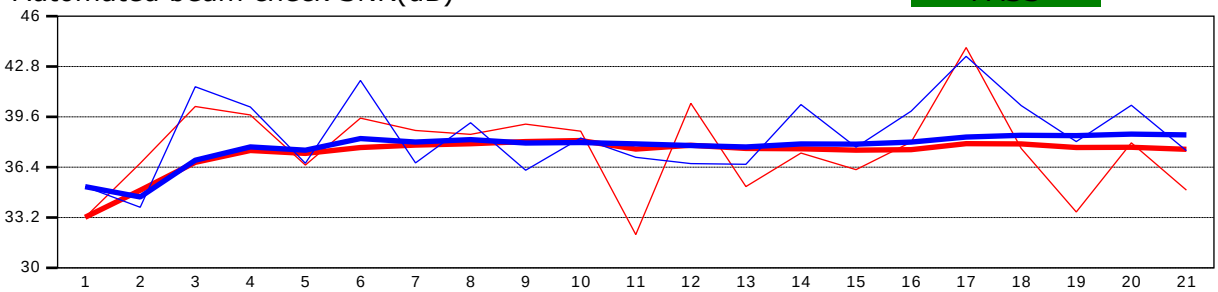
Discharge Measurement Summary

Site name	Piceance Cr
Site number	124
Operator(s)	JEL
File name	Piceance Cr_20191204-145308.ft
Comment	BLM gage

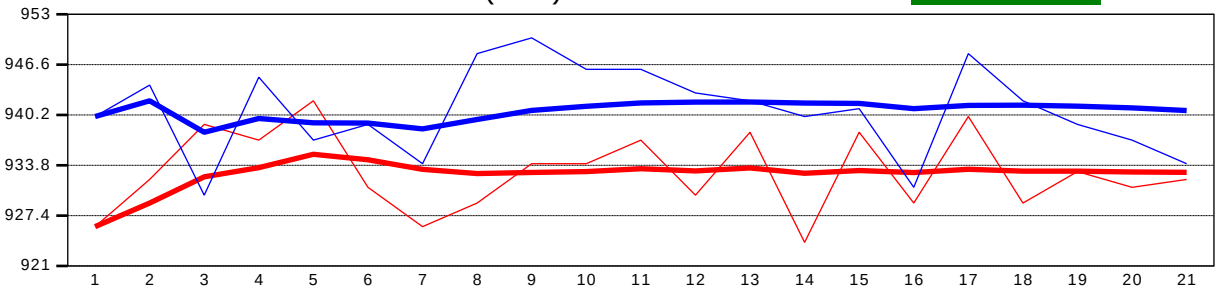
Beam 1	
Beam 2	

Automated beam check Start time 12/4/2019 2:41:24 PM

Automated beam check SNR(dB) PASS



Automated beam check Noise level(cnts) PASS



Automated beam check Quality control warnings

No quality control warnings

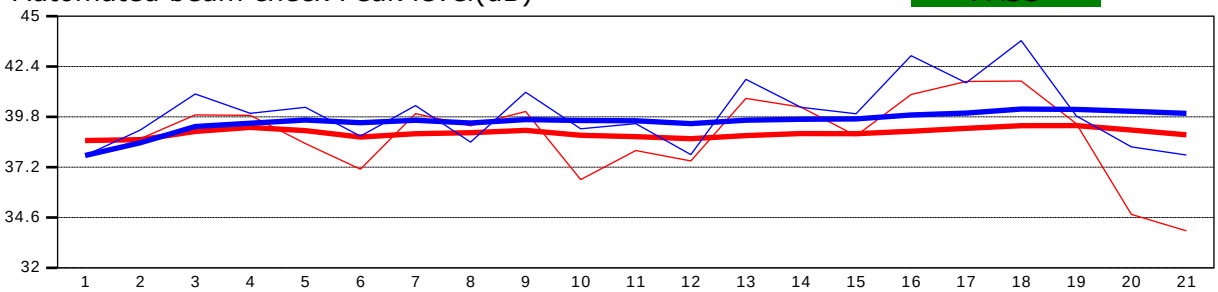
Discharge Measurement Summary

Site name	Piceance Cr
Site number	124
Operator(s)	JEL
File name	Piceance Cr_20191204-145308.ft
Comment	BLM gage

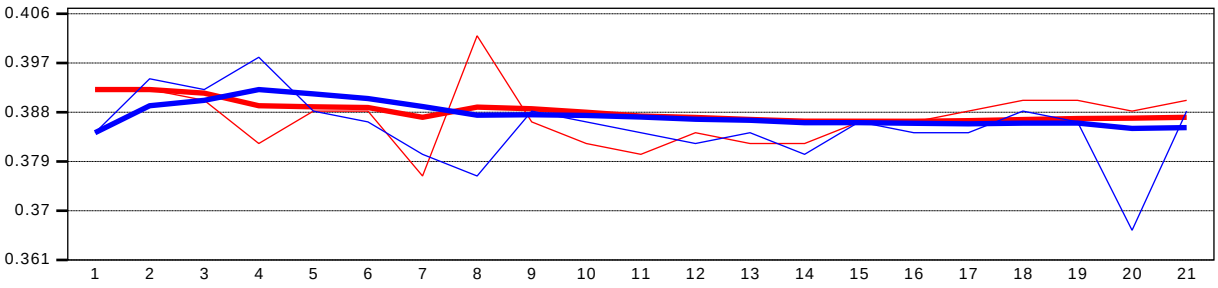
Beam 1	
Beam 2	

Automated beam check Start time 12/4/2019 2:41:24 PM

Automated beam check Peak level(dB) PASS



Automated beam check Peak position(ft) PASS



Automated beam check Quality control warnings

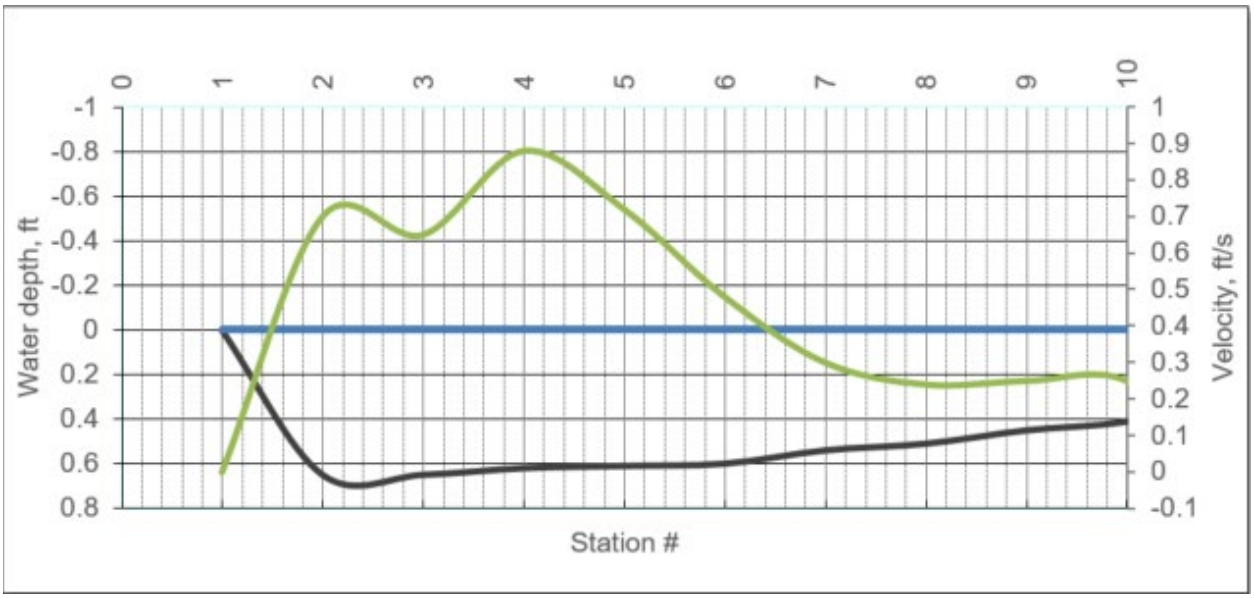
No quality control warnings

Flow Measurement Calculations (mid-section method)

Site information		*Discharge summary*	
Stream:	**Upper Piceance Creek BLM**	**Total discharge (cfs):**	**0.53**
Date:	1/16/2020	**Total width (ft):**	2.60
Time:	13:50	**Total area (ft^2):**	1.11
Observers:	Jessica Sanow, BLM	**Mean depth (ft):**	0.40
County:		**Mean velocity (ft/s):**	0.32
Water Division:		**Max % Q:**	20.55%
UTM coordinates:	13N 244109 4402085		
Location Description:	At BLM gage		
Comments:	Ice covering channel upstream of gage, lining banks		
Other:	Staff gage = 0.88ft		

** Enter cross-section data in blue highlighted cells. Password to unlock workbook is "CWCB" **

Vertical #	Station, ft	Width, ft	Depth, ft	Velocity, ft/s	Area, ft2	Subsection discharge, cfs	% Q
1	1.8	water line	0	0			
2	2	0.2	0.65	0.7	0.13	0.091	17.1%
3	2.2	0.2	0.65	0.65	0.13	0.0845	15.9%
4	2.4	0.2	0.62	0.88	0.124	0.10912	20.6%
5	2.6	0.2	0.61	0.72	0.122	0.08784	16.5%
6	2.8	0.2	0.6	0.48	0.12	0.0576	10.8%
7	3	0.2	0.54	0.3	0.108	0.0324	6.1%
8	3.2	0.2	0.51	0.24	0.102	0.02448	4.6%
9	3.4	0.2	0.45	0.25	0.09	0.0225	4.2%
10	3.6	0.2	0.41	0.25	0.082	0.0205	3.9%
11	3.8	0.2	0.3	0.01	0.06	0.0006	0.1%
12	4	0.2	0.21	0.01	0.042	0.00042	0.1%
13	4.2	0.2	0.01	0.01	0.002	0.00002	0.0%
14	4.4	water line	0	0			

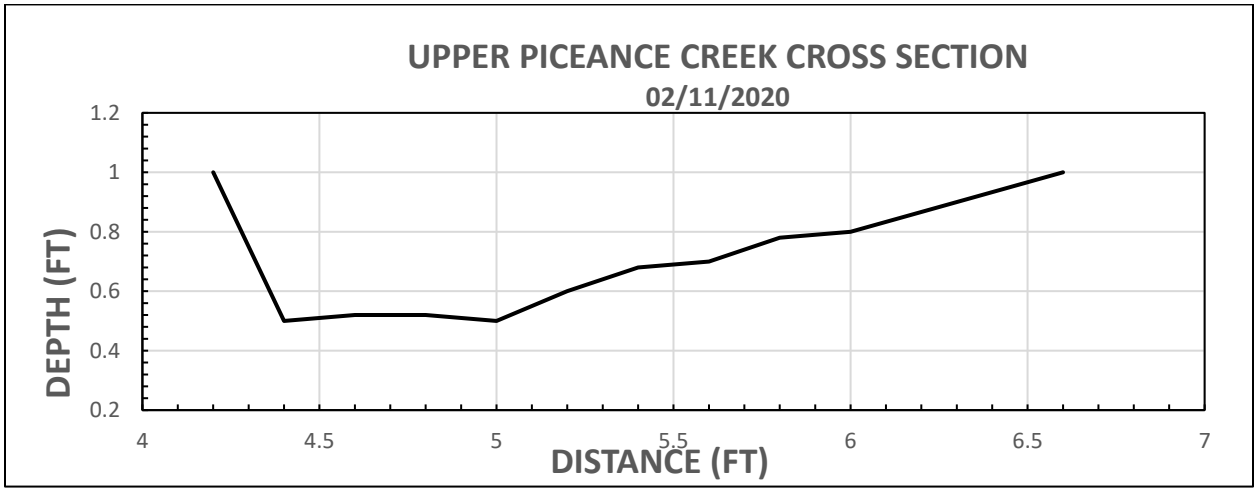


Piceance Creek

BLM- 2/11/2020

				TOTAL Q (CFS)	0.617
				STAFF (FT)	0.88
	TAPE (FT)	DEPTH (FT)	ELEVATION (FT)	VELOCITY (FT/S)	Q(CFS)
LEW	6.6	0	1	0	0
1	6.0	0.2	0.8	0.18	0.0288
2	5.8	0.22	0.78	0.3	0.0468
3	5.6	0.3	0.7	0.47	0.0658
4	5.4	0.32	0.68	0.88	0.11968
5	5.2	0.4	0.6	0.65	0.078
6	5.0	0.5	0.5	0.75	0.075
7	4.8	0.48	0.52	0.8	0.0832
8	4.6	0.48	0.52	0.68	0.07072
9	4.4	0.5	0.5	0.49	0.049
REW	4.2	0	1	0	0

*Slight undercut at the REW



UPPER PICEANCE	
WY 2020	
DATE	PRECIP (IN)
10/1/2019	0.01
10/2/2019	0
10/3/2019	0
10/4/2019	0
10/5/2019	0
10/6/2019	0

10/7/2019	0
10/8/2019	0
10/9/2019	0
10/10/2019	0
10/11/2019	0
10/12/2019	0
10/13/2019	0
10/14/2019	0
10/15/2019	0
10/16/2019	0
10/17/2019	0
10/18/2019	0
10/19/2019	0.15
10/20/2019	0.07
10/21/2019	0.01
10/22/2019	0
10/23/2019	0
10/24/2019	0
10/25/2019	0.07
10/26/2019	0
10/27/2019	0
10/28/2019	0
10/29/2019	0.1
10/30/2019	0
10/31/2019	0.14
11/1/2019	0.1
11/2/2019	0
11/3/2019	0
11/4/2019	0
11/5/2019	0
11/6/2019	0
11/7/2019	0
11/8/2019	0
11/9/2019	0
11/10/2019	0
11/11/2019	0
11/12/2019	0
11/13/2019	0
11/14/2019	0
11/15/2019	0
11/16/2019	0
11/17/2019	0
11/18/2019	0

11/19/2019	0
11/20/2019	0
11/21/2019	0.23
11/22/2019	0.2
11/23/2019	0.01
11/24/2019	0
11/25/2019	0
11/26/2019	0
11/27/2019	0
11/28/2019	0.21
11/29/2019	0.26
11/30/2019	0.35
12/1/2019	0.06
12/2/2019	0.04
12/3/2019	0.09
12/4/2019	0
12/5/2019	0
12/6/2019	0.08
12/7/2019	0
12/8/2019	0
12/9/2019	0.08
12/10/2019	0
12/11/2019	0
12/12/2019	0
12/13/2019	0
12/14/2019	0
12/15/2019	0.04
12/16/2019	0
12/17/2019	0
12/18/2019	0
12/19/2019	0
12/20/2019	0
12/21/2019	0
12/22/2019	0
12/23/2019	0
12/24/2019	0
12/25/2019	0
12/26/2019	0
12/27/2019	0.19
12/28/2019	0.02
12/29/2019	0
12/30/2019	0
12/31/2019	0.01

1/1/2020	0
1/2/2020	0.04
1/3/2020	0.11
1/4/2020	0.07
1/5/2020	0.13
1/6/2020	0.06
1/7/2020	0.03
1/8/2020	0.03
1/9/2020	0
1/10/2020	0
1/11/2020	0.06
1/12/2020	0.01
1/13/2020	0.04
1/14/2020	0.05
1/15/2020	0
1/16/2020	0
1/17/2020	0
1/18/2020	0.09
1/19/2020	0.13
1/20/2020	0
1/21/2020	0
1/22/2020	0.01
1/23/2020	0.16
1/24/2020	0.13
1/25/2020	0
1/26/2020	0
1/27/2020	0
1/28/2020	0.18
1/29/2020	0.07
1/30/2020	0.01
1/31/2020	0.01
2/1/2020	0.04
2/2/2020	0
2/3/2020	0
2/4/2020	0.02
2/5/2020	0
2/6/2020	0.2
2/7/2020	0
2/8/2020	0.34
2/9/2020	0
2/10/2020	0.05
2/11/2020	0.17

Discharge Measurement Summary

Site name	Upper Piceance Creek below Hwy
Site number	320
Operator(s)	Jack Landers
File name	Upper Piceance Creek below Hwy_20200303-150128.ft
Comment	Temp gage

Start time	3/3/2020 2:50 PM
End time	3/3/2020 2:59 PM
Start location latitude	39.730
Start location longitude	-107.986
Calculations engine	FlowTracker2

Sensor type	Top Setting
Handheld serial number	FT2H1747037
Probe serial number	FT2P1747048
Probe firmware	1.23
Handheld software	1.4

# Stations	Avg interval (s)	Total discharge (ft³/s)
9	40	0.9006

Total width (ft)	Total area (ft²)	Wetted Perimeter (ft)
2.600	1.2130	3.129

Mean SNR (dB)	Mean depth (ft)	Mean velocity (ft/s)
31	0.467	0.7424

Mean temp (°F)	Max depth (ft)	Max velocity (ft/s)
34.429	0.630	0.9231

Discharge Uncertainty		
Category	**ISO**	**IVE**
Accuracy	1.0%	1.0%
Depth	0.6%	6.8%
Velocity	0.6%	5.8%
Width	0.2%	0.2%
Method	3.0%	
# Stations	5.8%	
Overall	**6.6%**	**9.0%**

Discharge equation	Mid Section
Discharge uncertainty	IVE
Discharge reference	Rated

Data Collection Settings	
Salinity	0.000 PSS-78
Temperature	-
Sound speed	-
Mounting correction	0.000 %

Summary overview

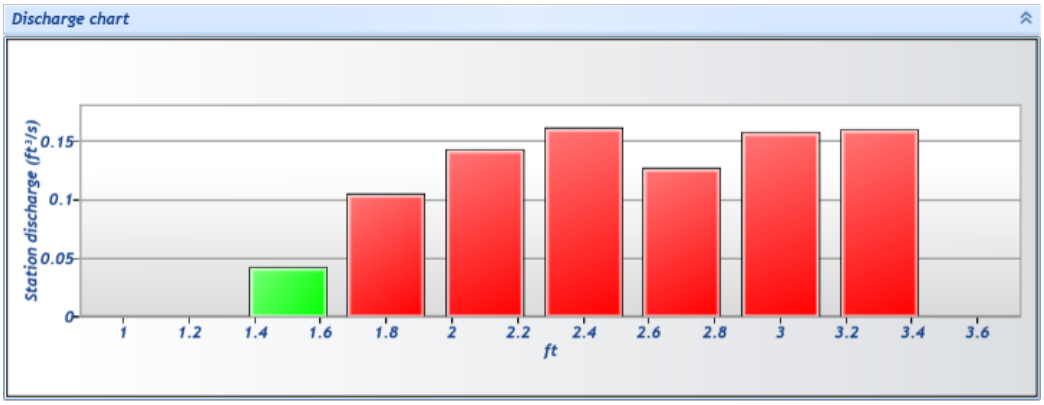
No changes were made to this file
Quality control warnings

Discharge Measurement Summary

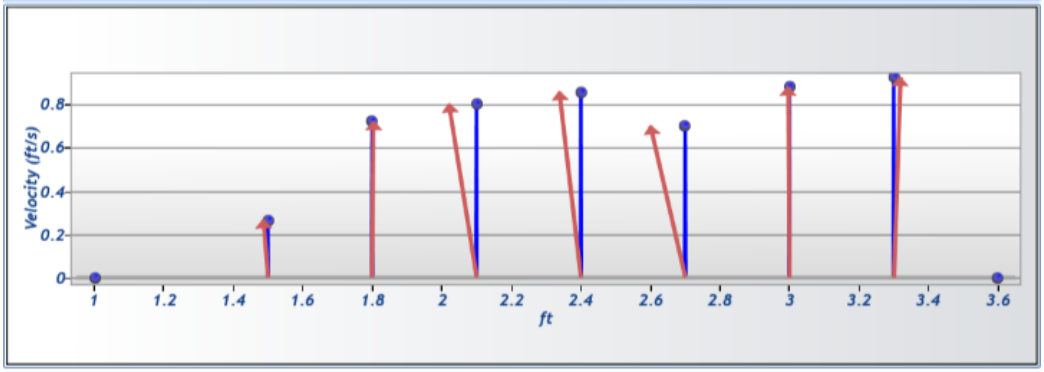
Site name	Upper Piceance Creek below Hwy
Site number	320
Operator(s)	Jack Landers
File name	Upper Piceance Creek below Hwy_20200303-150128.ft
Comment	Temp gage

Station Warning Settings		
Station discharge OK	Station discharge < 5.00%	
Station discharge caution	5.00% >= Station discharge < 10.00%	
Station discharge warning	Station discharge >= 10.00%	

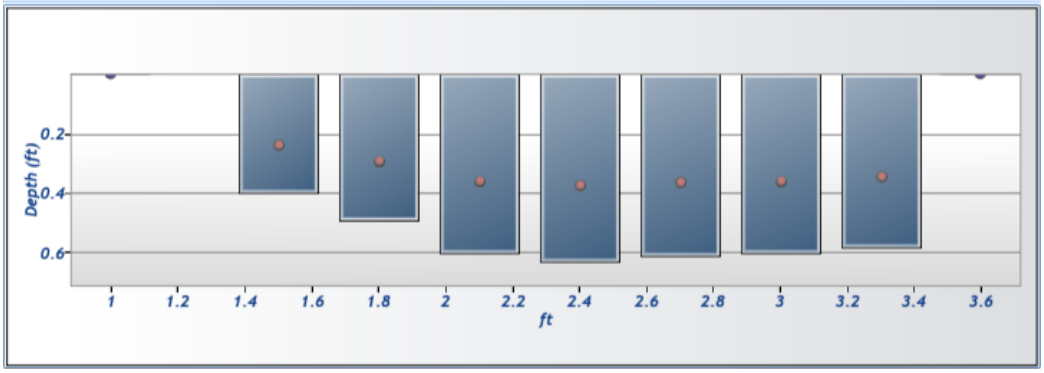
Discharge chart



Velocity chart



Depth chart



Discharge Measurement Summary

Site name	Upper Piceance Creek below Hwy
Site number	320
Operator(s)	Jack Landers
File name	Upper Piceance Creek below Hwy_20200303-150128.ft
Comment	Temp gage

Measurement results

St#	Time	Location (ft)	Method	Depth (ft)	%Depth	Measured Depth (ft)	Samples	Velocity (ft/s)	Correction	Mean Velocity (ft/s)	Area (ft²)	Flow (ft³/s)	%Q	
0	2:50 PM	1.000	None	0.000	0.0000	0.000	0	0.0000	1.0000	0.2671	0.0000	0.0000	0.00	✓
1	2:50 PM	1.500	0.6	0.400	0.6000	0.240	80	0.2671	1.0000	0.2671	0.1600	0.0427	4.75	✓
2	2:51 PM	1.800	0.6	0.490	0.6000	0.294	80	0.7184	1.0000	0.7184	0.1470	0.1056	11.73	✓
3	2:53 PM	2.100	0.6	0.600	0.6000	0.360	80	0.8002	1.0000	0.8002	0.1800	0.1440	15.99	✓
4	2:55 PM	2.400	0.6	0.630	0.6000	0.378	80	0.8557	1.0000	0.8557	0.1890	0.1617	17.96	✓
5	2:56 PM	2.700	0.6	0.610	0.6000	0.366	80	0.6987	1.0000	0.6987	0.1830	0.1279	14.20	✓
6	2:57 PM	3.000	0.6	0.600	0.6000	0.360	80	0.8777	1.0000	0.8777	0.1800	0.1580	17.54	✓
7	2:58 PM	3.300	0.6	0.580	0.6000	0.348	80	0.9231	1.0000	0.9231	0.1740	0.1606	17.84	✓
8	2:59 PM	3.600	None	0.000	0.0000	0.000	0	0.0000	1.0000	0.9231	0.0000	0.0000	0.00	✓

Discharge Measurement Summary

Site name	Upper Piceance Creek below Hwy
Site number	320
Operator(s)	Jack Landers
File name	Upper Piceance Creek below Hwy_20200303-150128.ft
Comment	Temp gage

Quality Control Settings	
Maximum depth change	50.00%
Maximum spacing change	100.00%
SNR threshold	10 dB
Standard error threshold	0.0328 ft/s
Spike threshold	10.00%
Maximum velocity angle	20.0 deg
Maximum tilt angle	5.0 deg

Quality control warnings

St#	Time	Location (ft)	Method	Depth (ft)	%Depth	Measured Depth (ft)	Warnings
2	2:51 PM	1.800	0.6	0.490	0.6000	0.294	High Stn % Discharge
3	2:53 PM	2.100	0.6	0.600	0.6000	0.360	High Stn % Discharge
4	2:55 PM	2.400	0.6	0.630	0.6000	0.378	High Stn % Discharge
5	2:56 PM	2.700	0.6	0.610	0.6000	0.366	High Stn % Discharge
6	2:57 PM	3.000	0.6	0.600	0.6000	0.360	High Stn % Discharge
7	2:58 PM	3.300	0.6	0.580	0.6000	0.348	High Stn % Discharge

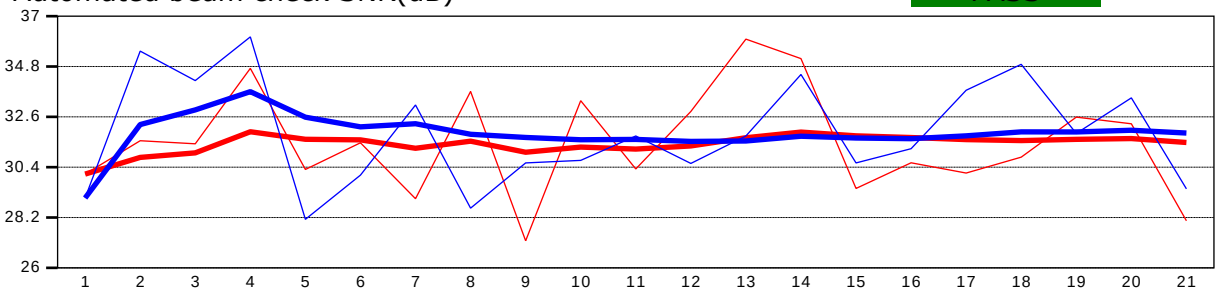
Discharge Measurement Summary

Site name	Upper Piceance Creek below Hwy
Site number	320
Operator(s)	Jack Landers
File name	Upper Piceance Creek below Hwy_20200303-150128.ft
Comment	Temp gage

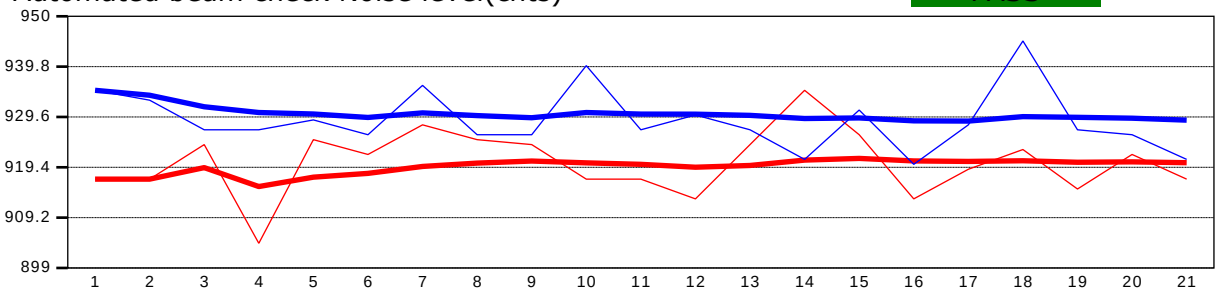
Beam 1	
Beam 2	

Automated beam check Start time 3/3/2020 2:48:49 PM

Automated beam check SNR(dB) PASS



Automated beam check Noise level(cnts) PASS



Automated beam check Quality control warnings

No quality control warnings

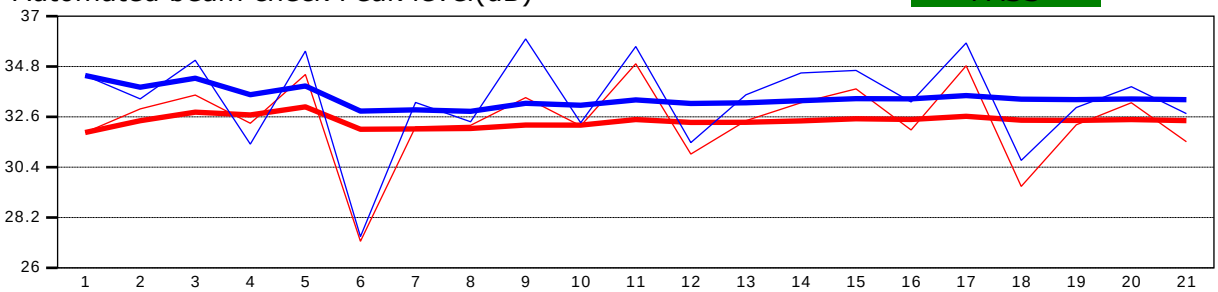
Discharge Measurement Summary

Site name	Upper Piceance Creek below Hwy
Site number	320
Operator(s)	Jack Landers
File name	Upper Piceance Creek below Hwy_20200303-150128.ft
Comment	Temp gage

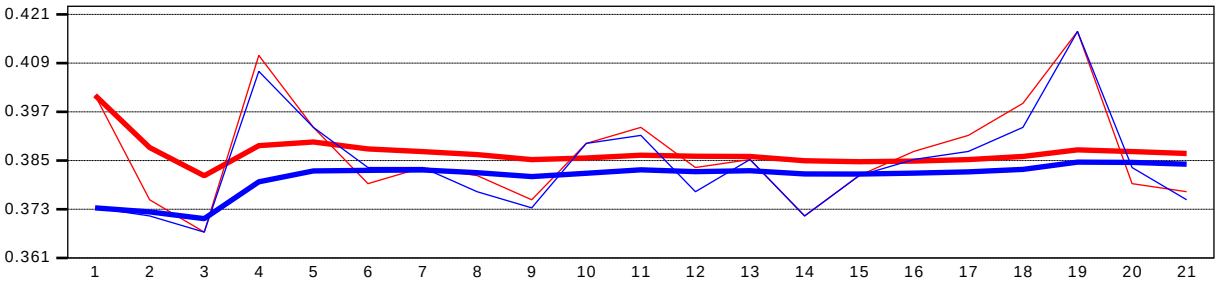
Beam 1	
Beam 2	

Automated beam check Start time 3/3/2020 2:48:49 PM

Automated beam check Peak level(dB) PASS



Automated beam check Peak position(ft) PASS

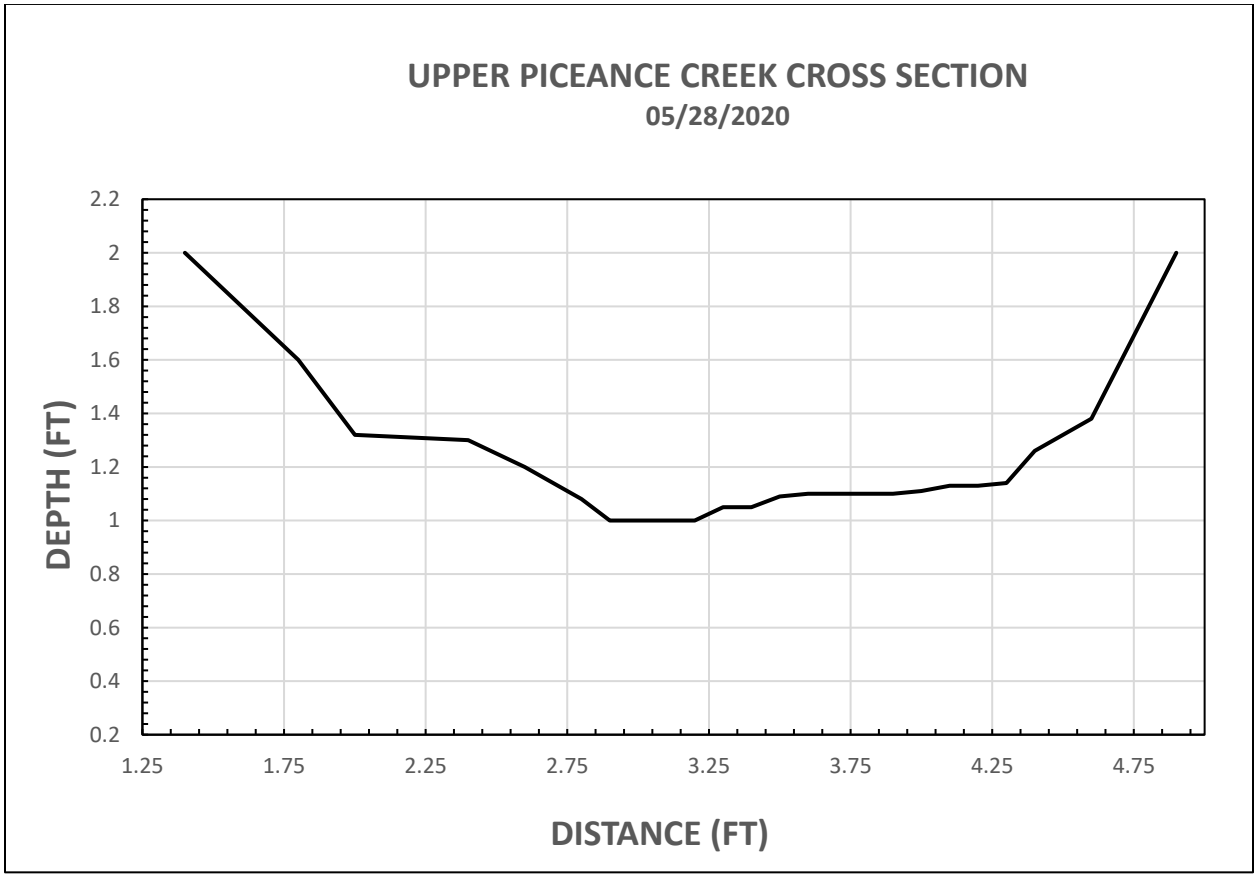


Automated beam check Quality control warnings

No quality control warnings

Piceance Creek Discharge Measurement

BLM 5/28/2020



*The pressure transducer was just replaced and I'm not sure why it is reading NAN, I will take a look at it again in the upcoming visits

YSI HANDHELD		
	INITIAL	POST
TIME	13:37	14:01
TEMP (C)	17.4	17.5
DO (%)	53.5	59.1
DO (MG/L)	3.99	4.62
SPC	898	897
TDS	585	585
PH	8.52	8.74

CAMP-SCI GAGE HOUSE		
	INITIAL	POST
TIME	13:36	14:02
PANEL TEMP	28.55	33.88
WATER TEMP	17.05	17.51
CONDUCTIVITY	NAN	NAN
RAIN	0	0
BATTERY	12.62	12.62

				TOTAL Q (CFS)	0.92987
				STAFF (FT)	0.85

	TAPE (FT)	DEPTH (FT)	ELEVATION (FT)	VELOCITY (FT/S)	Q(CFS)
LEW	4.9	0	2	0	0
1	4.6	0.62	1.38	0.58	0.10788
2	4.4	0.74	1.26	0.55	0.0814
3	4.3	0.86	1.14	0.76	0.06536
4	4.2	0.87	1.13	0.68	0.05916
5	4.1	0.87	1.13	0.78	0.06786
6	4.0	0.89	1.11	0.88	0.07832
7	3.9	0.9	1.1	0.78	0.0702
8	3.8	0.9	1.1	0.78	0.0702
9	3.7	0.9	1.1	0.7	0.063
10	3.6	0.9	1.1	0.58	0.0522
11	3.5	0.91	1.09	0.53	0.04823
12	3.4	0.95	1.05	0.34	0.0323
13	3.3	0.95	1.05	0.28	0.0266
14	3.2	1	1	0.23	0.023
15	3.1	1	1	0.16	0.016
16	3.0	1	1	0.17	0.017
17	2.9	1	1	0.1	0.01
18	2.8	0.92	1.08	0.05	0.0046
19	2.6	0.8	1.2	0.08	0.0128
20	2.4	0.7	1.3	0.1	0.014
21	2.0	0.68	1.32	0.03	0.00816
22	1.8	0.4	1.6	0.02	0.0016
REW	1.4	0	2	0	0

Downstream view


Upstream view

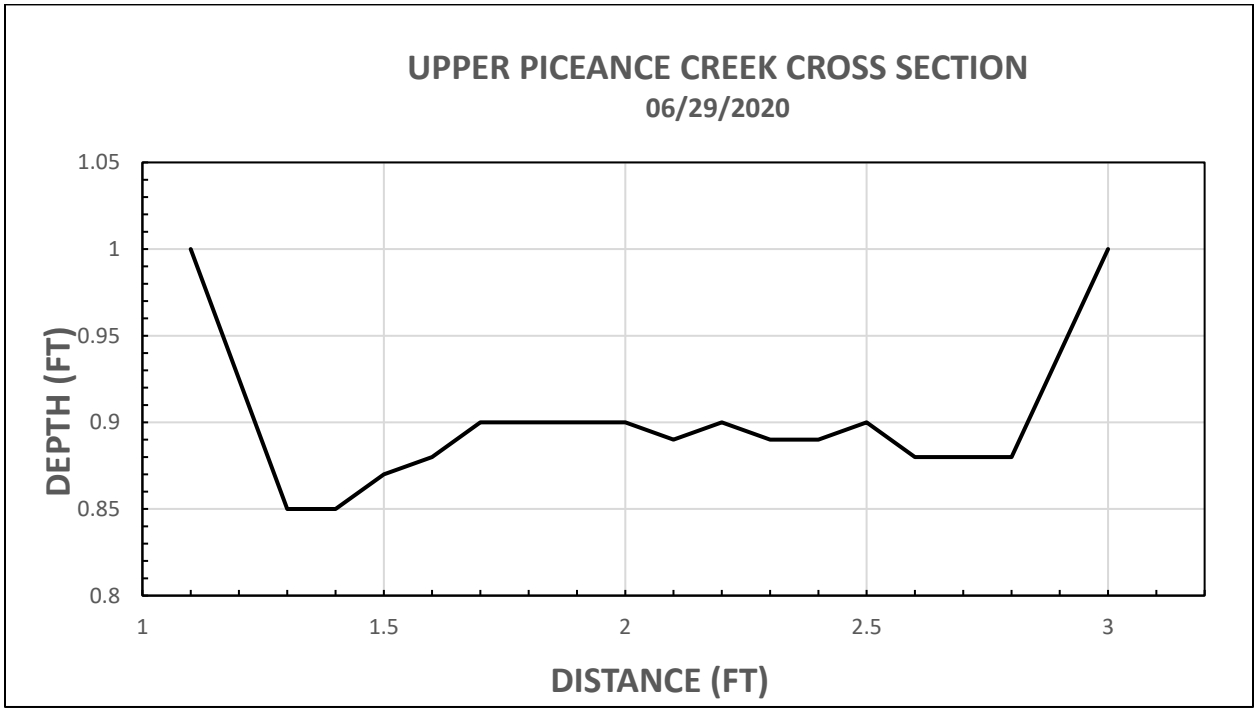

Staff Gage

Piceance Creek Discharge Measurement

BLM 6/29/2020

				TOTAL Q (CFS)	0.08494
				STAFF (FT)	0.78

	TAPE (FT)	DEPTH (FT)	ELEVATION (FT)	VELOCITY (FT/S)	Q(CFS)
LEW	1.1	0	1	0	0
1	1.3	0.15	0.85	0.1	0.003
2	1.4	0.15	0.85	0.11	0.00165
3	1.5	0.13	0.87	0.16	0.00208
4	1.6	0.12	0.88	0.33	0.00396
5	1.7	0.1	0.9	0.53	0.0053
6	1.8	0.1	0.9	0.58	0.0058
7	1.9	0.1	0.9	0.77	0.0077
8	2.0	0.1	0.9	0.86	0.0086
9	2.1	0.11	0.89	0.84	0.00924
10	2.2	0.1	0.9	0.78	0.0078
11	2.3	0.11	0.89	0.73	0.00803
12	2.4	0.11	0.89	0.58	0.00638
13	2.5	0.1	0.9	0.52	0.0052
14	2.6	0.12	0.88	0.41	0.00492
15	2.7	0.12	0.88	0.28	0.00336
16	2.8	0.12	0.88	0.16	0.00192
REW	3.0	0	1	0	0



YSI HANDHELD		
	INITIAL	POST
TIME	12:45	13:13
TEMP (C)	18	18.1
DO (%)	77	90.6
DO (MG/L)	5.6	6.54
SPC	995	995
TDS	643	650
PH	8.56	8.81

CAMP-SCI GAGE HOUSE		
	INITIAL	POST
TIME	12:45	13:13
WATER TEMP	17.89	18.09
CONDUCTIVITY	0.8109	0.8109
RAIN	0	0
BATTERY	12.65	12.65

Measurement Area; looking upstream; upstream of gage

Upstream view

Downstream view

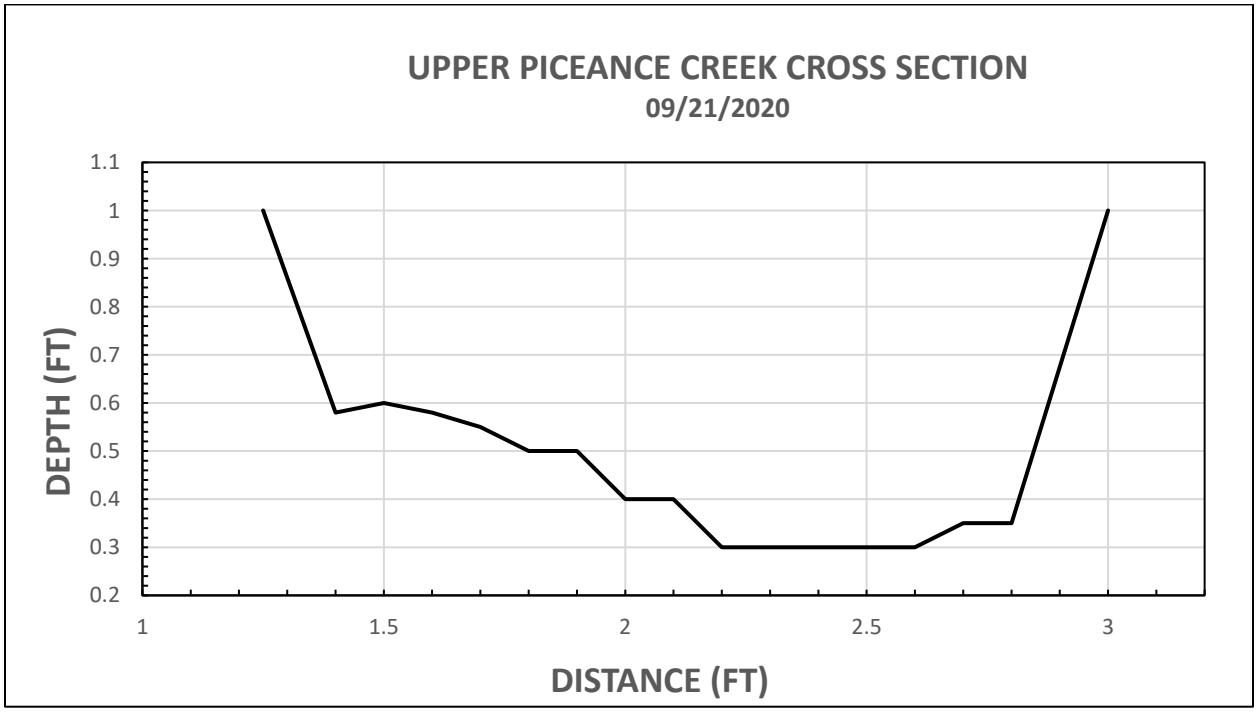

Staff Gage

Piceance Creek

BLM- 9/21/2020

				TOTAL Q (CFS)	0.15517
				STAFF (FT)	
	TAPE (FT)	DEPTH (FT)	ELEVATION (FT)	VELOCITY (FT/S)	Q(CFS)
LEW	1.25	0	1	0	0
1	1.4	0.42	0.58	0.11	0.00693
2	1.5	0.4	0.6	0.13	0.0052
3	1.6	0.42	0.58	0.12	0.00504
4	1.7	0.45	0.55	0.2	0.009
5	1.8	0.5	0.5	0.11	0.0055
6	1.9	0.5	0.5	0.13	0.0065
7	2.0	0.6	0.4	0.11	0.0066
8	2.1	0.6	0.4	0.09	0.0054
9	2.2	0.7	0.3	0.06	0.0042
10	2.3	0.7	0.3	0.06	0.0042
11	2.4	0.7	0.3	0.02	0.0014
12	2.5	0.7	0.3	0.17	0.0119
13	2.6	0.7	0.3	0.28	0.0196
14	2.7	0.65	0.35	0.33	0.02145
15	2.8	0.65	0.35	0.65	0.04225
REW	3.0	0	1	0	0

*Slightly undercut



YSI HANDHELD		
	INITIAL	POST
TIME	9:52	10:26
TEMP (C)	8.5	9.2
DO (%)	104.4	143.0
DO (MG/L)	9.52	12.72
SPC	1084	1079
TDS	702	702
PH	8.74	8.85

CAMP-SCI GAGE HOUSE		
	INITIAL	POST
TIME	9:49	10:52
WATER TEMP	8.4	9.9
CONDUCTIVITY	NAN	0.875
RAIN	0	0
BATTERY	13.9	13.56

*CS451 Pressure Transducer switched out on 1/16/2020 (14:15), prior data is questionable

*Between 6/29/2020 and 7/27/2020 beavers built a dam on the creek, not cleared as of 9/21/2020

Discharge Measurement Summary

Site name	Pieceancelow
Site number	1122022A
Operator(s)	Lfs
File name	Pieceancelow_20221102-085236.ft
Comment	

Start time	11/2/2022 8:35 AM
End time	11/2/2022 8:51 AM
Start location latitude	39.733
Start location longitude	-107.994
Calculations engine	FlowTracker2

Sensor type	Top Setting
Handheld serial number	FT2H1747037
Probe serial number	FT2P1747048
Probe firmware	1.30
Handheld software	1.7

# Stations	Avg interval (s)	Total discharge (ft³/s)
12	40	0.2330

Total width (ft)	Total area (ft²)	Wetted Perimeter (ft)
2.200	2.0570	2.245

Mean SNR (dB)	Mean depth (ft)	Mean velocity (ft/s)
31	0.935	0.1133

Mean temp (°F)	Max depth (ft)	Max velocity (ft/s)
35.950	1.000	0.7476

Discharge Uncertainty		
Category	**ISO**	**IVE**
Accuracy	1.0%	1.0%
Depth	1.3%	8.1%
Velocity	4.0%	52.9%
Width	0.4%	0.3%
Method	6.5%	
# Stations	4.2%	
Overall	**8.9%**	**53.5%**

Discharge equation	Mid Section
Discharge uncertainty	IVE
Discharge reference	Rated

Data Collection Settings	
Salinity	0.000 PSS-78
Temperature	-
Sound speed	-
Mounting correction	0.000 %

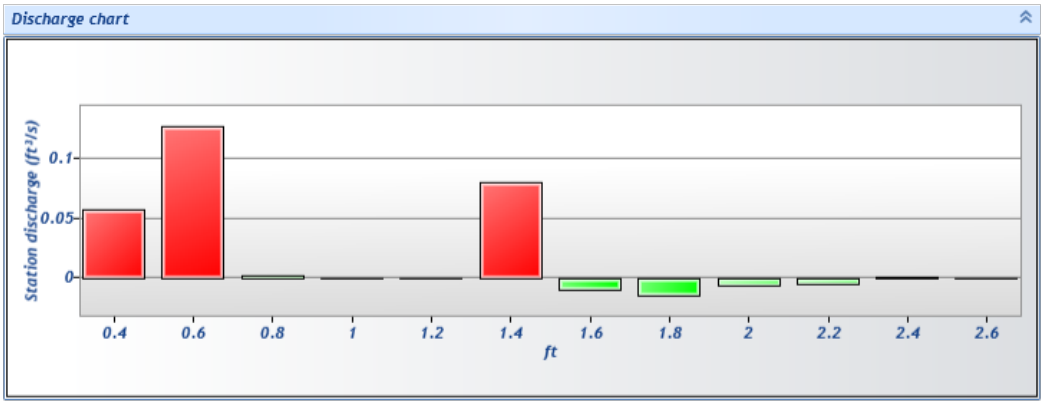
Summary overview

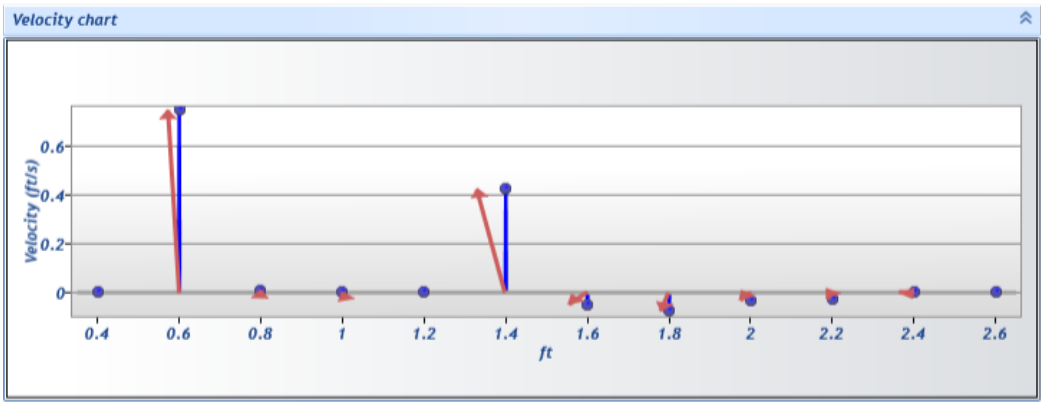
No changes were made to this file
Quality control warnings

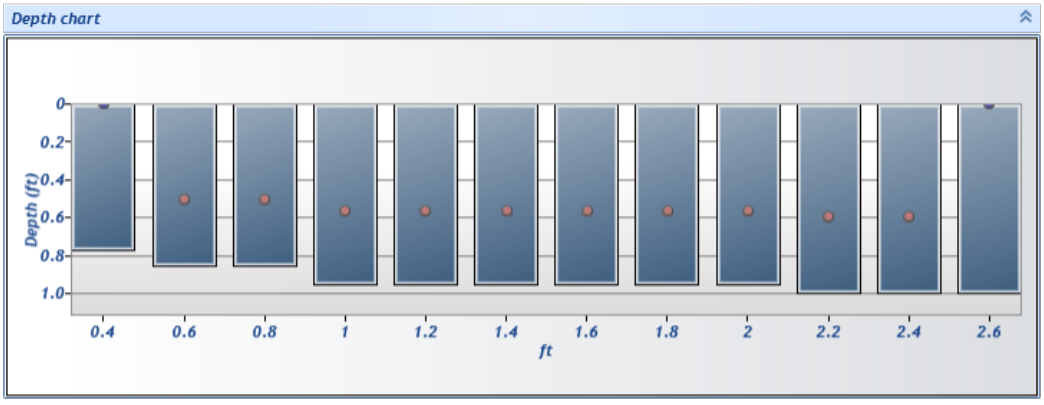
Discharge Measurement Summary

Site name	Pieceancelow
Site number	1122022A
Operator(s)	Lfs
File name	Pieceancelow_20221102-085236.ft
Comment	

Station Warning Settings		
Station discharge OK	Station discharge < 5.00%	
Station discharge caution	5.00% >= Station discharge < 10.00%	
Station discharge warning	Station discharge >= 10.00%	







Discharge Measurement Summary

Site name	Pieceancelow
Site number	1122022A
Operator(s)	Lfs
File name	Pieceancelow_20221102-085236.ft
Comment	

Measurement results

St#	Time	Location (ft)	Method	Depth (ft)	%Depth	Measured Depth (ft)	Samples	Velocity (ft/s)	Correction	Mean Velocity (ft/s)	Area (ft²)	Flow (ft³/s)	%Q	
0	8:35 AM	0.400	None	0.770	0.0000	0.000	0	0.0000	1.0000	0.7476	0.0770	0.0576	24.70	✓
1	8:36 AM	0.600	0.6	0.850	0.6000	0.510	80	0.7476	1.0000	0.7476	0.1700	0.1271	54.54	✓
2	8:38 AM	0.800	0.6	0.850	0.6000	0.510	80	0.0108	1.0000	0.0108	0.1700	0.0018	0.79	✓
3	8:41 AM	1.000	0.6	0.950	0.6000	0.570	80	0.0014	1.0000	0.0014	0.1900	0.0003	0.11	✓
4	8:42 AM	1.200	0.6	0.950	0.6000	0.570	80	0.0008	1.0000	0.0008	0.1900	0.0002	0.07	✓
5	8:43 AM	1.400	0.6	0.950	0.6000	0.570	80	0.4236	1.0000	0.4236	0.1900	0.0805	34.54	✓
6	8:44 AM	1.600	0.6	0.950	0.6000	0.570	80	-0.0514	1.0000	-0.0514	0.1900	-0.0098	-4.19	✓
7	8:46 AM	1.800	0.6	0.950	0.6000	0.570	80	-0.0751	1.0000	-0.0751	0.1900	-0.0143	-6.12	✓
8	8:47 AM	2.000	0.6	0.950	0.6000	0.570	80	-0.0327	1.0000	-0.0327	0.1900	-0.0062	-2.66	✓
9	8:48 AM	2.200	0.6	1.000	0.6000	0.600	80	-0.0253	1.0000	-0.0253	0.2000	-0.0051	-2.17	✓
10	8:50 AM	2.400	0.6	1.000	0.6000	0.600	80	0.0031	1.0000	0.0031	0.2000	0.0006	0.26	✓
11	8:51 AM	2.600	None	1.000	0.0000	0.000	0	0.0000	1.0000	0.0031	0.1000	0.0003	0.13	✓

Discharge Measurement Summary

Site name	Pieceancelow
Site number	1122022A
Operator(s)	Lfs
File name	Pieceancelow_20221102-085236.ft
Comment	

Quality Control Settings	
Maximum depth change	50.00%
Maximum spacing change	100.00%
SNR threshold	10 dB
Standard error threshold	0.0328 ft/s
Spike threshold	10.00%
Maximum velocity angle	20.0 deg
Maximum tilt angle	5.0 deg

Quality control warnings

St#	Time	Location (ft)	Method	Depth (ft)	%Depth	Measured Depth (ft)	Warnings
0	8:35 AM	0.400	None	0.770	0.0000	0.000	High Stn % Discharge
1	8:36 AM	0.600	0.6	0.850	0.6000	0.510	Boundary Interference,High Stn % Discharge
4	8:42 AM	1.200	0.6	0.950	0.6000	0.570	Boundary Interference,Beam SNRs Not Similar,Large SNR Variation,SNR Threshold Variation
5	8:43 AM	1.400	0.6	0.950	0.6000	0.570	High Stn % Discharge
7	8:46 AM	1.800	0.6	0.950	0.6000	0.570	Large SNR Variation,Velocity Angle > QC
10	8:50 AM	2.400	0.6	1.000	0.6000	0.600	Boundary Interference

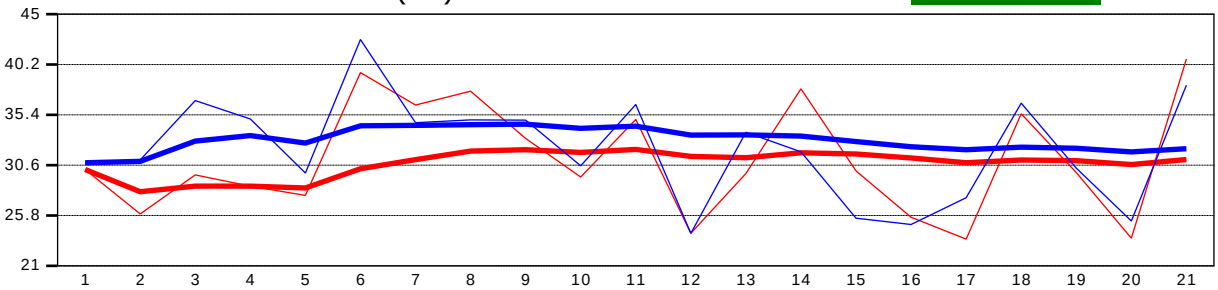
Discharge Measurement Summary

Site name	Pieceancelow
Site number	1122022A
Operator(s)	Lfs
File name	Pieceancelow_20221102-085236.ft
Comment	

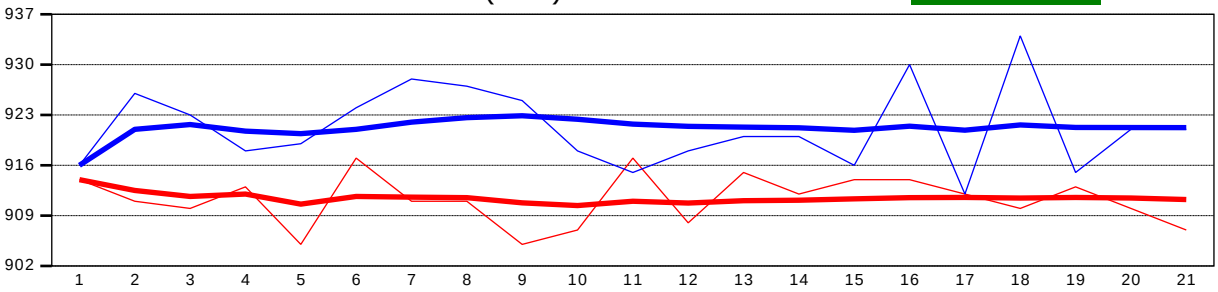
Beam 1	
Beam 2	

Automated beam check Start time 11/2/2022 8:34:40 AM

Automated beam check SNR(dB) PASS



Automated beam check Noise level(cnts) PASS



Automated beam check Quality control warnings

No quality control warnings

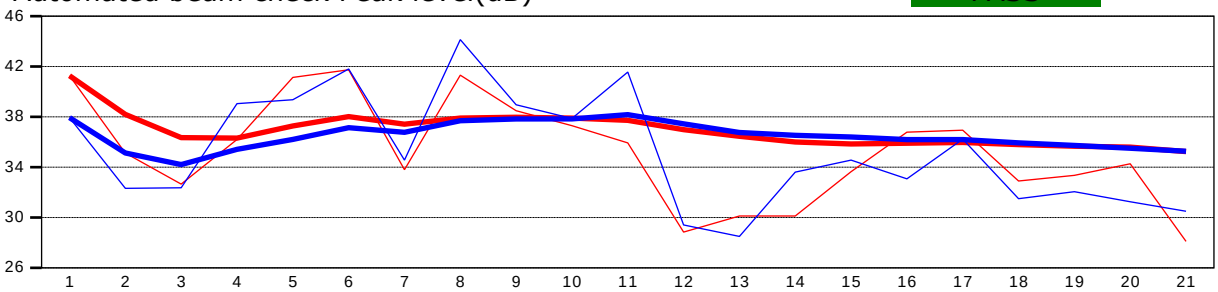
Discharge Measurement Summary

Site name	Pieceancelow
Site number	1122022A
Operator(s)	Lfs
File name	Pieceancelow_20221102-085236.ft
Comment	

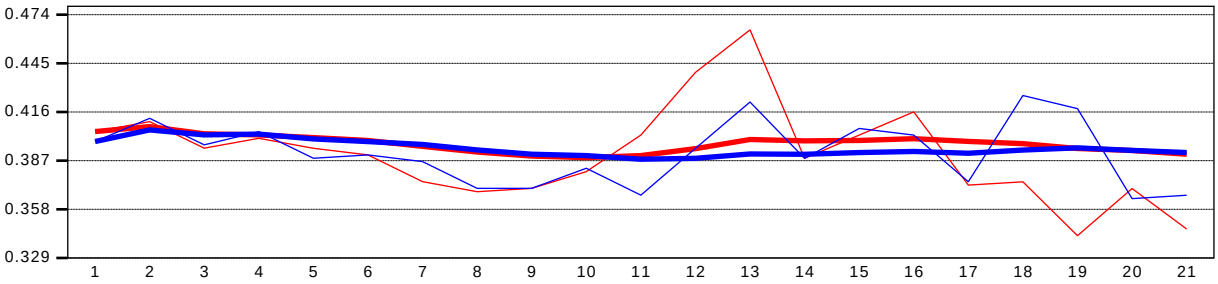
Beam 1	
Beam 2	

Automated beam check Start time 11/2/2022 8:34:40 AM

Automated beam check Peak level(dB) PASS



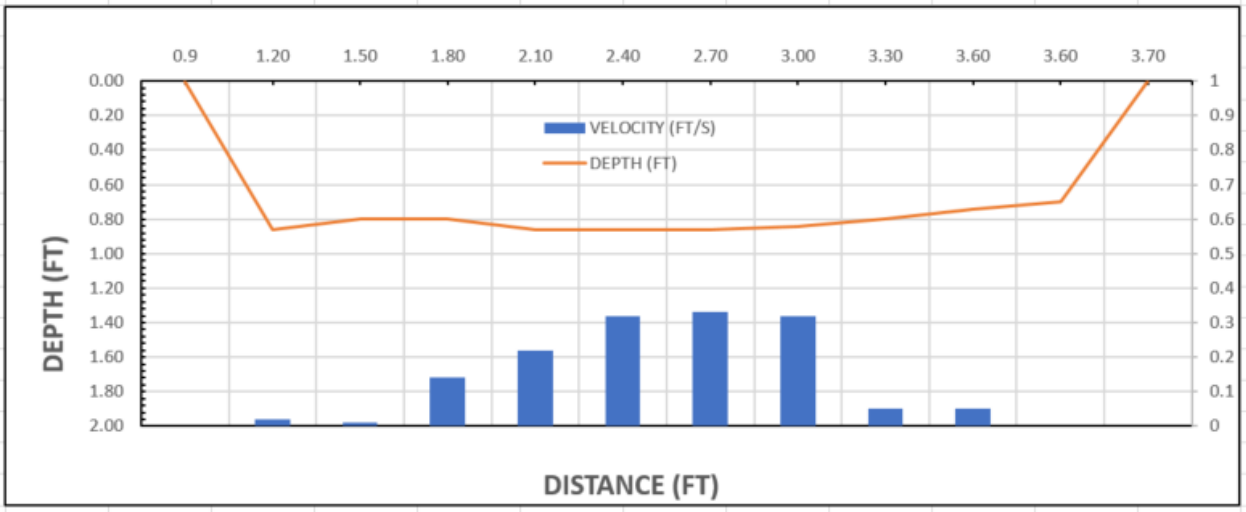
Automated beam check Peak position(ft) PASS



Automated beam check Quality control warnings

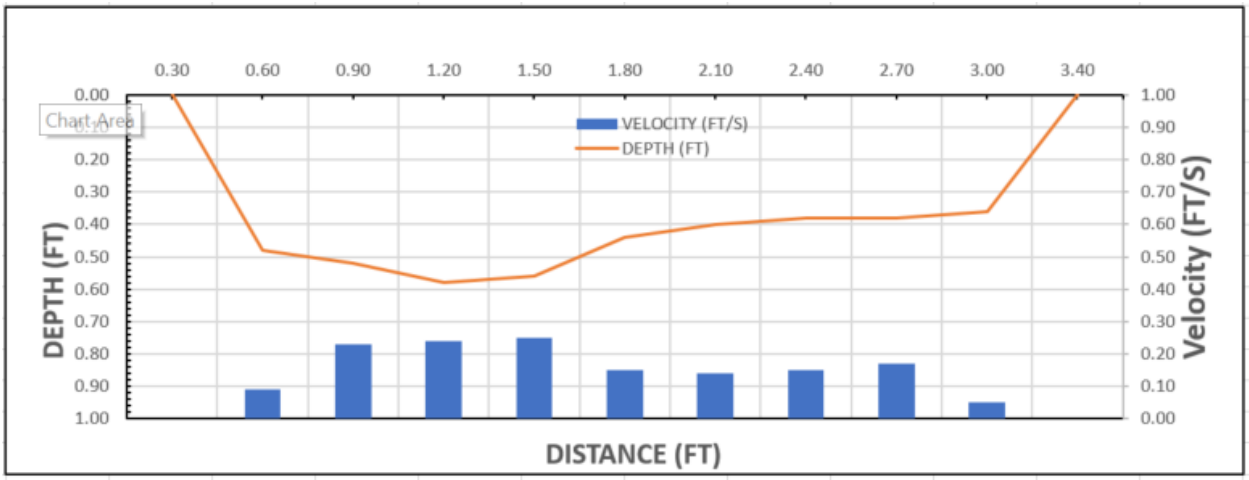
No quality control warnings

LATITUDE	LONGTIUDE				
39.7301	-107.9859				
LOCATION	Upper Piceance at Streamgage			TOTAL Q (CFS)	0.369
DATE/TIME	11/03/222 9:00			STAFF (FT)	0.66
	TAPE (FT)	DEPTH (FT)	VELOCITY (FT/S)	Q(CFS)	% of total Q
REW	0.9	0.00	0	0.000	0%
1	1.20	0.86	0.02	0.005	1%
2	1.50	0.80	0.01	0.002	1%
3	1.80	0.80	0.14	0.034	9%
4	2.10	0.86	0.22	0.057	15%
5	2.40	0.86	0.32	0.083	22%
6	2.70	0.86	0.33	0.085	23%
7	3.00	0.84	0.32	0.081	22%
8	3.30	0.80	0.05	0.012	3%
9	3.60	0.74	0.05	0.011	3%
10	3.60	0.70	0	0.000	0%
LEW	3.70	0.00	0	0.000	0%

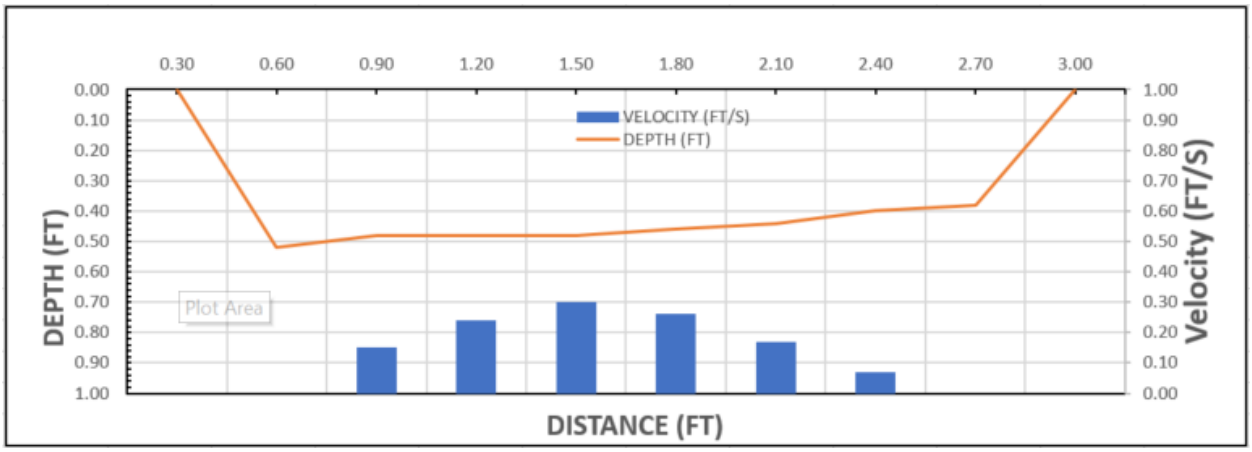


LOCATION	Upper Piceance at Streamgage			TOTAL Q (CFS)	0.211
DATE/TIME	11/16/2022 15:35			STAFF (FT)	NA

	TAPE (FT)	DEPTH (FT)	VELOCITY (FT/S)	Q(CFS)	% of total Q
REW	1.00	0.00	0.00	0.000	0%
1	1.30	0.48	0.09	0.013	6%
2	1.60	0.52	0.23	0.036	17%
3	1.90	0.58	0.24	0.042	20%
4	2.20	0.56	0.25	0.042	20%
5	2.50	0.44	0.15	0.020	9%
6	2.80	0.40	0.14	0.017	8%
7	3.10	0.38	0.15	0.017	8%
8	3.40	0.38	0.17	0.019	9%
9	3.70	0.36	0.05	0.005	3%
LEW	4.00	0.00	0.00	0.000	0%



LOCATION	Upper Piceance at Streamgage			TOTAL Q (CFS)	0.166
DATE/TIME	11/28/2022 14:20			STAFF (FT)	NA
	TAPE (FT)	DEPTH (FT)	VELOCITY (FT/S)	Q(CFS)	% of total Q
REW	1.00	0.00	0.00	0.000	0%
1	1.30	0.52	0.00	0.000	0%
2	1.60	0.48	0.15	0.022	10%
3	1.90	0.48	0.24	0.035	16%
4	2.20	0.48	0.30	0.043	20%
5	2.50	0.46	0.26	0.036	17%
6	2.80	0.44	0.17	0.022	11%
7	3.10	0.40	0.07	0.008	4%
8	3.40	0.38	0.00	0.000	0%
LEW	3.70	0.00	0.00	0.000	0%



Piceance Creek BLM Temporary Streamgage

Location: 13N 244109 4402085

Installation Date: 6/10/2016

Equipment: Pressure transducer, staff gage, GOES telemetry equipment, rain gauge

Description: The streamgage consists of a data logger, pressure transducer, telemetry equipment and a rain gage. The pressure transducer is protected in a 2 inch pvc pipe and buried flexible conduit secured to the bank with metal drivers. The data logger and telemetry equipment is protected in weatherproofed housing. The gage was installed and maintained by hydrographers at the Bureau of Land Management. Water level was set to readings on a co-located staff gage.