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)

December 8, 2020

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

Dear Ms. Bassi:

The Bureau of Land Management (BLM) is writing this letter to formally communicate its recommendation for an instream flow water right on Watson Creek, located in Water Division 6.

Location and Land Status. Watson Creek originates at Heart Lake on the east side of the Flattops Mountains, approximately 7.0 miles southwest of the community of Yampa. Watson Creek flows into the Yampa River approximately two miles downstream from Yampa. This recommendation addresses the portion of Watson Creek that starts at the confluence with Moody Creek and extends downstream to the headgate of the Hardscrabble Ditch, a distance of approximately 6.5 miles. The BLM manages 0.3 miles of this reach, while approximately 5.2 miles are in private ownership.

Biological Summary. Watson Creek is a cool water, low to moderate gradient stream. The reach that is the subject of this recommendation flows through shallow valley that ranges from ¼ to ½ mile in width. The reach flows through agricultural lands primarily used for livestock grazing. Substrate is generally from small to medium in size, ranging from sands and gravels to four-inch cobbles. Water quality is acceptable for supporting cool water fish species, but the creek does appear to be affected by nutrient loading.

Fish surveys have documented self-supporting populations of longnose suckers, whitehead suckers, and creek chub. Spot surveys have indicated populations of mayfly, caddisfly, and other macroinvertebrate species that tolerate cool to warm water habitats.

The creek supports a riparian community of willow, sedges, and rush species, which are more abundant in areas that are fenced off from grazing. Bank stability appears to be good, except in areas of high livestock usage.

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

Cross Section Date	Discharge Rate	Top Width	Winter Flow Recommendation (meets 2 of 3 hydraulic criteria)	Summer Flow Recommendation (meets 3 of 3 hydraulic criteria)
08/2/2017 #1	2.52 cfs	12.77 feet	1.10 cfs	2.27 cfs
08/2/2017 #2	2.57 cfs	10.19 feet	Out of range	1.57 cfs
		Averages:	1.10 cfs	1.92 cfs

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

> 1.90 cubic feet per second is recommended during the snowmelt runoff period, from April 1 to June 21. This recommendation is driven by the average depth criteria and wetted perimeter criteria. During the early irrigation season, which typically begins in May, maintaining this flow rate in the creek would provide adequate habitat for maintaining fish species while irrigation diversions occur. This flow rate will maintain sufficient physical habitat in the creek for the fish population to complete important parts of their life cycle while physical habitat is abundant due to higher flows.
>
> An instream flow water right is not recommended for the peak irrigation season, from June 22 through August 15. Several ditches in the recommended reach regularly sweep the stream, leaving short stretches that are completely dried up. Colorado Water Conservation Board regulations require that water be available throughout the entire reach to make an instream flow appropriation. However, the stream receives substantial return flows from irrigation downstream from the short stretches that are dried up. BLM believes the self-sustaining nature of the fish community provides evidence that these fishes migrate to portions of the creek where return flows accrue, allowing them to survive during high diversion periods.
>
> 1.10 cubic feet per second is recommended during late summer, fall, and winter, from August 16 through March 31. This recommendation is driven by the average velocity criteria. This flow rate should provide adequate habitat during late summer and fall for the fish populations to complete important parts of their life cycle after habitat is restricted during the annual period of high irrigation diversions. This flow rate should also prevent complete icing of the numerous pools in this reach, allowing the fish populations to overwinter.

Water Availability. The BLM recommends using a variety of data sources to confirm water availability, because the BLM is not aware of any historical gage data on this creek. Use of Streamstats can provide an estimate of natural hydrology, but this estimate may have to be modified by adjusting for irrigation diversions and return flows. One nearby gage may provide an estimate of the seasonality of flows, because it is located on a watershed with similar characteristics. USGS Gage 09238000, on Oak Creek near the

community of Oak Creek, is located on a smaller watershed but appears to be relatively unaffected by diversion and storage operations. Analysis of diversion records and installation of a pressure transducer would also assist in analyzing the impact of diversions on stream flows, while recognizing that return flows from irrigation accrue to the channel quickly because of the narrow width of the stream valley.

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

Powell Ditch 1 – 1.0 cfs
Powell Ditch 2 – 2.0 cfs
Laramore Ditch – 5.0 cfs
Ferguson Ditch – 15.0 cfs

The BLM is aware of the following water upstream from the recommended reach:

Moody Ditch – 5.0 cfs
Bijou Ditch – 5.0 cfs
Mohr Ditch – 0.66 cfs
Hill Ditch – 4.52 cfs
Homer Buttricks Ditch – 3.0 cfs
Patton Ditch – 4.0 cfs
Heart Lake Reservoir – 283 acre-feet

Relationship to Land Management Plans. The BLM's management plan calls for improvement and recovery of current and historic fisheries as a means of increasing native fish populations. In addition, the BLM plan 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, and it also calls for protecting riparian and wetland systems from further sources of degradation. Establishing an instream flow water right would assist in meeting these objectives.

Data sheets, R2Cross output, fishery survey information, and photographs of the cross section were included with BLM's draft recommendation in February 2018. The 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

Digitally signed by ALAN BITTNER
Date: 2020.12.14 09:53:10 -08'00'

Alan Bittner
Deputy State Director, Resources

cc: Bruce Sillitoe, Little Snake Field Office
Eric Scherff, Little Snake Field Office
Cathy Cook, Northwest District Manager

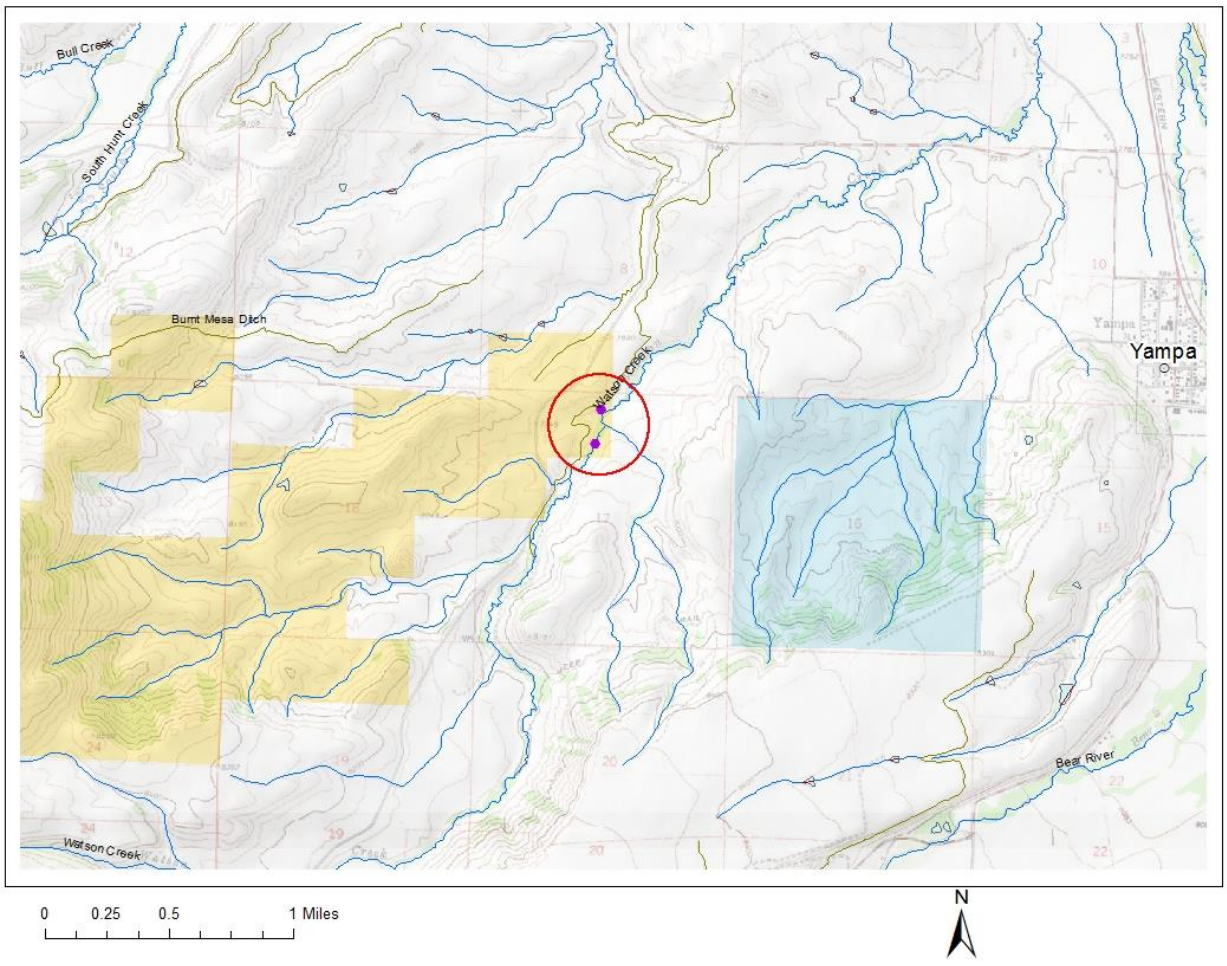
Little Snake Field Office

Stream Sampling July 2016

Watson Creek - Water Code: 22676

Introduction:

Watson Creek, located west of Yampa, Colorado on BLM lands managed by the Little Snake Field Office, was sampled on July 18, 2016. Watson Creek is tributary to the Yampa River. Sampling was conducted to obtain baseline information on fishery status and species composition. One backpack electrofisher was used to sample limited flowing stream habitat in approximately 125 feet of stream. This stream was primarily a series of beaver dams and ponds with some small reaches of slow moving water with deep pools and a lot of silt, which made sampling difficult. Capture efficiency was poor. Fish species collected included: White Suckers, Longnose Sucker, and Creek Chub. Personnel present were Tom Fresques, Nate Higginson, and Kristen Doyle, BLM.



White Sucker

Longnose Sucker

Creek Chub

Representative habitat

Representative habitat

Discussion:

Watson Creek is a small stream that appears to be used extensively for irrigation purposes. A total of 6 fish were collected including four white suckers, one longnose sucker, and one creek chub. Additional fish were seen but were not collected due to poor sampling efficiency. Some very small larval fish were also noted but not collected. Sampling was difficult as the stream is a series of beaver ponds with low gradient, deep runs and pools between. Riffle habitat was very limited.

Riparian habitat is comprised primarily of sedges, rushes, riparian grasses, and a few willows. Stream shading is limited. Stream habitats are comprised primarily of beaver ponds with deep slow runs and pools and limited riffle habitat outside of beaver pond areas. Many pools were >3 feet in depth. Substrate was comprised primarily of fine sediments - silt / clay with limited gravels.

Recommendations:

- Consider other sampling techniques, such as seining

COLORADO WATER CONSERVATION BOARD

FIELD DATA FOR INSTREAM FLOW DETERMINATIONS

COLORADO DIVISION OF WILDLIFE

LOCATION INFORMATION

STREAM NAME: Watson Creek						CROSS-SECTION NO.: 1
CROSS-SECTION LOCATION: At BLM - private boundary						
DATE: 8-2-17	OBSERVERS: R. Smith, E. Scharff					
LEGAL DESCRIPTION	¼ SECTION: NE NW	SECTION: 17	TOWNSHIP: 20 N/S	RANGE: 85 E/W	PM: 6th	
COUNTY: Routt	WATERSHED: Yampa R.	WATER DIVISION:	DOW WATER CODE: 22676			
MAP(S): USGS:	Zone 13 333772 4446171					
USFS:						

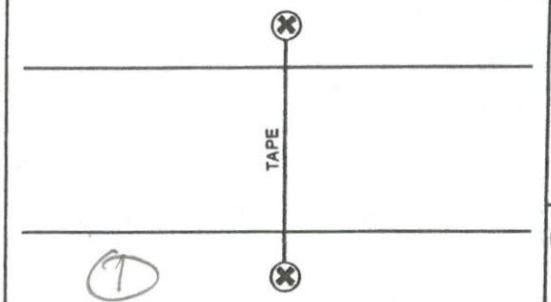
SUPPLEMENTAL DATA

GAG 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: gravels to 4" 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	7.75 / 7.75
② WS Upstream	13.0	7.60
③ WS Downstream	8.8	7.78
SLOPE	0.18 / 21.8 = .008	

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

Willow - sedge - rush riparian.

Ph =
Temp =
Cond =

DISCHARGE/CROSS SECTION NOTES

STREAM NAME: Watson Creek | CROSS-SECTION NO.: 1 | DATE: 8-2-17 | SHEET ___ OF ___

BEGINNING OF MEASUREMENT | EDGE OF WATER LOOKING DOWNSTREAM: (0.0 AT STAKE) | LEFT / RIGHT | Gage Reading: _____ ft | TIME: 10:00 am

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 Obser-vation (ft)	Revolutions	Time (sec)	Velocity (ft/sec) At Point	Velocity (ft/sec) Mean in Vertical	Area (ft^2)	Discharge (cfs)
LS	2.0		5.19								
G	3.0		5.95								
	4.3		7.52								
	6.0		7.78								
	8.2		7.72								
LW	9.7		7.75								
	10.0		7.85	0.10				Ø			
	10.3		7.95	0.20				Ø			
	10.6		8.05	0.30				0.45			
	10.9		8.05	0.30				0.96			
	11.2		8.05	0.30				1.30			
	11.5		8.05	0.30				1.37			
	11.7		8.10	0.35				1.26			
	11.9		8.10	0.35				1.80			
	12.1		8.10	0.35				1.89			
	12.3		8.15	0.40				2.09			
	12.5		8.20	0.45				2.08			
	12.7		8.25	0.50				2.46			
	12.9		8.25	0.50				2.28			
	13.1		8.25	0.50				2.31			
	13.3		8.30	0.55				1.98			
	13.5		8.25	0.50				1.49			
	13.7		8.25	0.50				1.10			
	13.9		8.20	0.45				0.90			
	14.1		8.15	0.4				0.62			
	14.3		8.15	0.4				0.54			
	14.5		8.15	0.4				0.59			
	14.7		8.15	0.4				0.53			
	14.9		8.05	0.3				0.39			
	15.1		7.85	0.1				0.09			
RW	15.3		7.75								
G	15.8		5.85								
RS	16.3		4.60								
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: Watson Creek | CROSS-SECTION NO.: 2

CROSS-SECTION LOCATION: At BLM - Private boundary

DATE: 8-2-17 | OBSERVERS: R. Smith, E. Scherff

LEGAL DESCRIPTION | ¼ SECTION: NE NW | SECTION: 17 | TOWNSHIP: 2 N/S | RANGE: 85 E/W | PM: 6th

COUNTY: Routt | WATERSHED: Yampa R. | WATER DIVISION: 6 | DOW WATER CODE: 22676

MAP(S): USGS: | USFS:

SUPPLEMENTAL DATA

SAG TAPE SECTION SAME AS DISCHARGE SECTION: YES / NO | METER TYPE: M-M

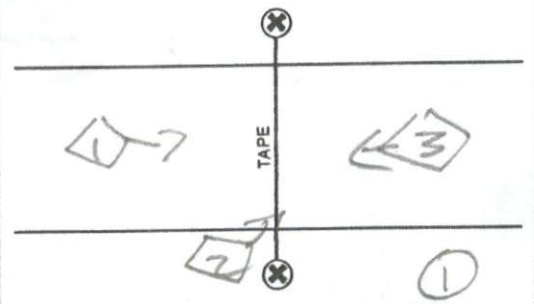
METER NUMBER: | DATE RATED: | CALIB/SPIN: ____ sec | TAPE WEIGHT: surveyed ____ lbs/foot | TAPE TENSION: surveyed ____ lbs

CHANNEL BED MATERIAL SIZE RANGE: gravel to 4" 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	7.90/7.90
② WS Upstream	11.0	7.77
③ WS Downstream	6.0	7.95
SLOPE	0.18/17.0 = .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
caddisflies, amelids, mayflies,																	

AQUATIC INSECTS IN STREAM SECTION BY COMMON OR SCIENTIFIC ORDER NAME:

COMMENTS

pH 7.69

Temp Water 14.7 °C

SC 228 µS/cm

DISCHARGE/CROSS SECTION NOTES

STREAM NAME: Watson Creek	CROSS-SECTION NO: 2	DATE: 8-2-17	SHEET ___ OF ___
BEGINNING OF MEASUREMENT	EDGE OF WATER LOOKING DOWNSTREAM: (0.0 AT STAKE) LEFT / RIGHT	Gage Reading: _____ ft	TIME: 10:40 am

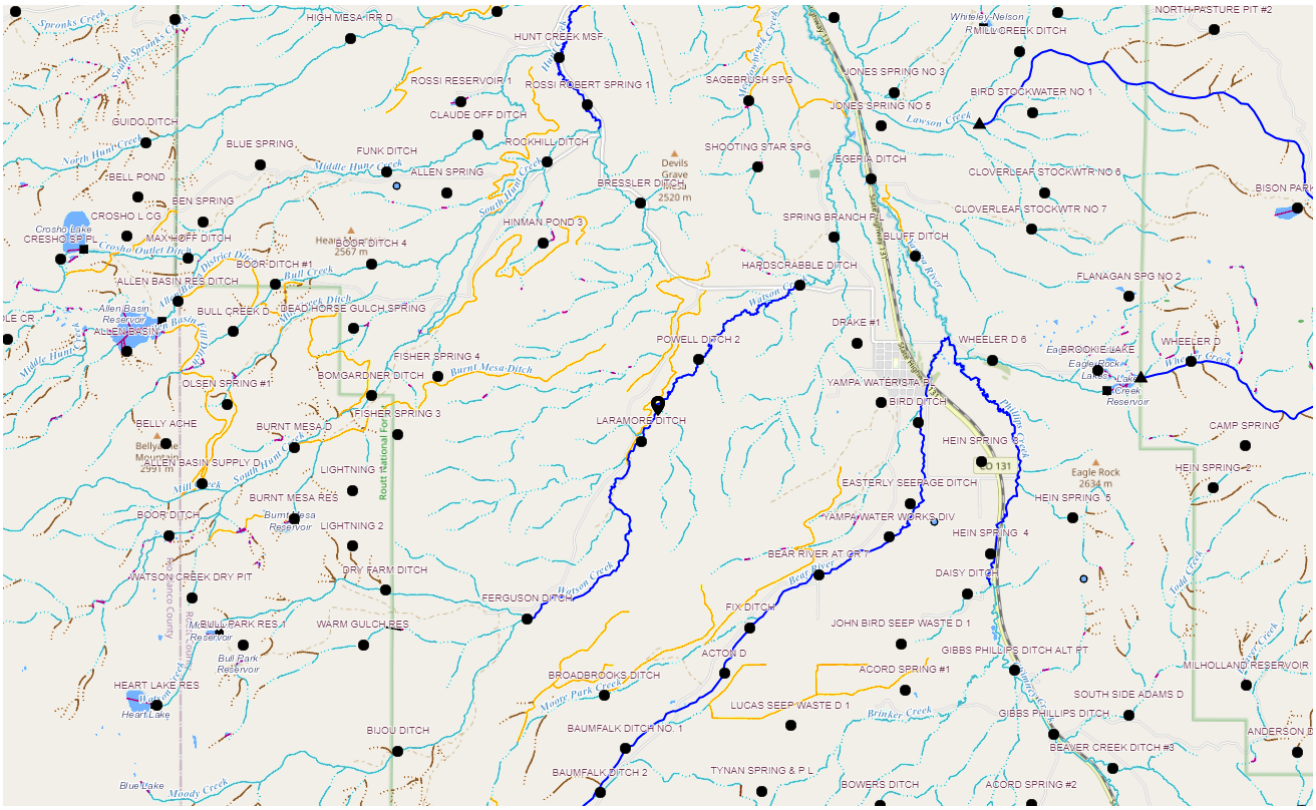
Stake (S) Grassline (G) Waterline (W) Rock (R)	Distance From Initial Point (ft)	Width (ft)	Total Vertical Depth From Tape/Inst (ft)	Water Depth (ft)	Depth of Observation (ft)	Revolutions	Time (sec)	Velocity (ft/sec)		Area (ft^2)	Discharge (cfs)
								At Point	Mean in Vertical		
RS	2.3		4.70								
G	3.8		6.26								
	5.3		6.62								
	6.0		6.95								
RW	6.9		7.90								
	7.2		8.0	0.10				0.04			
	7.5		8.05	0.15				0.37			
	7.8		8.1	0.20				0.56			
	8.1		8.1	0.20				0.74			
	8.4		8.1	0.20				0.89			
	8.7		8.1	0.20				1.26			
	9.0		8.15	0.25				1.44			
	9.2		8.2	0.30				1.64			
	9.4		8.2	0.30				1.76			
	9.6		8.25	0.35				2.05			
	9.8		8.25	0.35				2.18			
	10.0		8.25	0.35				2.20			
	10.2		8.25	0.35				1.89			
	10.4		8.3	0.40				1.93			
	10.6		8.3	0.40				2.12			
	10.8		8.25	0.35				2.23			
	11.0		8.2	0.30				2.29			
	11.2		8.2	0.30				2.22			
	11.4		8.2	0.30				2.17			
	11.6		8.2	0.30				1.86			
	11.8		8.2	0.30				1.53			
	12.0		8.2	0.30				1.15			
	12.2		8.2	0.30				0.66			
	12.4		8.2	0.30				0.60			
	12.6		8.2	0.30				0.70			
	12.8		8.2	0.30				0.84			
	13.1		8.25	0.35				0.72			
	13.4		8.2	0.30				0.63			
	13.7		7.95	0.05				0.07			
RW	13.8		7.90								
G	14.0		6.20								
	14.4		5.36								
RS	15.7		4.96								
TOTALS:											

End of Measurement	Time: 10:53	Gage Reading: _____ ft	CALCULATIONS PERFORMED BY:	CALCULATIONS CHECKED BY:

R2Cross RESULTS

Stream Name: Watson
Stream Locations: BLM - private boundary
Fieldwork Date: 08/02/2017
Cross-section: 1
Observers: R Smith, E Scheriff
Coordinate System: UTM Zone 13
X (easting): 333772
Y (northing): 4446171
Date Processed: 01/11/2022
Slope: 0.0083
Computation method: Manning's n
R2Cross data filename: Erams Watson 8-2-17 #1.xlsx
R2Cross version: 1.3.4

LOCATION



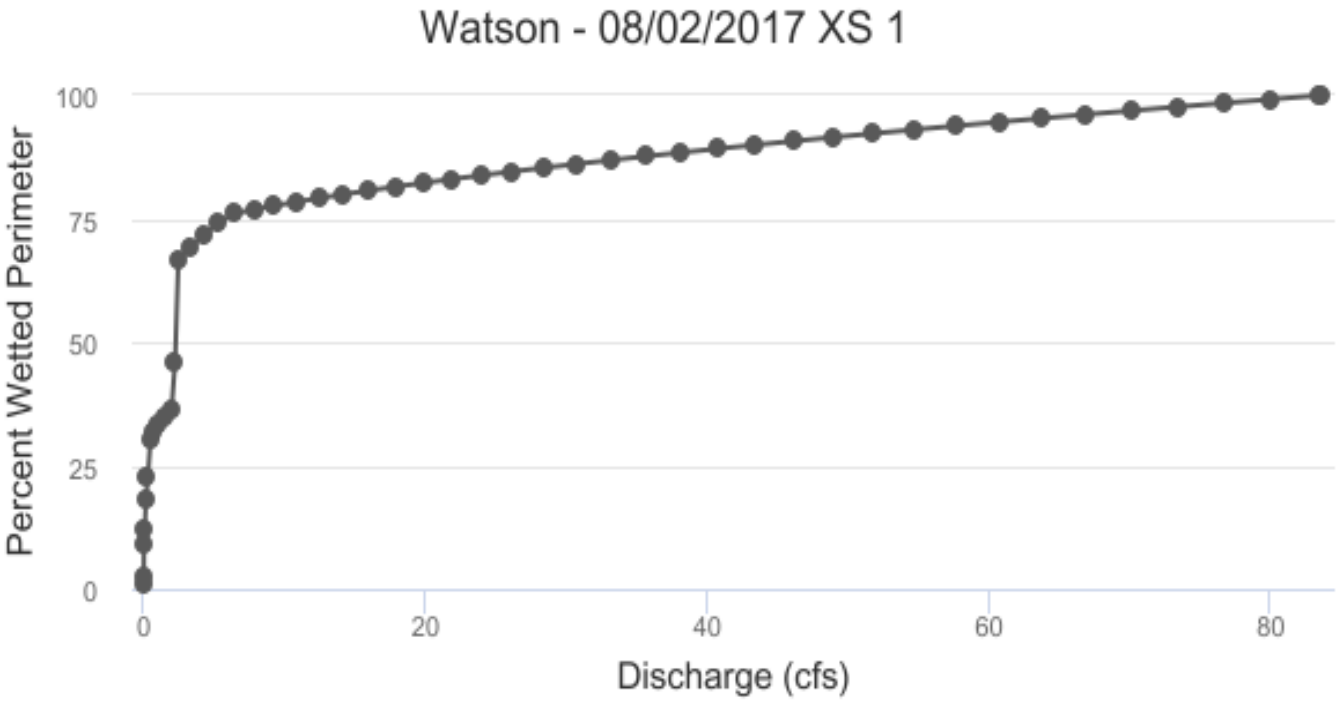
ANALYSIS RESULTS

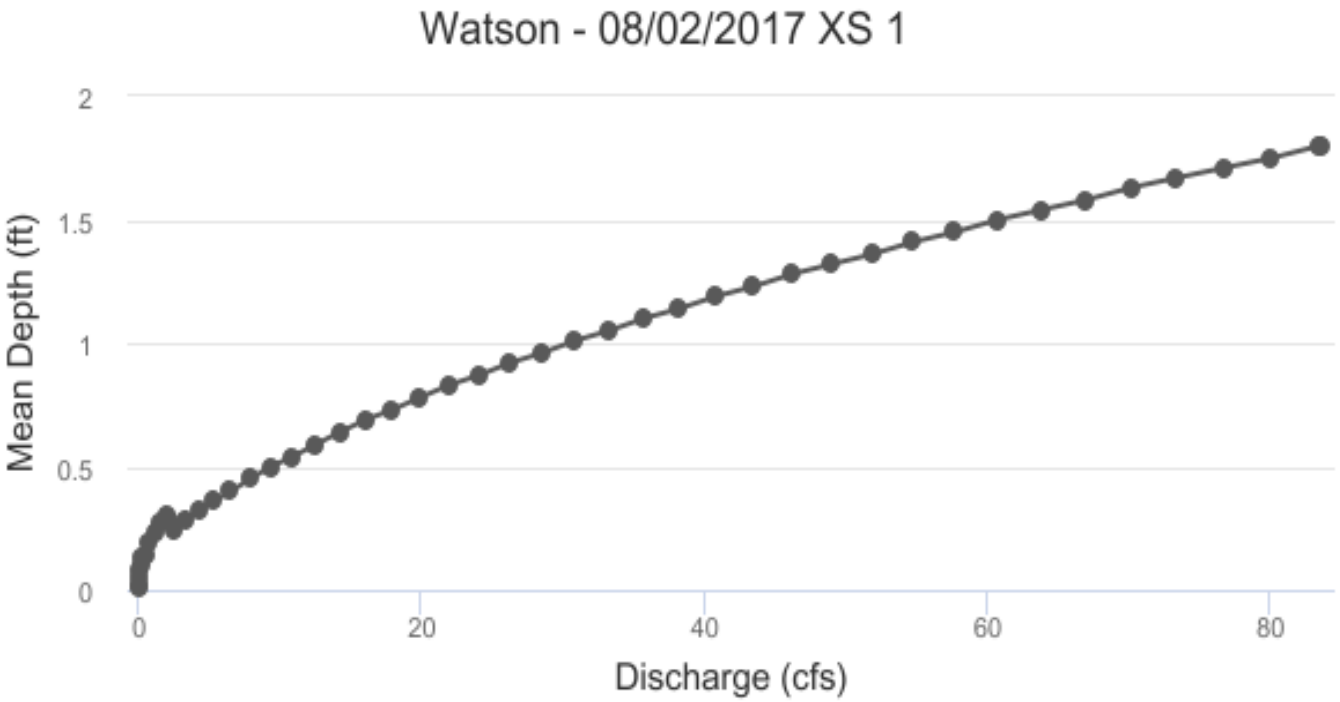
Habitat Criteria Results

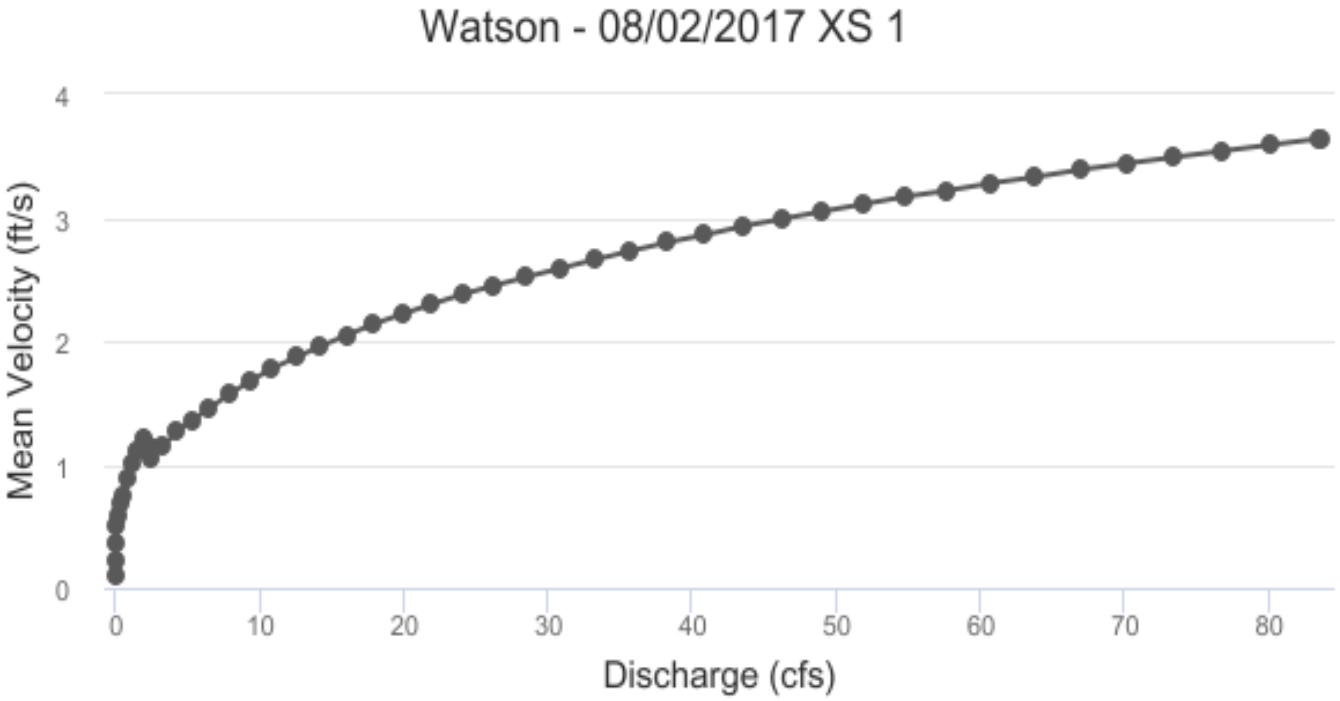
Bankfull top width (ft) = 12.77

	Habitat Criteria	Discharge (cfs) Meeting Criteria
Mean Depth (ft) **	0.2	0.888
Percent Wetted Perimeter (%)	50.0	2.274
Mean Velocity (ft/s)	1.0	1.099

**Values highlighted in yellow indicate that the discharge is less than 40% of measured Q or greater than 250% of measured Q.




Watson - 08/02/2017 XS 1
Mean Depth (ft)
2
1.5
1
0.5
0
0
20
40
60
80
Discharge (cfs)


Watson - 08/02/2017 XS 1
Mean Velocity (ft/s)
4
3
2
1
0
0
10
20
30
40
50
60
70
80
Discharge (cfs)

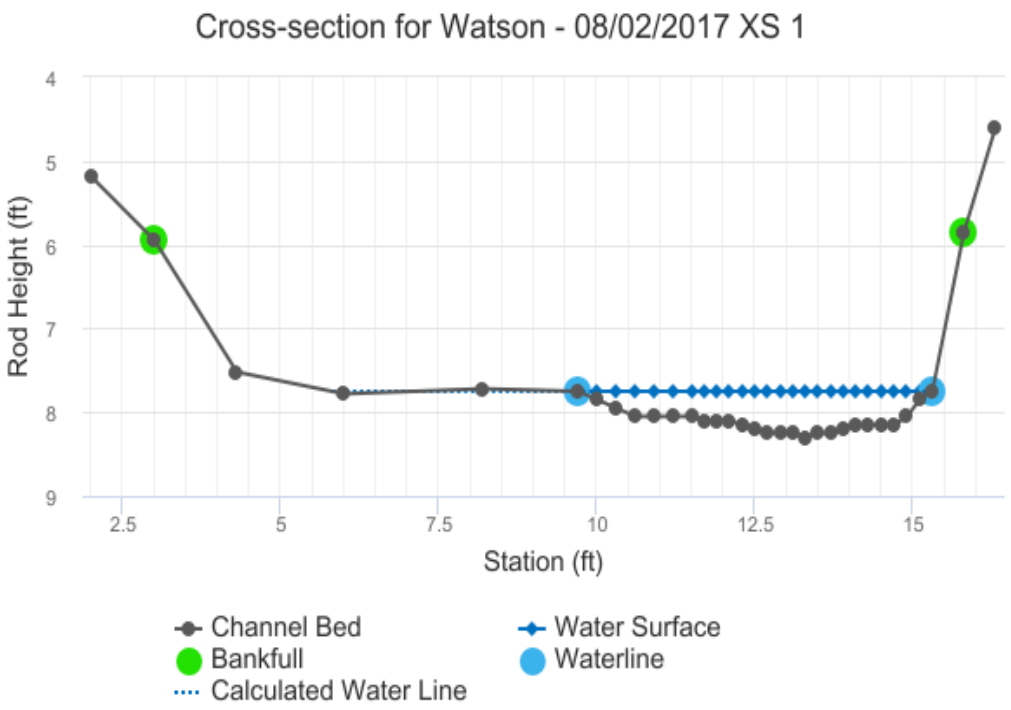
STAGING TABLE

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)	Mean Velocity (ft/s)	Discharge (cfs)
Bankfull	5.95	12.77	1.8	2.35	22.97	15.15	100.00%	1.52	3.64	83.71
	5.95	12.77	1.8	2.35	22.93	15.14	99.96%	1.51	3.64	83.52
	6.0	12.72	1.75	2.3	22.3	15.03	99.19%	1.48	3.59	80.1
	6.05	12.66	1.71	2.25	21.66	14.91	98.42%	1.45	3.54	76.73
	6.1	12.61	1.67	2.2	21.03	14.79	97.65%	1.42	3.49	73.42
	6.15	12.55	1.63	2.15	20.4	14.68	96.88%	1.39	3.44	70.17
	6.2	12.5	1.58	2.1	19.77	14.56	96.11%	1.36	3.39	66.97
	6.25	12.44	1.54	2.05	19.15	14.44	95.34%	1.33	3.33	63.83
	6.3	12.39	1.5	2.0	18.53	14.33	94.57%	1.29	3.28	60.74
	6.35	12.33	1.45	1.95	17.91	14.21	93.80%	1.26	3.22	57.72
	6.4	12.28	1.41	1.9	17.3	14.09	93.03%	1.23	3.17	54.75
	6.45	12.23	1.36	1.85	16.68	13.98	92.26%	1.19	3.11	51.85
	6.5	12.17	1.32	1.8	16.07	13.86	91.49%	1.16	3.05	49.0
	6.55	12.12	1.28	1.75	15.47	13.74	90.72%	1.13	2.99	46.21
	6.6	12.06	1.23	1.7	14.86	13.63	89.95%	1.09	2.93	43.49
	6.65	12.01	1.19	1.65	14.26	13.51	89.18%	1.06	2.86	40.83
	6.7	11.95	1.14	1.6	13.66	13.39	88.41%	1.02	2.8	38.23
	6.75	11.9	1.1	1.55	13.07	13.28	87.64%	0.98	2.73	35.7
	6.8	11.84	1.05	1.5	12.47	13.16	86.87%	0.95	2.66	33.23
	6.85	11.79	1.01	1.45	11.88	13.04	86.10%	0.91	2.59	30.83
	6.9	11.73	0.96	1.4	11.29	12.93	85.33%	0.87	2.52	28.5
	6.95	11.68	0.92	1.35	10.71	12.81	84.56%	0.84	2.45	26.24
	7.0	11.62	0.87	1.3	10.13	12.69	83.79%	0.8	2.38	24.05
	7.05	11.57	0.83	1.25	9.55	12.58	83.02%	0.76	2.3	21.93
	7.1	11.52	0.78	1.2	8.97	12.46	82.25%	0.72	2.22	19.89

	7.15	11.46	0.73	1.15	8.39	12.34	81.48%	0.68	2.14	17.92
	7.2	11.41	0.69	1.1	7.82	12.23	80.71%	0.64	2.05	16.04
	7.25	11.35	0.64	1.05	7.25	12.11	79.94%	0.6	1.96	14.23
	7.3	11.3	0.59	1.0	6.69	11.99	79.17%	0.56	1.87	12.51
	7.35	11.24	0.54	0.95	6.12	11.88	78.40%	0.52	1.78	10.87
	7.4	11.19	0.5	0.9	5.56	11.76	77.63%	0.47	1.68	9.33
	7.45	11.13	0.45	0.85	5.0	11.64	76.86%	0.43	1.57	7.87
	7.5	11.08	0.4	0.8	4.45	11.53	76.09%	0.39	1.46	6.51
	7.55	10.84	0.36	0.75	3.9	11.24	74.17%	0.35	1.36	5.32
	7.6	10.5	0.32	0.7	3.37	10.85	71.65%	0.31	1.27	4.26
	7.65	10.16	0.28	0.65	2.85	10.47	69.12%	0.27	1.16	3.31
	7.7	9.82	0.24	0.6	2.35	10.09	66.60%	0.23	1.05	2.46
Waterline	7.75	6.76	0.28	0.55	1.92	6.99	46.14%	0.27	1.16	2.23
	7.8	5.34	0.3	0.5	1.63	5.54	36.59%	0.29	1.22	1.98
	7.85	5.09	0.27	0.45	1.37	5.28	34.82%	0.26	1.12	1.53
	7.9	4.89	0.23	0.4	1.12	5.05	33.31%	0.22	1.01	1.13
	7.95	4.69	0.19	0.35	0.88	4.82	31.80%	0.18	0.89	0.78
	8.0	4.49	0.14	0.3	0.65	4.59	30.29%	0.14	0.75	0.48
	8.05	3.38	0.13	0.25	0.43	3.45	22.81%	0.12	0.69	0.3
	8.1	2.68	0.1	0.2	0.27	2.74	18.07%	0.1	0.59	0.16
	8.15	1.78	0.08	0.15	0.14	1.81	11.97%	0.08	0.51	0.07
	8.2	1.38	0.05	0.1	0.07	1.4	9.25%	0.05	0.36	0.02
	8.25	0.38	0.02	0.05	0.01	0.39	2.57%	0.02	0.22	0.0
	8.29	0.12	0.01	0.02	0.0	0.12	0.82%	0.01	0.1	0.0

MODEL SUMMARY

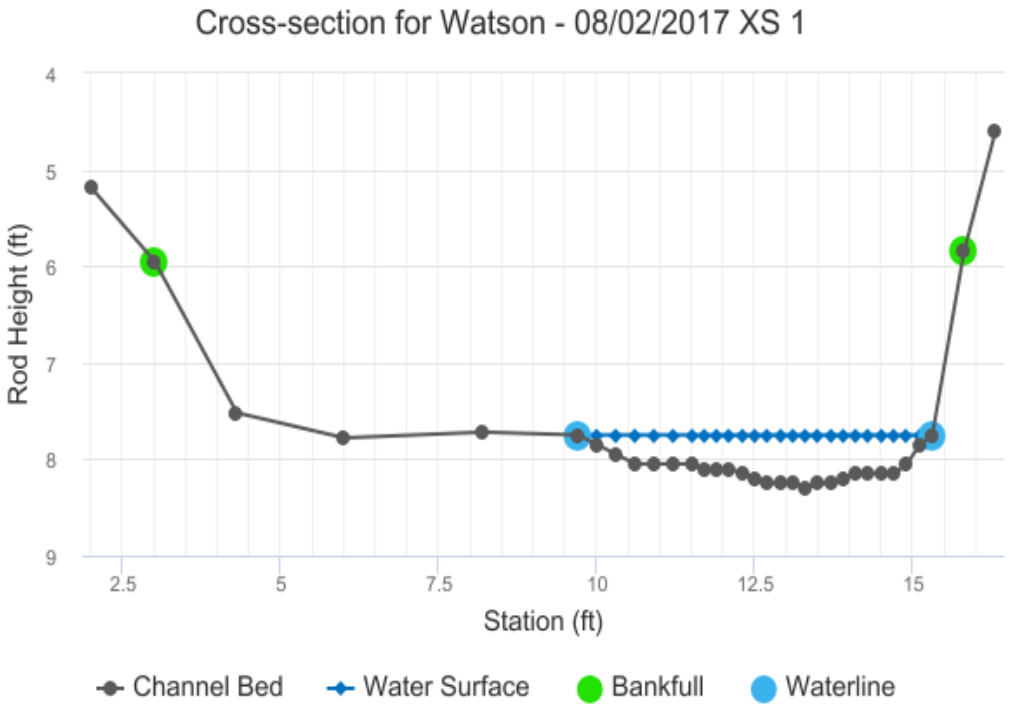
Measured Flow (Qm) =	2.52
Calculated Flow (Qc) =	2.23
(Qm-Qc)/Qm * 100 =	11.40%
Measured Waterline (WLm) =	7.75
Calculated Waterline (WLc) =	7.75
(WLm-WLc)/WLm * 100 =	-0.04%
Max Measured Depth (Dm) =	0.55
Max Calculated Depth (Dc) =	0.55
(Dm-Dc)/Dm * 100 =	0.51%
Mean Velocity =	1.16
Manning's n =	0.049
0.4 * Qm =	1.01
2.5 * Qm =	6.29



FIELD DATA

Feature	Station (ft)	Rod Height (ft)	Water depth (ft)	Velocity (ft/s)
	2	5.19		
Bankfull	3	5.95		
	4.3	7.52		
	6	7.78		
	8.2	7.72		
Waterline	9.7	7.75	0	0
	10	7.85	0.1	0
	10.3	7.95	0.2	0
	10.6	8.05	0.3	0.45
	10.9	8.05	0.3	0.96
	11.2	8.05	0.3	1.3
	11.5	8.05	0.3	1.37
	11.7	8.1	0.35	1.26
	11.9	8.1	0.35	1.8
	12.1	8.1	0.35	1.89
	12.3	8.15	0.4	2.09
	12.5	8.2	0.45	2.08
	12.7	8.25	0.5	2.46
	12.9	8.25	0.5	2.28
	13.1	8.25	0.5	2.31
	13.3	8.3	0.55	1.98
	13.5	8.25	0.5	1.49
	13.7	8.25	0.5	1.1
	13.9	8.2	0.45	0.9
	14.1	8.15	0.4	0.62
	14.3	8.15	0.4	0.54
	14.5	8.15	0.4	0.59
	14.7	8.15	0.4	0.53
	14.9	8.05	0.3	0.39
	15.1	7.85	0.1	0.09

Waterline	15.3	7.75	0	0
Bankfull	15.8	5.85		
	16.3	4.6		



COMPUTED FROM MEASURED FIELD DATA

Wetted Perimeter (ft)	Water Depth (ft)	Area (SQ ft)	Discharge (cfs)	Percent Discharge
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	0	0	0	0
0.32	0.1	0.03	0	0
0.32	0.2	0.06	0	0
0.32	0.3	0.09	0.04	1.61
0.3	0.3	0.09	0.09	3.43
0.3	0.3	0.09	0.12	4.65
0.3	0.3	0.07	0.1	4.08
0.21	0.35	0.07	0.09	3.5
0.2	0.35	0.07	0.13	5
0.2	0.35	0.07	0.13	5.25
0.21	0.4	0.08	0.17	6.64
0.21	0.45	0.09	0.19	7.43
0.21	0.5	0.1	0.25	9.77
0.2	0.5	0.1	0.23	9.05
0.2	0.5	0.1	0.23	9.17
0.21	0.55	0.11	0.22	8.65
0.21	0.5	0.1	0.15	5.92
0.2	0.5	0.1	0.11	4.37
0.21	0.45	0.09	0.08	3.22
0.21	0.4	0.08	0.05	1.97
0.2	0.4	0.08	0.04	1.72
0.2	0.4	0.08	0.05	1.88
0.2	0.4	0.08	0.04	1.68
0.22	0.3	0.06	0.02	0.93
0.28	0.1	0.02	0	0.07

0.22	0	0	0	0
0	0	0	0	0
0	0	0	0	0

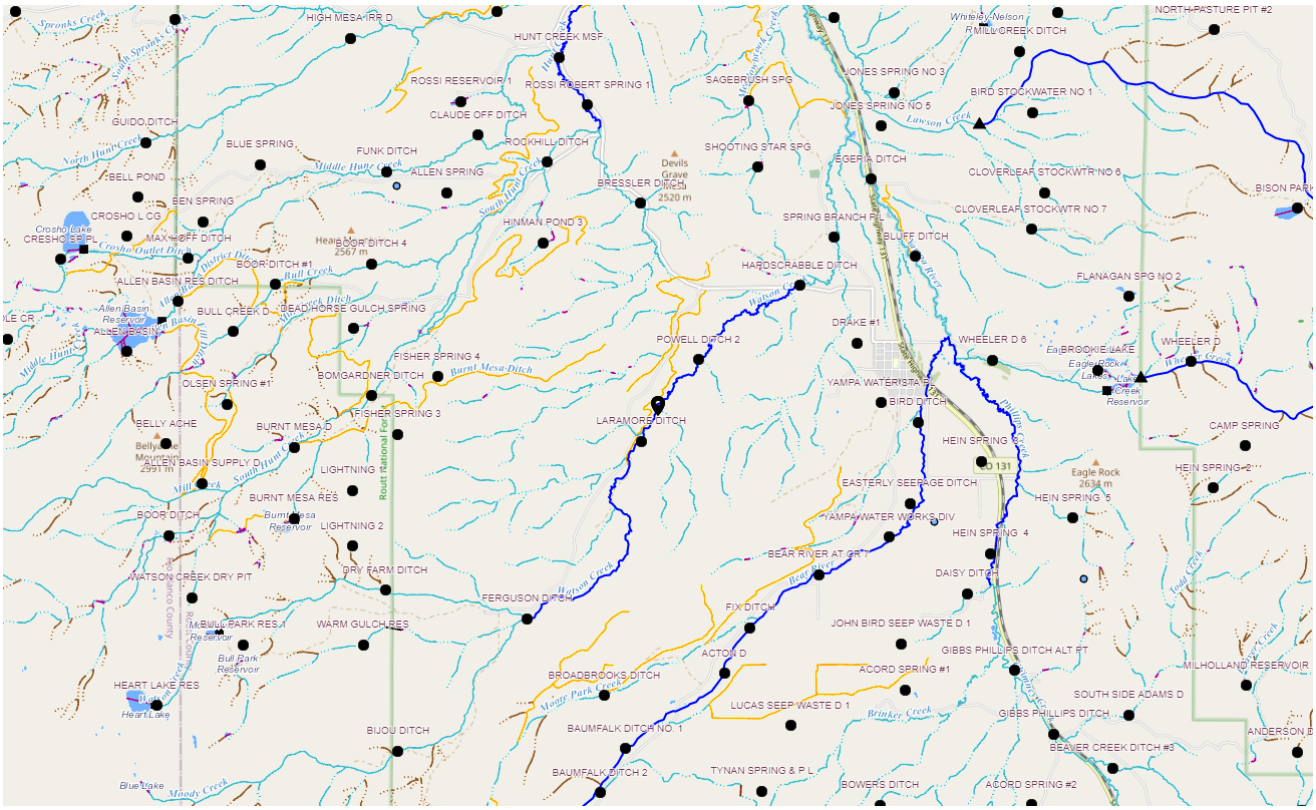
DISCLAIMER

"The Colorado Water Conservation Board makes no representations about the use of the software contained in the R2Cross platform for any purpose besides that for which it was designed. To the maximum extent permitted by applicable law, all information, modeling results, and software are provided “as is” without warranty or condition of any kind, including all implied warranties or conditions of merchantability, or fitness for a particular purpose. The user assumes all responsibility for the accuracy and suitability of this program for a specific application. In no event shall the Colorado Water Conservation Board or any state agency, official or employee be liable for any direct, indirect, punitive, incidental, special, consequential damages or any damages whatsoever including, without limitation, damages for loss of use, data, profits, or savings arising from the implementation, reliance on, or use of or inability to use the R2Cross platform.

R2Cross RESULTS

Stream Name: Watson
Stream Locations: BLM - private boundary
Fieldwork Date: 08/02/2017
Cross-section: 2
Observers: R Smith, E Scheriff
Coordinate System: UTM Zone 13
X (easting): 333772
Y (northing): 4446171
Date Processed: 01/11/2022
Slope: 0.0106
Computation method: Manning's n
R2Cross data filename: Erams_Watson08172017xs2.xlsx
R2Cross version: 1.3.4

LOCATION



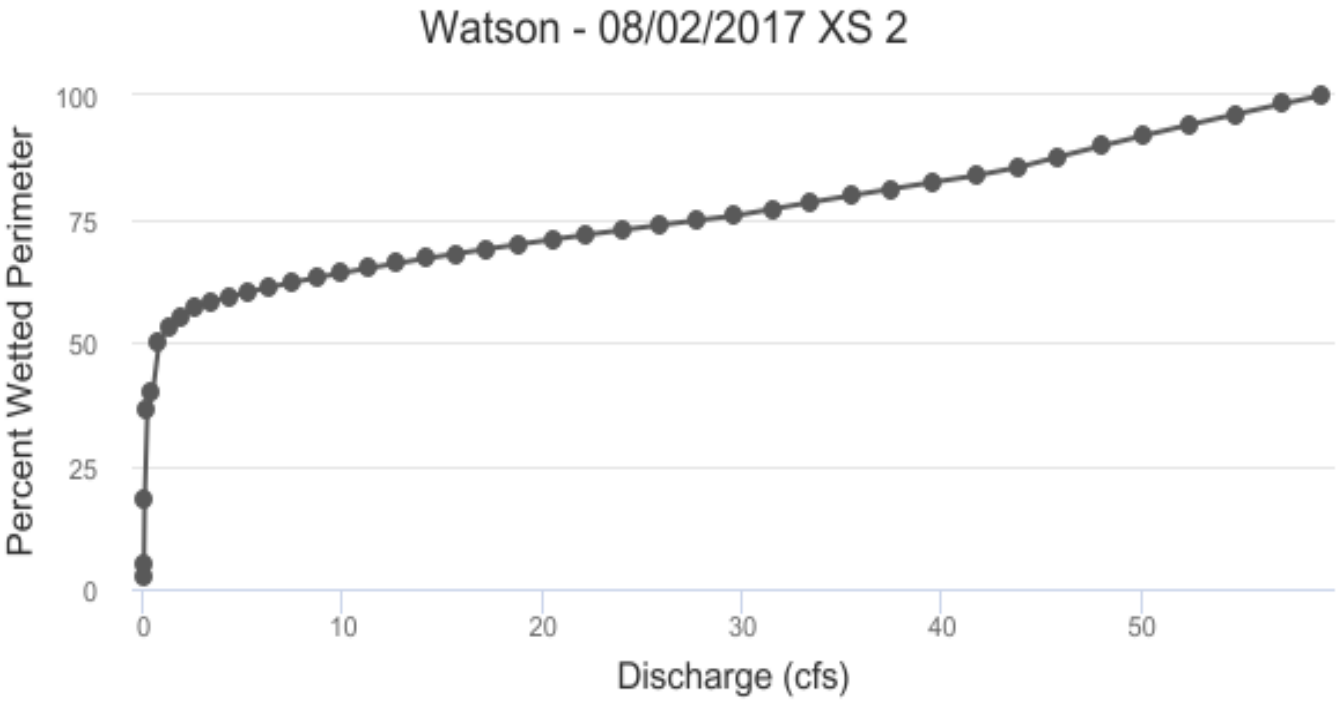
ANALYSIS RESULTS

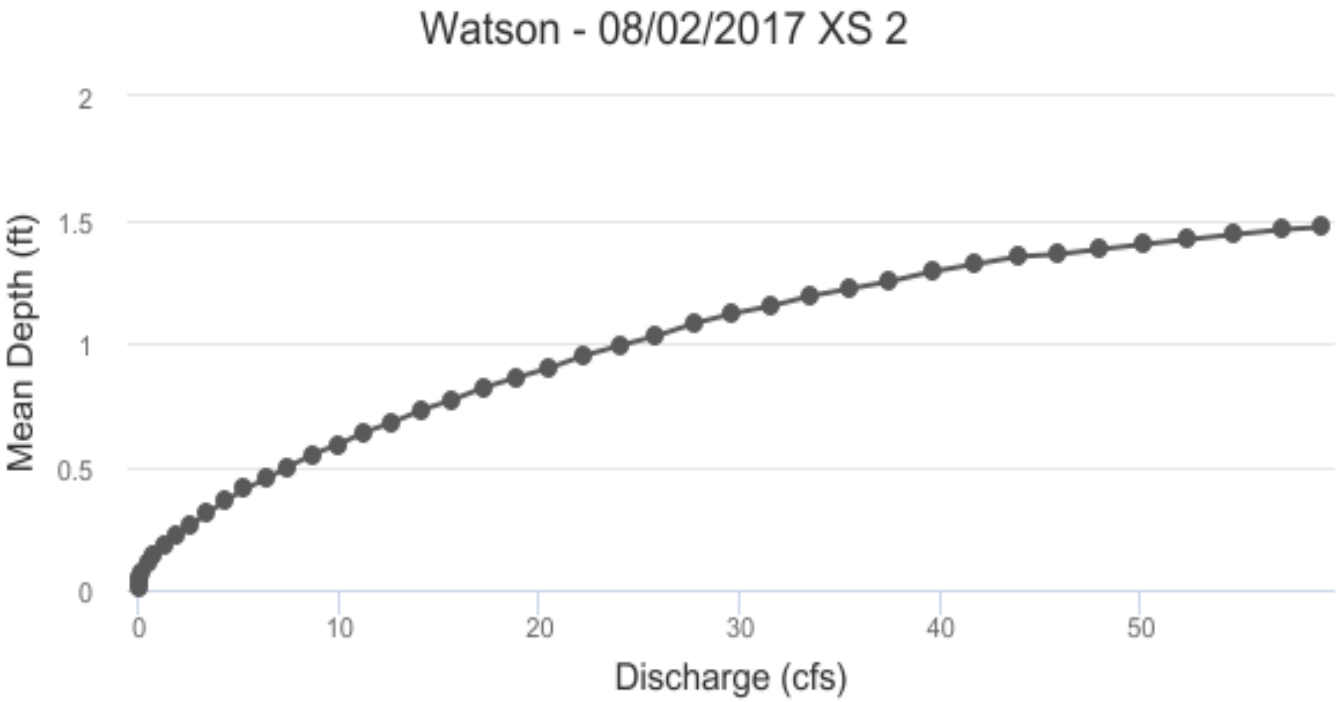
Habitat Criteria Results

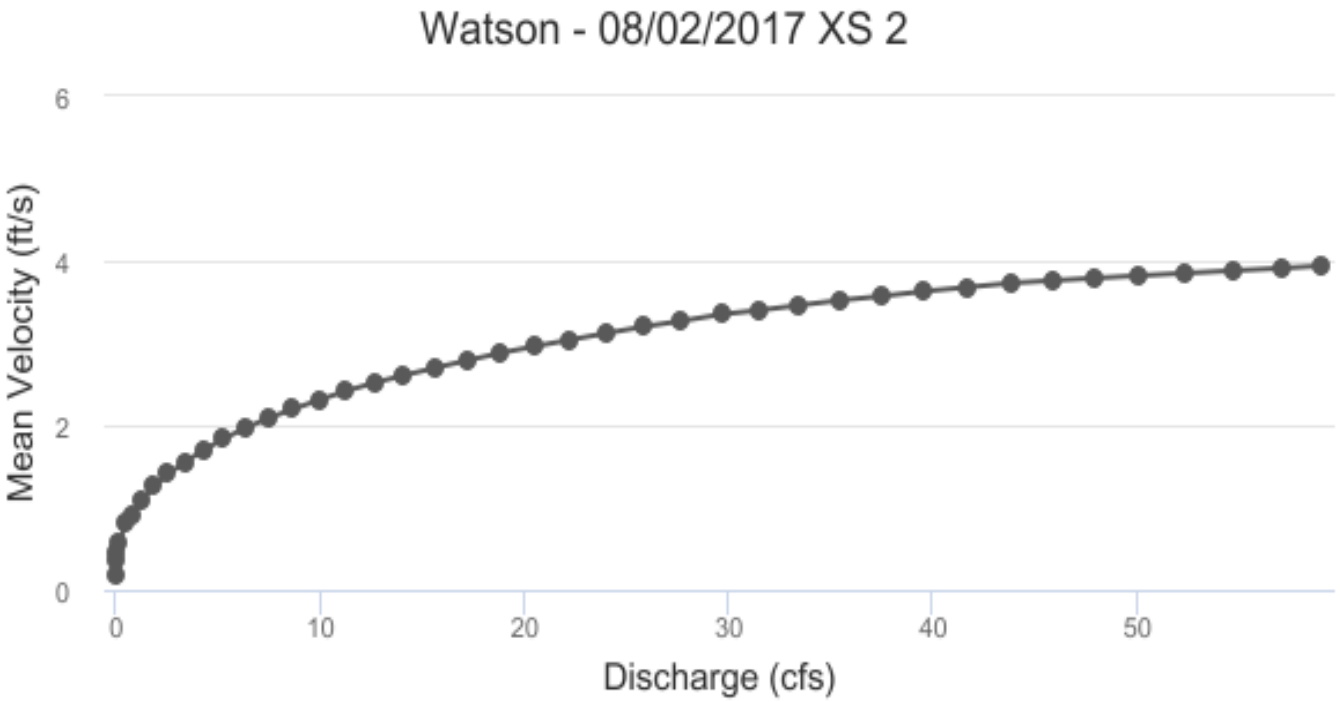
Bankfull top width (ft) = 10.19

	Habitat Criteria	Discharge (cfs) Meeting Criteria
Mean Depth (ft)	0.2	1.541
Percent Wetted Perimeter (%) **	50.0	0.78
Mean Velocity (ft/s) **	1.0	1.006

**Values highlighted in yellow indicate that the discharge is less than 40% of measured Q or greater than 250% of measured Q.




Watson - 08/02/2017 XS 2
Mean Depth (ft)
2
1.5
1
0.5
0
0
10
20
30
40
50
Discharge (cfs)


Watson - 08/02/2017 XS 2
Mean Velocity (ft/s)
6
4
2
0
0
10
20
30
40
50
Discharge (cfs)

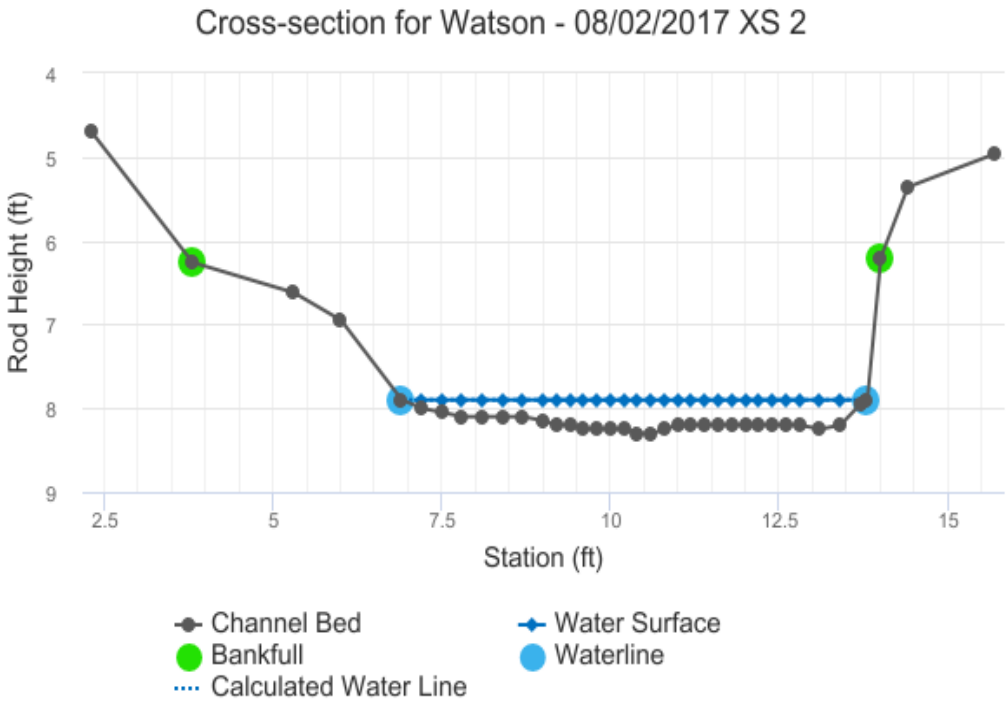
STAGING TABLE

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)	Mean Velocity (ft/s)	Discharge (cfs)
Bankfull	6.26	10.19	1.47	2.04	14.99	12.35	100.00%	1.21	3.94	59.07
	6.3	10.02	1.46	2.0	14.58	12.13	98.29%	1.2	3.91	57.09
	6.35	9.81	1.44	1.95	14.09	11.87	96.14%	1.19	3.88	54.69
	6.4	9.59	1.42	1.9	13.6	11.61	94.00%	1.17	3.85	52.37
	6.45	9.38	1.4	1.85	13.13	11.34	91.86%	1.16	3.82	50.13
	6.5	9.16	1.38	1.8	12.66	11.08	89.71%	1.14	3.79	47.96
	6.55	8.95	1.36	1.75	12.21	10.81	87.57%	1.13	3.76	45.87
	6.6	8.74	1.35	1.7	11.77	10.55	85.43%	1.12	3.73	43.85
	6.65	8.58	1.32	1.65	11.34	10.34	83.76%	1.1	3.68	41.75
	6.7	8.47	1.29	1.6	10.91	10.17	82.40%	1.07	3.63	39.59
	6.75	8.36	1.25	1.55	10.49	10.01	81.04%	1.05	3.57	37.49
	6.8	8.25	1.22	1.5	10.08	9.84	79.68%	1.02	3.52	35.45
	6.85	8.14	1.19	1.45	9.67	9.67	78.33%	1.0	3.46	33.46
	6.9	8.02	1.15	1.4	9.26	9.5	76.97%	0.97	3.4	31.53
	6.95	7.91	1.12	1.35	8.86	9.34	75.61%	0.95	3.35	29.65
	7.0	7.86	1.08	1.3	8.47	9.22	74.65%	0.92	3.27	27.72
	7.05	7.81	1.03	1.25	8.08	9.1	73.68%	0.89	3.2	25.84
	7.1	7.75	0.99	1.2	7.69	8.98	72.71%	0.86	3.12	24.01
	7.15	7.7	0.95	1.15	7.3	8.86	71.75%	0.82	3.04	22.23
	7.2	7.65	0.9	1.1	6.92	8.74	70.78%	0.79	2.96	20.5
	7.25	7.59	0.86	1.05	6.54	8.62	69.82%	0.76	2.88	18.83
	7.3	7.54	0.82	1.0	6.16	8.5	68.85%	0.72	2.79	17.21
	7.35	7.49	0.77	0.95	5.78	8.38	67.89%	0.69	2.7	15.64
	7.4	7.43	0.73	0.9	5.41	8.26	66.92%	0.65	2.61	14.13
	7.45	7.38	0.68	0.85	5.04	8.14	65.95%	0.62	2.52	12.68

	7.5	7.33	0.64	0.8	4.67	8.02	64.99%	0.58	2.42	11.29
	7.55	7.27	0.59	0.75	4.31	7.9	64.02%	0.54	2.31	9.95
	7.6	7.22	0.55	0.7	3.95	7.79	63.06%	0.51	2.2	8.69
	7.65	7.17	0.5	0.65	3.59	7.67	62.09%	0.47	2.09	7.48
	7.7	7.11	0.45	0.6	3.23	7.55	61.13%	0.43	1.97	6.35
	7.75	7.06	0.41	0.55	2.87	7.43	60.16%	0.39	1.84	5.29
	7.8	7.01	0.36	0.5	2.52	7.31	59.20%	0.35	1.7	4.3
	7.85	6.95	0.31	0.45	2.17	7.19	58.23%	0.3	1.56	3.39
Waterline	7.9	6.9	0.26	0.4	1.83	7.07	57.26%	0.26	1.41	2.57
	7.95	6.65	0.22	0.35	1.49	6.8	55.08%	0.22	1.26	1.87
	8.0	6.44	0.18	0.3	1.16	6.56	53.17%	0.18	1.09	1.27
	8.05	6.08	0.14	0.25	0.85	6.18	50.07%	0.14	0.92	0.78
	8.1	4.82	0.11	0.2	0.55	4.9	39.68%	0.11	0.81	0.45
	8.15	4.46	0.07	0.15	0.32	4.52	36.59%	0.07	0.59	0.19
	8.2	2.2	0.05	0.1	0.11	2.23	18.09%	0.05	0.45	0.05
	8.25	0.6	0.03	0.05	0.02	0.61	4.96%	0.03	0.35	0.01
	8.29	0.32	0.01	0.02	0.0	0.32	2.62%	0.01	0.18	0.0

MODEL SUMMARY

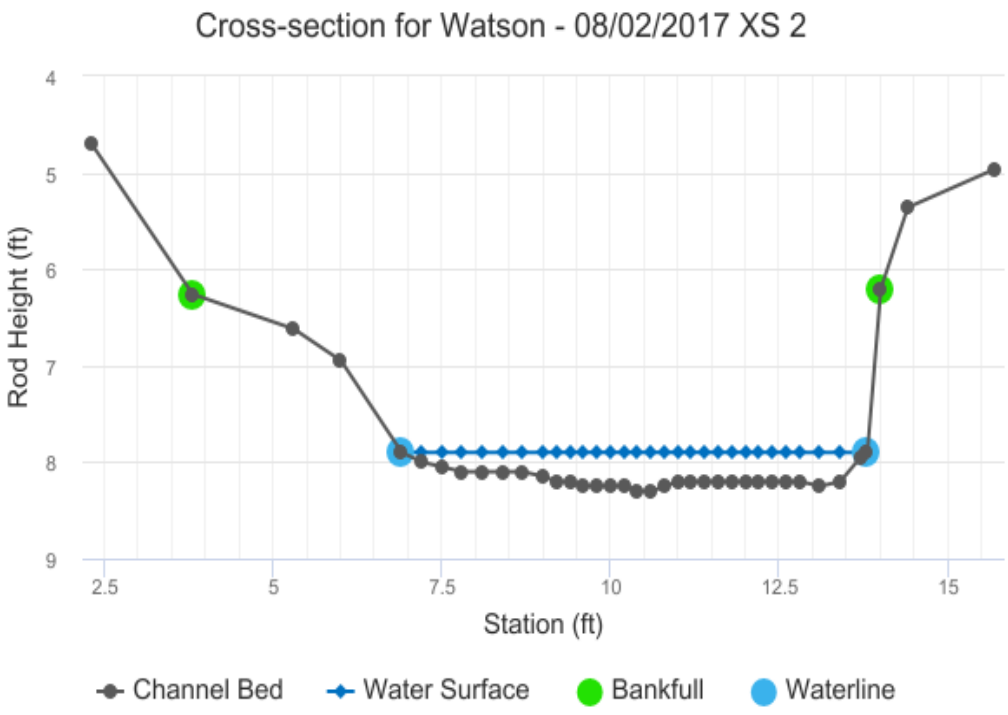
Measured Flow (Qm) =	2.57
Calculated Flow (Qc) =	2.57
(Qm-Qc)/Qm * 100 =	-0.01%
Measured Waterline (WLm) =	7.9
Calculated Waterline (WLc) =	7.9
(WLm-WLc)/WLm * 100 =	0.00%
Max Measured Depth (Dm) =	0.4
Max Calculated Depth (Dc) =	0.4
(Dm-Dc)/Dm * 100 =	-0.00%
Mean Velocity =	1.41
Manning's n =	0.044
0.4 * Qm =	1.03
2.5 * Qm =	6.42



FIELD DATA

Feature	Station (ft)	Rod Height (ft)	Water depth (ft)	Velocity (ft/s)
	2.3	4.7		
Bankfull	3.8	6.26		
	5.3	6.62		
	6	6.95		
Waterline	6.9	7.9	0	0
	7.2	8	0.1	0.04
	7.5	8.05	0.15	0.37
	7.8	8.1	0.2	0.56
	8.1	8.1	0.2	0.74
	8.4	8.1	0.2	0.89
	8.7	8.1	0.2	1.26
	9	8.15	0.25	1.44
	9.2	8.2	0.3	1.64
	9.4	8.2	0.3	1.76
	9.6	8.25	0.35	2.05
	9.8	8.25	0.35	2.18
	10	8.25	0.35	2.2
	10.2	8.25	0.35	1.89
	10.4	8.3	0.4	1.93
	10.6	8.3	0.4	2.12
	10.8	8.25	0.35	2.23
	11	8.2	0.3	2.29
	11.2	8.2	0.3	2.22
	11.4	8.2	0.3	2.17
	11.6	8.2	0.3	1.86
	11.8	8.2	0.3	1.53
	12	8.2	0.3	1.15
	12.2	8.2	0.3	0.66
	12.4	8.2	0.3	0.6
	12.6	8.2	0.3	0.7

	12.8	8.2	0.3	0.84
	13.1	8.25	0.35	0.72
	13.4	8.2	0.3	0.63
	13.7	7.95	0.05	0.07
Waterline	13.8	7.9	0	0
Bankfull	14	6.2		
	14.4	5.36		
	15.7	4.96		



COMPUTED FROM MEASURED FIELD DATA

Wetted Perimeter (ft)	Water Depth (ft)	Area (SQ ft)	Discharge (cfs)	Percent Discharge
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
0.32	0.1	0.03	0	0.05
0.3	0.15	0.04	0.02	0.65
0.3	0.2	0.06	0.03	1.31
0.3	0.2	0.06	0.04	1.73
0.3	0.2	0.06	0.05	2.08
0.3	0.2	0.06	0.08	2.94
0.3	0.25	0.06	0.09	3.5
0.21	0.3	0.06	0.1	3.83
0.2	0.3	0.06	0.11	4.11
0.21	0.35	0.07	0.14	5.59
0.2	0.35	0.07	0.15	5.94
0.2	0.35	0.07	0.15	6
0.2	0.35	0.07	0.13	5.15
0.21	0.4	0.08	0.15	6.01
0.2	0.4	0.08	0.17	6.6
0.21	0.35	0.07	0.16	6.08
0.21	0.3	0.06	0.14	5.35
0.2	0.3	0.06	0.13	5.19
0.2	0.3	0.06	0.13	5.07
0.2	0.3	0.06	0.11	4.35
0.2	0.3	0.06	0.09	3.58
0.2	0.3	0.06	0.07	2.69
0.2	0.3	0.06	0.04	1.54
0.2	0.3	0.06	0.04	1.4
0.2	0.3	0.06	0.04	1.64

0.2	0.3	0.07	0.06	2.45
0.3	0.35	0.1	0.08	2.94
0.3	0.3	0.09	0.06	2.21
0.39	0.05	0.01	0	0.03
0.11	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

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COLORADO
Colorado Water Conservation Board
Department of Natural Resources
1313 Sherman Street, Room 718
Denver, CO 80203

Watson Creek CWCB Temporary Streamgage

Location: 13N 335480 4447863

Installation Date: 5/6/2019

Equipment: Onset Hobo MX2001 water level logger, staff gage

Description: The streamgage consists of a data logger and pressure transducer protected in a 2 inch PVC pipe, secured to the bank with a t-pot fence post. The pressure transducer measured water level and temperature on 15 minute intervals in a large pool formed by a culvert. A co-located staff gage was used as a secondary water level measurement device.

Discharge Measurment Field Visit Data Report *(Filters: Name begins with Watson; Division = 6;)*

Div	Name	CWCB Case Number	Segment ID	Meas. Date	UTM	Location	Flow Amount (cfs)	Meas #	Rating	Station ID
6	Watson Creek		19/6/A-008	05/07/2018	UTMx: 333610 UTMy: 4445869	Watson Creek on BLM land	6.24	1	Fair(8%)	507
6	Watson Creek		19/6/A-008	05/06/2019	UTMx: 335840 UTMy: 4447863	Watson Creek at Co Rd 17	12.86	2	Fair(8%)	WATSOND6
6	Watson Creek		19/6/A-008	06/04/2019	UTMx: 335840 UTMy: 4447863	Watson Creek at Co Rd 17	12.28	3	Good(5%)	WATSOND6
6	Watson Creek		19/6/A-008	06/28/2019	UTMx: 335840 UTMy: 4447863	Watson Creek 50ft upstream of gage	11.54	4	G	WATSOND6
6	Watson Creek		19/6/A-008	07/29/2019	UTMx: 335840 UTMy: 4447863	Watson Creek 20ft DS of gage	10.25	5	P	WATSOND6
6	Watson Creek		19/6/A-008	07/29/2019	UTMx: 333604 UTMy: 4445870	Watson Creek at BLM boundary	4.62		F	
6	Watson Creek		19/6/A-008	11/07/2019	UTMx: 335840 UTMy: 4447863	Watson Creek - 100ft US of temp gage	3.6	6	Fair	WATSOND6
6	Watson Creek		19/6/A-008	12/06/2019	UTMx: 335840 UTMy: 4447863	Watson Creek 10ft downstream of temp gage	2.94	7	G	WATSOND6
6	Watson Creek		19/6/A-008	07/08/2020	UTMx: 335840 UTMy: 4447863	Upstream of co rd 117 culvert	3.59	8	P	WATSOND6
6	Watson Creek		19/6/A-008	07/23/2020	UTMx: 335840 UTMy: 4447863	10ft fromstream of Temp gage	6.16	9	G	WATSOND6
6	Watson Creek		19/6/A-008	09/18/2020	UTMx: 335840 UTMy: 4447863	30ft upst of gage	2.58	10	G	WATSOND6
6	Watson Creek		19/6/A-008	10/11/2020	UTMx: 335840 UTMy: 4447863	WATSOND6 gage	2.53	11	P	WATSOND6
6	Watson Creek		19/6/A-008	04/04/2021	UTMx: 335840 UTMy: 4447863	WATSOND6 gage	9.63	10	Good	WATSOND6
6	Watson Creek		19/6/A-008	06/09/2021	UTMx: 335840 UTMy: 4447863	Just above culvert at gage location	1.3	1		

Discharge Measurement Summary

Site name	Watson Creek - D6
Site number	0507
Operator(s)	Jack Landers
File name	20180507_Watson Creek - D6.ft
Comment	Spot meas

Start time	5/7/2018 3:45 PM
End time	5/7/2018 4:30 PM
Start location latitude	-
Start location longitude	-
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)
23	40	6.2383

Total width (ft)	Total area (ft²)	Wetted Perimeter (ft)
8.500	13.2900	12.003

Mean SNR (dB)	Mean depth (ft)	Mean velocity (ft/s)
45	1.564	0.4694

Mean temp (°F)	Max depth (ft)	Max velocity (ft/s)
54.592	2.750	0.7532

Discharge Uncertainty		
Category	**ISO**	**IVE**
Accuracy	1.0%	1.0%
Depth	0.1%	1.4%
Velocity	0.5%	3.2%
Width	0.1%	0.1%
Method	1.2%	
# Stations	2.2%	
Overall	**2.8%**	**3.6%**

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

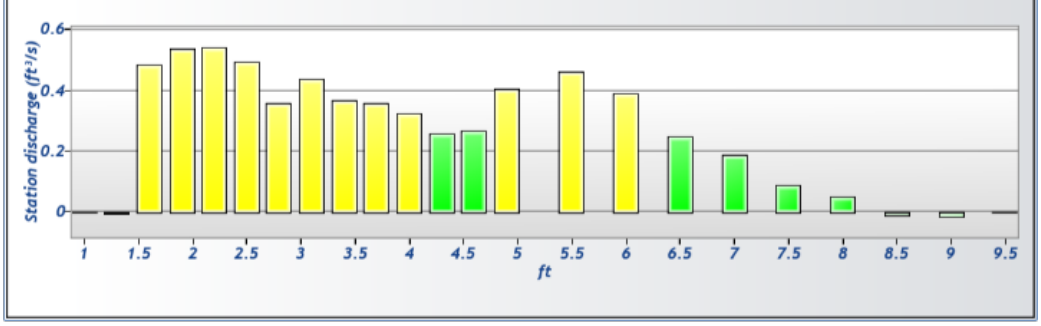
No changes were made to this file
Quality control warnings

Discharge Measurement Summary

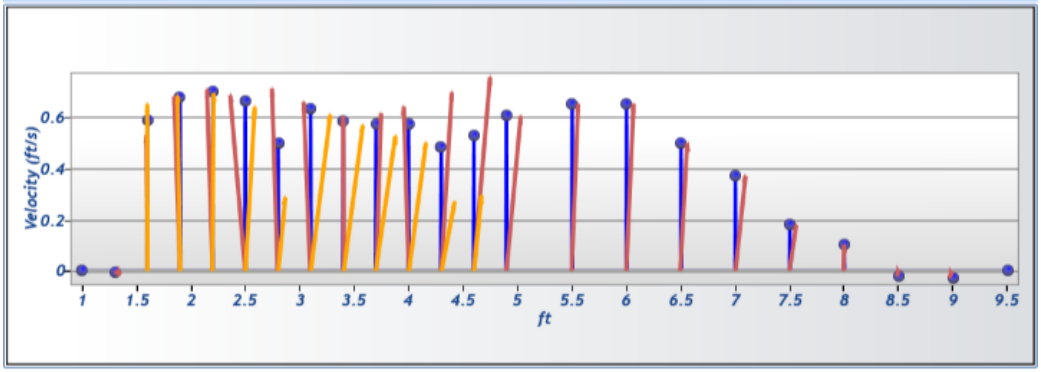
Site name	Watson Creek - D6
Site number	0507
Operator(s)	Jack Landers
File name	20180507_Watson Creek - D6.ft
Comment	Spot meas

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%	

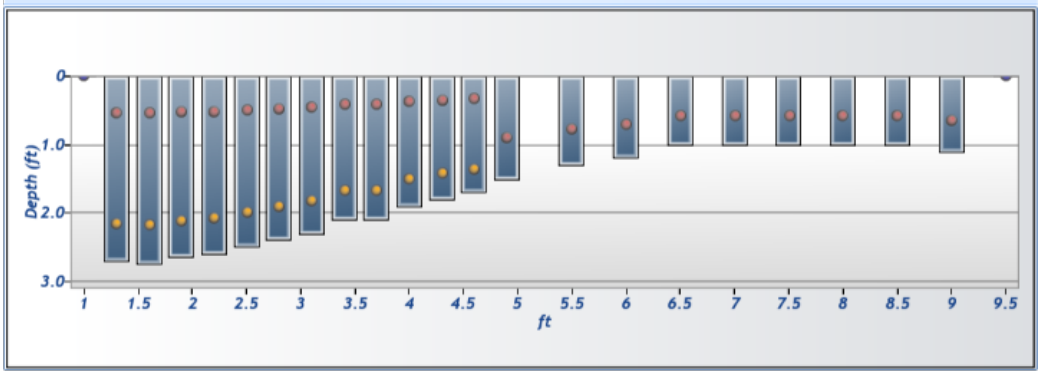
Discharge chart



Velocity chart



Depth chart



Discharge Measurement Summary

Site name	Watson Creek - D6
Site number	0507
Operator(s)	Jack Landers
File name	20180507_Watson Creek - D6.ft
Comment	Spot 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	3:45 PM	1.000	None	0.000	0.0000	0.000	0	0.0000	1.0000	-0.0056	0.0000	0.0000	0.00	✓
1	3:46 PM	1.300	0.2/0.8	2.700	0.2000	0.540	80	0.0005	1.0000	-0.0056	0.8100	-0.0045	-0.07	✓
1	3:46 PM	1.300	0.2/0.8	2.700	0.8000	2.160	80	-0.0117	1.0000	-0.0056	0.8100	-0.0045	-0.07	✓
2	3:50 PM	1.600	0.2/0.8	2.750	0.2000	0.550	80	0.5292	1.0000	0.5888	0.8250	0.4858	7.79	✓
2	3:50 PM	1.600	0.2/0.8	2.750	0.8000	2.200	80	0.6483	1.0000	0.5888	0.8250	0.4858	7.79	✓
3	3:52 PM	1.900	0.2/0.8	2.650	0.2000	0.530	80	0.6776	1.0000	0.6788	0.7950	0.5397	8.65	✓
3	3:52 PM	1.900	0.2/0.8	2.650	0.8000	2.120	80	0.6800	1.0000	0.6788	0.7950	0.5397	8.65	✓
4	3:55 PM	2.200	0.2/0.8	2.600	0.2000	0.520	80	0.7041	1.0000	0.6967	0.7800	0.5435	8.71	✓
4	3:55 PM	2.200	0.2/0.8	2.600	0.8000	2.080	80	0.6893	1.0000	0.6967	0.7800	0.5435	8.71	✓
5	3:57 PM	2.500	0.2/0.8	2.500	0.2000	0.500	80	0.6831	1.0000	0.6601	0.7500	0.4951	7.94	✓
5	3:57 PM	2.500	0.2/0.8	2.500	0.8000	2.000	80	0.6371	1.0000	0.6601	0.7500	0.4951	7.94	✓
6	4:00 PM	2.800	0.2/0.8	2.400	0.2000	0.480	80	0.7082	1.0000	0.4974	0.7200	0.3581	5.74	✓
6	4:00 PM	2.800	0.2/0.8	2.400	0.8000	1.920	80	0.2865	1.0000	0.4974	0.7200	0.3581	5.74	✓
7	4:03 PM	3.100	0.2/0.8	2.300	0.2000	0.460	80	0.6558	1.0000	0.6315	0.6900	0.4358	6.99	✓
7	4:03 PM	3.100	0.2/0.8	2.300	0.8000	1.840	80	0.6073	1.0000	0.6315	0.6900	0.4358	6.99	✓
8	4:06 PM	3.400	0.2/0.8	2.100	0.2000	0.420	80	0.6000	1.0000	0.5829	0.6300	0.3672	5.89	✓
8	4:06 PM	3.400	0.2/0.8	2.100	0.8000	1.680	80	0.5658	1.0000	0.5829	0.6300	0.3672	5.89	✓
9	4:08 PM	3.700	0.2/0.8	2.100	0.2000	0.420	80	0.6126	1.0000	0.5682	0.6300	0.3579	5.74	✓
9	4:08 PM	3.700	0.2/0.8	2.100	0.8000	1.680	80	0.5237	1.0000	0.5682	0.6300	0.3579	5.74	✓
10	4:11 PM	4.000	0.2/0.8	1.900	0.2000	0.380	80	0.6389	1.0000	0.5681	0.5700	0.3238	5.19	✓
10	4:11 PM	4.000	0.2/0.8	1.900	0.8000	1.520	80	0.4974	1.0000	0.5681	0.5700	0.3238	5.19	✓
11	4:14 PM	4.300	0.2/0.8	1.800	0.2000	0.360	80	0.6939	1.0000	0.4817	0.5400	0.2601	4.17	✓
11	4:14 PM	4.300	0.2/0.8	1.800	0.8000	1.440	80	0.2696	1.0000	0.4817	0.5400	0.2601	4.17	✓
12	4:16 PM	4.600	0.2/0.8	1.700	0.2000	0.340	80	0.7532	1.0000	0.5237	0.5100	0.2671	4.28	✓
12	4:16 PM	4.600	0.2/0.8	1.700	0.8000	1.360	80	0.2943	1.0000	0.5237	0.5100	0.2671	4.28	✓
13	4:18 PM	4.900	0.6	1.500	0.6000	0.900	80	0.6018	1.0000	0.6018	0.6750	0.4062	6.51	✓
14	4:19 PM	5.500	0.6	1.300	0.6000	0.780	80	0.6491	1.0000	0.6491	0.7150	0.4641	7.44	✓
15	4:21 PM	6.000	0.6	1.200	0.6000	0.720	80	0.6496	1.0000	0.6496	0.6000	0.3898	6.25	✓
16	4:22 PM	6.500	0.6	1.000	0.6000	0.600	80	0.4965	1.0000	0.4965	0.5000	0.2482	3.98	✓
17	4:24 PM	7.000	0.6	1.000	0.6000	0.600	80	0.3701	1.0000	0.3701	0.5000	0.1850	2.97	✓
18	4:25 PM	7.500	0.6	1.000	0.6000	0.600	80	0.1784	1.0000	0.1784	0.5000	0.0892	1.43	✓
19	4:27 PM	8.000	0.6	1.000	0.6000	0.600	80	0.1029	1.0000	0.1029	0.5000	0.0515	0.83	✓
20	4:28 PM	8.500	0.6	1.000	0.6000	0.600	80	-0.0208	1.0000	-0.0208	0.5000	-0.0104	-0.17	✓
21	4:29 PM	9.000	0.6	1.100	0.6000	0.660	80	-0.0272	1.0000	-0.0272	0.5500	-0.0149	-0.24	✓
22	4:30 PM	9.500	None	0.000	0.0000	0.000	0	0.0000	1.0000	-0.0272	0.0000	0.0000	0.00	✓

Discharge Measurement Summary

Site name	Watson Creek - D6
Site number	0507
Operator(s)	Jack Landers
File name	20180507_Watson Creek - D6.ft
Comment	Spot 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	3:46 PM	1.300	0.2/0.8	2.700	0.2000	0.540	Water Depth > QC,Boundary Interference,Large SNR Variation
1	3:46 PM	1.300	0.2/0.8	2.700	0.8000	2.160	Water Depth > QC,Boundary Interference,Large SNR Variation
6	4:00 PM	2.800	0.2/0.8	2.400	0.2000	0.480	Low SNR,Beam SNRs Not Similar,SNR Threshold Variation,Standard Error > QC,High % Spikes
6	4:00 PM	2.800	0.2/0.8	2.400	0.8000	1.920	Low SNR,Beam SNRs Not Similar,SNR Threshold Variation,Standard Error > QC,High % Spikes
11	4:14 PM	4.300	0.2/0.8	1.800	0.2000	0.360	Velocity Angle > QC
11	4:14 PM	4.300	0.2/0.8	1.800	0.8000	1.440	Velocity Angle > QC
18	4:25 PM	7.500	0.6	1.000	0.6000	0.600	Large SNR Variation,SNR Threshold Variation
21	4:29 PM	9.000	0.6	1.100	0.6000	0.660	Large SNR Variation
22	4:30 PM	9.500	None	0.000	0.0000	0.000	Water Depth > QC

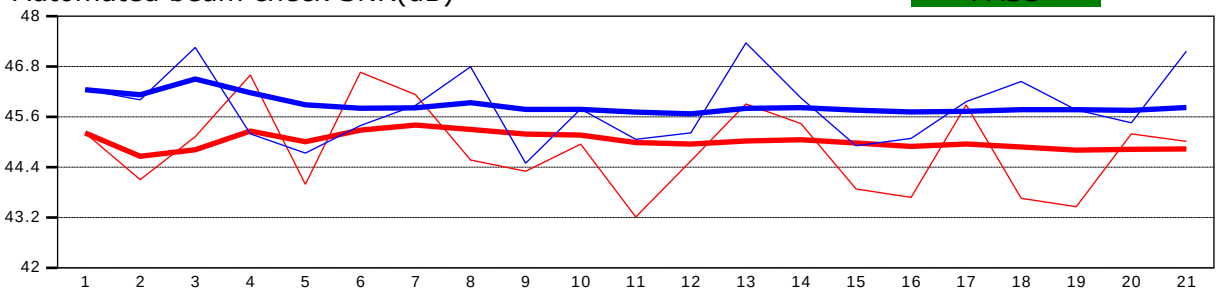
Discharge Measurement Summary

Site name	Watson Creek - D6
Site number	0507
Operator(s)	Jack Landers
File name	20180507_Watson Creek - D6.ft
Comment	Spot meas

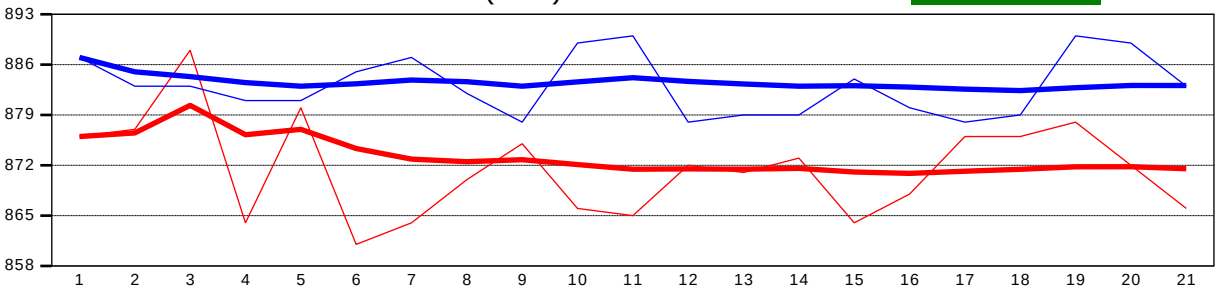
Beam 1	
Beam 2	

Automated beam check Start time 5/7/2018 3:45:14 PM

Automated beam check SNR(dB) PASS



Automated beam check Noise level(cnts) PASS



Automated beam check Quality control warnings

No quality control warnings

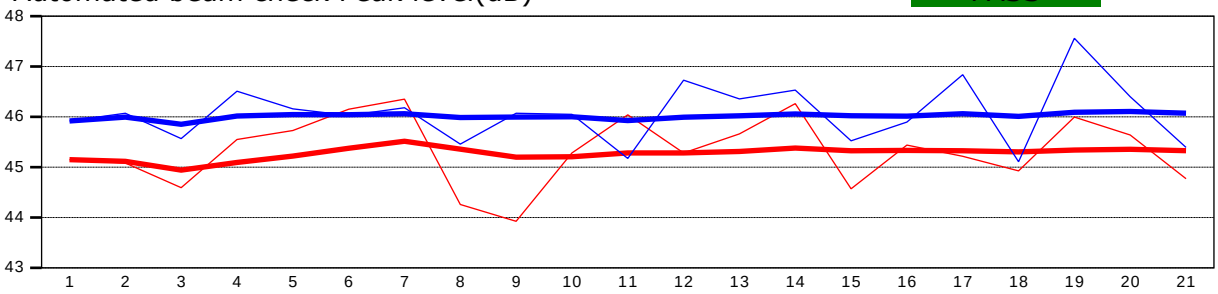
Discharge Measurement Summary

Site name	Watson Creek - D6
Site number	0507
Operator(s)	Jack Landers
File name	20180507_Watson Creek - D6.ft
Comment	Spot meas

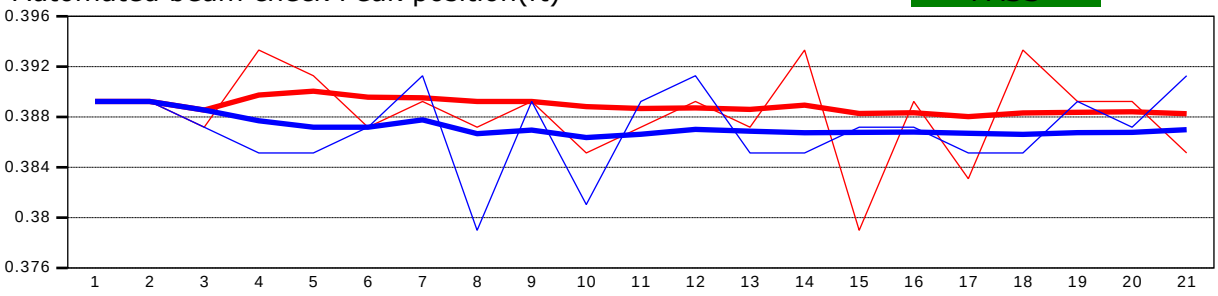
Beam 1	
Beam 2	

Automated beam check Start time 5/7/2018 3:45:14 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	WATSOND6
Site number	001
Operator(s)	JEL
File name	WATSOND6_20190506-161141.ft
Comment	Temp gage

Start time	5/6/2019 3:36 PM
End time	5/6/2019 4:10 PM
Start location latitude	40.165
Start location longitude	-106.928
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)
22	40	12.8648

Total width (ft)	Total area (ft²)	Wetted Perimeter (ft)
9.000	10.1725	10.278

Mean SNR (dB)	Mean depth (ft)	Mean velocity (ft/s)
46	1.130	1.2647

Mean temp (°F)	Max depth (ft)	Max velocity (ft/s)
53.118	1.800	1.6989

Discharge Uncertainty		
Category	**ISO**	**IVE**
Accuracy	1.0%	1.0%
Depth	0.2%	1.9%
Velocity	0.3%	3.6%
Width	0.1%	0.1%
Method	1.7%	
# Stations	2.3%	
Overall	**3.0%**	**4.2%**

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 %

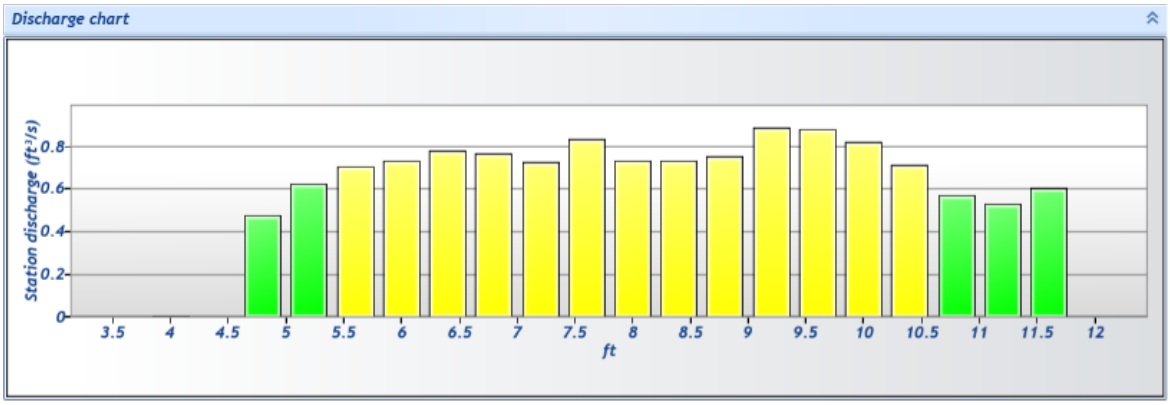
Summary overview

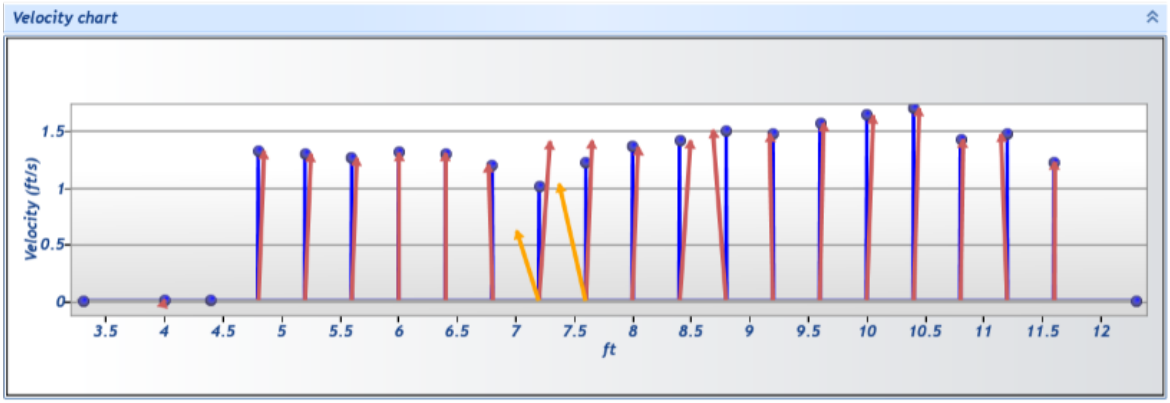
No changes were made to this file
Quality control warnings

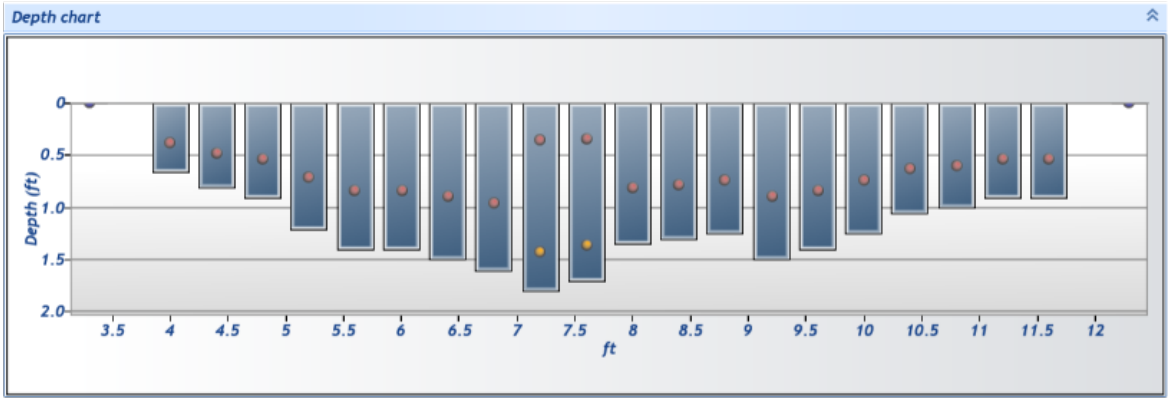
Discharge Measurement Summary

Site name	WATSOND6
Site number	001
Operator(s)	JEL
File name	WATSOND6_20190506-161141.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	WATSOND6
Site number	001
Operator(s)	JEL
File name	WATSOND6_20190506-161141.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	3:36 PM	3.300	None	0.000	0.0000	0.000	0	0.0000	1.0000	0.0098	0.0000	0.0000	0.00	✓
1	3:37 PM	4.000	0.6	0.650	0.6000	0.390	80	0.0098	1.0000	0.0098	0.3575	0.0035	0.03	✓
2	3:38 PM	4.400	0.6	0.800	0.6000	0.480	80	0.0006	1.0000	0.0006	0.3200	0.0002	0.00	✓
3	3:39 PM	4.800	0.6	0.900	0.6000	0.540	80	1.3230	1.0000	1.3230	0.3600	0.4763	3.70	✓
4	3:40 PM	5.200	0.6	1.200	0.6000	0.720	80	1.2966	1.0000	1.2966	0.4800	0.6223	4.84	✓
5	3:41 PM	5.600	0.6	1.400	0.6000	0.840	80	1.2607	1.0000	1.2607	0.5600	0.7060	5.49	✓
6	3:42 PM	6.000	0.6	1.400	0.6000	0.840	80	1.3049	1.0000	1.3049	0.5600	0.7307	5.68	✓
7	3:44 PM	6.400	0.6	1.500	0.6000	0.900	80	1.3007	1.0000	1.3007	0.6000	0.7804	6.07	✓
8	3:45 PM	6.800	0.6	1.600	0.6000	0.960	80	1.1985	1.0000	1.1985	0.6400	0.7670	5.96	✓
9	3:46 PM	7.200	0.2/0.8	1.800	0.2000	0.360	80	1.4064	1.0000	1.0112	0.7200	0.7281	5.66	✓
9	3:46 PM	7.200	0.2/0.8	1.800	0.8000	1.440	80	0.6160	1.0000	1.0112	0.7200	0.7281	5.66	✓
10	3:48 PM	7.600	0.2/0.8	1.700	0.2000	0.340	80	1.4121	1.0000	1.2218	0.6800	0.8309	6.46	✓
10	3:48 PM	7.600	0.2/0.8	1.700	0.8000	1.360	80	1.0316	1.0000	1.2218	0.6800	0.8309	6.46	✓
11	3:50 PM	8.000	0.6	1.350	0.6000	0.810	80	1.3555	1.0000	1.3555	0.5400	0.7320	5.69	✓
12	3:51 PM	8.400	0.6	1.300	0.6000	0.780	80	1.4135	1.0000	1.4135	0.5200	0.7350	5.71	✓
13	3:52 PM	8.800	0.6	1.250	0.6000	0.750	80	1.5054	1.0000	1.5054	0.5000	0.7527	5.85	✓
14	3:54 PM	9.200	0.6	1.500	0.6000	0.900	80	1.4742	1.0000	1.4742	0.6000	0.8845	6.88	✓
15	3:55 PM	9.600	0.6	1.400	0.6000	0.840	80	1.5679	1.0000	1.5679	0.5600	0.8780	6.83	✓
16	3:56 PM	10.000	0.6	1.250	0.6000	0.750	80	1.6371	1.0000	1.6371	0.5000	0.8186	6.36	✓
17	3:57 PM	10.400	0.6	1.050	0.6000	0.630	80	1.6989	1.0000	1.6989	0.4200	0.7135	5.55	✓
18	3:58 PM	10.800	0.6	1.000	0.6000	0.600	80	1.4254	1.0000	1.4254	0.4000	0.5702	4.43	✓
19	3:59 PM	11.200	0.6	0.900	0.6000	0.540	80	1.4692	1.0000	1.4692	0.3600	0.5289	4.11	✓
20	4:09 PM	11.600	0.6	0.900	0.6000	0.540	80	1.2243	1.0000	1.2243	0.4950	0.6060	4.71	✓
21	4:10 PM	12.300	None	0.000	0.0000	0.000	0	0.0000	1.0000	1.2243	0.0000	0.0000	0.00	✓

Discharge Measurement Summary

Site name	WATSOND6
Site number	001
Operator(s)	JEL
File name	WATSOND6_20190506-161141.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	3:37 PM	4.000	0.6	0.650	0.6000	0.390	Beam SNRs Not Similar,Large SNR Variation
2	3:38 PM	4.400	0.6	0.800	0.6000	0.480	Large SNR Variation
21	4:10 PM	12.300	None	0.000	0.0000	0.000	Water Depth > QC

Discharge Measurement Summary

Site name	WATSOND6
Site number	001
Operator(s)	JEL
File name	WATSOND6_20190506-161141.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
5/6/2019 3:36 PM	3.100				

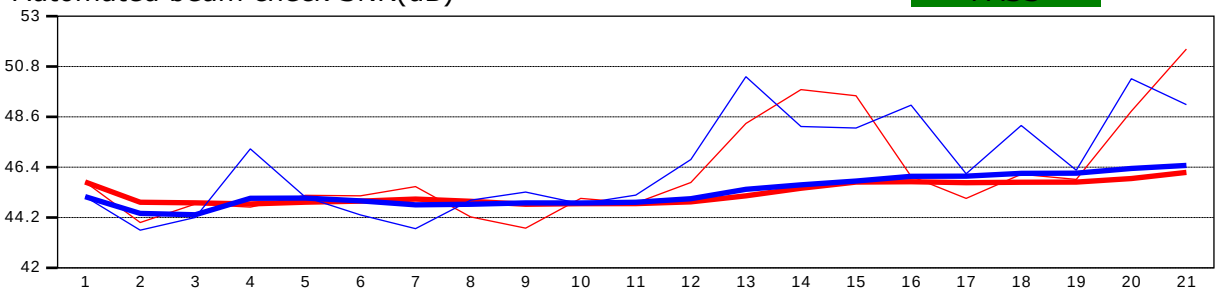
Discharge Measurement Summary

Site name	WATSOND6
Site number	001
Operator(s)	JEL
File name	WATSOND6_20190506-161141.ft
Comment	Temp gage

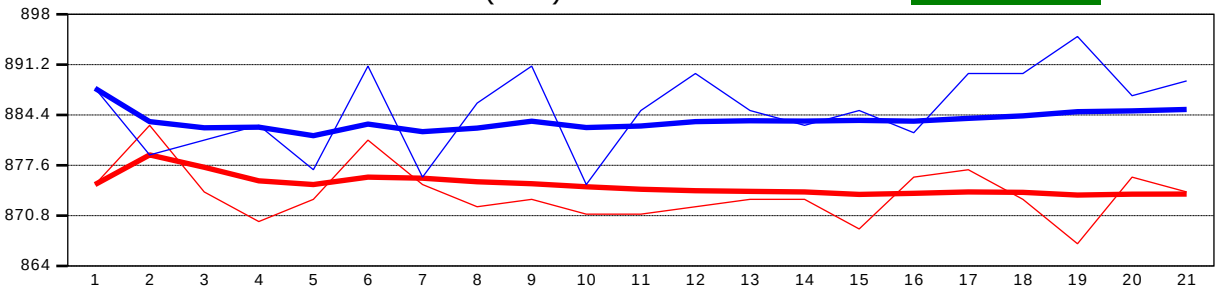
Beam 1	
Beam 2	

Automated beam check Start time 5/6/2019 3:35:40 PM

Automated beam check SNR(dB) PASS



Automated beam check Noise level(cnts) PASS



Automated beam check Quality control warnings

No quality control warnings

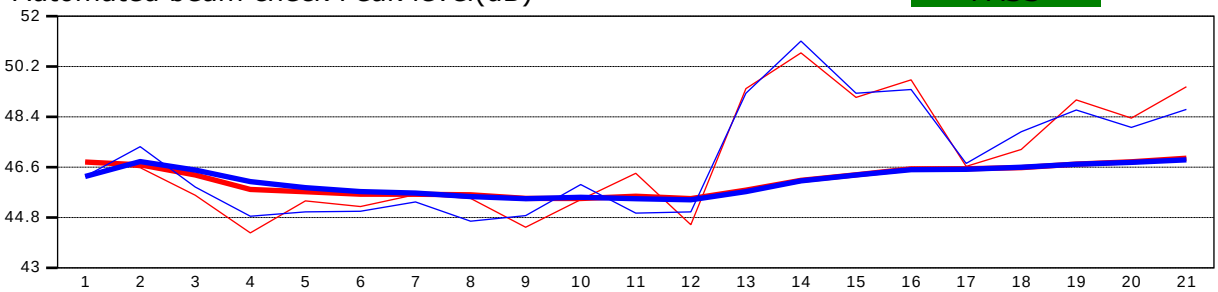
Discharge Measurement Summary

Site name	WATSOND6
Site number	001
Operator(s)	JEL
File name	WATSOND6_20190506-161141.ft
Comment	Temp gage

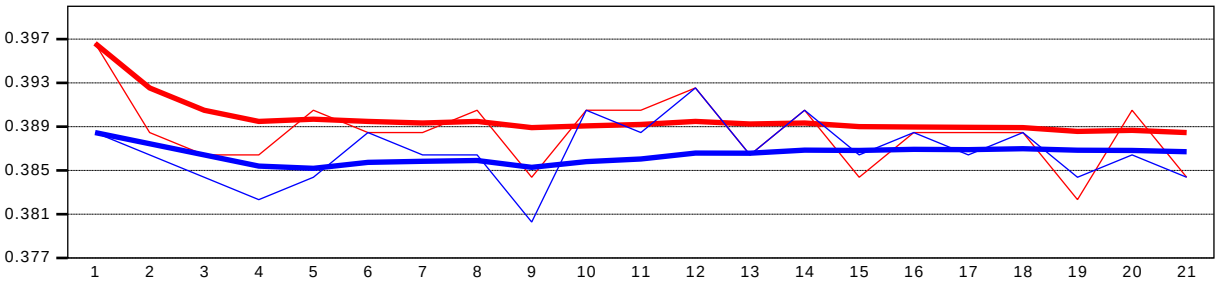
Beam 1	
Beam 2	

Automated beam check Start time 5/6/2019 3:35:40 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	Watson Cr
Site number	002
Operator(s)	JEL
File name	Watson Cr_20190604-100146.ft
Comment	Temp gage

Start time	6/4/2019 9:34 AM
End time	6/4/2019 10:00 AM
Start location latitude	40.165
Start location longitude	-106.928
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)
24	40	12.2847

Total width (ft)	Total area (ft²)	Wetted Perimeter (ft)
11.600	12.5660	12.905

Mean SNR (dB)	Mean depth (ft)	Mean velocity (ft/s)
46	1.083	0.9776

Mean temp (°F)	Max depth (ft)	Max velocity (ft/s)
50.771	1.300	1.5145

Discharge Uncertainty		
Category	**ISO**	**IVE**
Accuracy	1.0%	1.0%
Depth	0.1%	2.0%
Velocity	0.7%	4.5%
Width	0.1%	0.1%
Method	1.7%	
# Stations	2.1%	
Overall	**3.0%**	**5.0%**

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

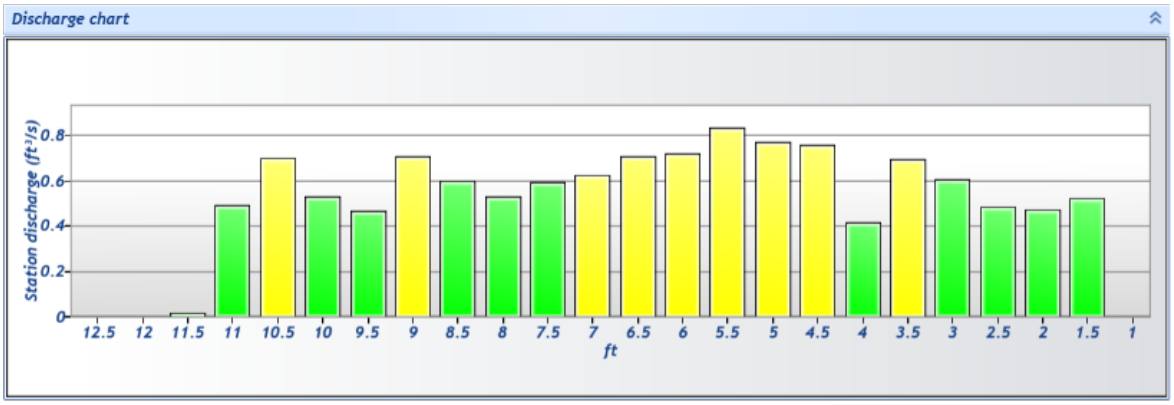
No changes were made to this file
Quality control warnings

Discharge Measurement Summary

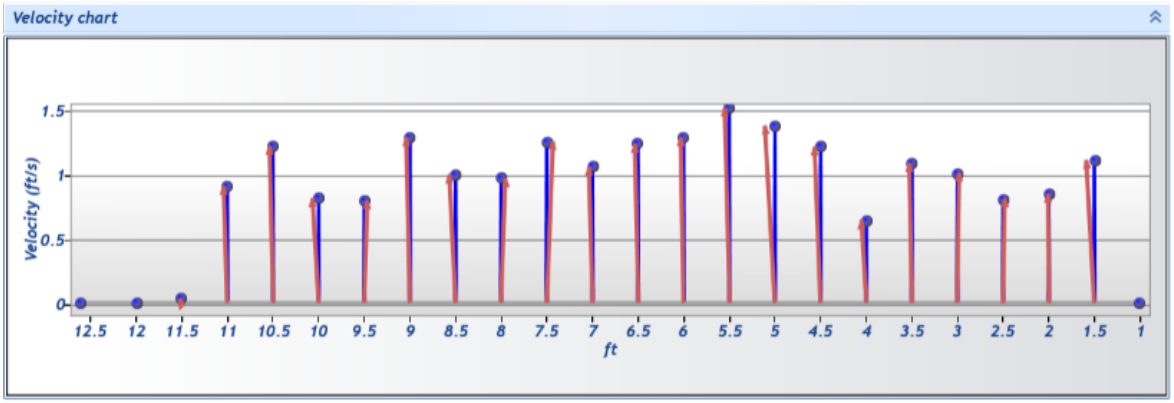
Site name	Watson Cr
Site number	002
Operator(s)	JEL
File name	Watson Cr_20190604-100146.ft
Comment	Temp gage

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%	

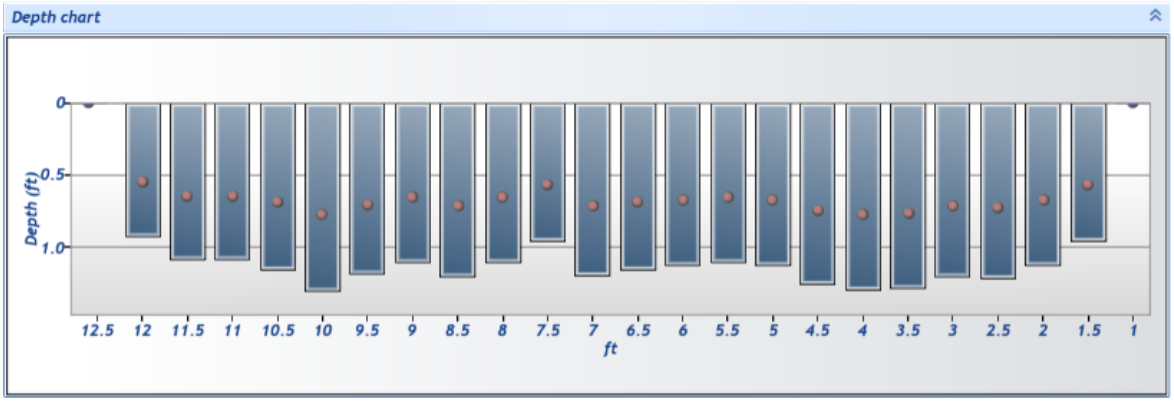
Discharge chart



Velocity chart



Depth chart



Discharge Measurement Summary

Site name	Watson Cr
Site number	002
Operator(s)	JEL
File name	Watson Cr_20190604-100146.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	9:34 AM	1.000	None	0.000	0.0000	0.000	0	0.0000	1.0000	1.1114	0.0000	0.0000	0.00	✓
1	9:35 AM	1.500	0.6	0.950	0.6000	0.570	80	1.1114	1.0000	1.1114	0.4750	0.5279	4.30	✓
2	9:36 AM	2.000	0.6	1.120	0.6000	0.672	80	0.8457	1.0000	0.8457	0.5600	0.4736	3.86	✓
3	9:38 AM	2.500	0.6	1.210	0.6000	0.726	80	0.8097	1.0000	0.8097	0.6050	0.4899	3.99	✓
4	9:39 AM	3.000	0.6	1.200	0.6000	0.720	80	1.0118	1.0000	1.0118	0.6000	0.6071	4.94	✓
5	9:40 AM	3.500	0.6	1.280	0.6000	0.768	80	1.0873	1.0000	1.0873	0.6400	0.6959	5.66	✓
6	9:41 AM	4.000	0.6	1.290	0.6000	0.774	80	0.6442	1.0000	0.6442	0.6450	0.4155	3.38	✓
7	9:42 AM	4.500	0.6	1.250	0.6000	0.750	80	1.2139	1.0000	1.2139	0.6250	0.7587	6.18	✓
8	9:43 AM	5.000	0.6	1.120	0.6000	0.672	80	1.3773	1.0000	1.3773	0.5600	0.7713	6.28	✓
9	9:44 AM	5.500	0.6	1.100	0.6000	0.660	80	1.5145	1.0000	1.5145	0.5500	0.8330	6.78	✓
10	9:45 AM	6.000	0.6	1.120	0.6000	0.672	80	1.2888	1.0000	1.2888	0.5600	0.7218	5.88	✓
11	9:47 AM	6.500	0.6	1.150	0.6000	0.690	80	1.2366	1.0000	1.2366	0.5750	0.7110	5.79	✓
12	9:48 AM	7.000	0.6	1.190	0.6000	0.714	80	1.0575	1.0000	1.0575	0.5950	0.6292	5.12	✓
13	9:49 AM	7.500	0.6	0.950	0.6000	0.570	80	1.2550	1.0000	1.2550	0.4750	0.5961	4.85	✓
14	9:50 AM	8.000	0.6	1.100	0.6000	0.660	80	0.9713	1.0000	0.9713	0.5500	0.5342	4.35	✓
15	9:51 AM	8.500	0.6	1.200	0.6000	0.720	80	0.9976	1.0000	0.9976	0.6000	0.5985	4.87	✓
16	9:52 AM	9.000	0.6	1.100	0.6000	0.660	80	1.2898	1.0000	1.2898	0.5500	0.7094	5.77	✓
17	9:53 AM	9.500	0.6	1.180	0.6000	0.708	80	0.7943	1.0000	0.7943	0.5900	0.4686	3.81	✓
18	9:54 AM	10.000	0.6	1.300	0.6000	0.780	80	0.8167	1.0000	0.8167	0.6500	0.5309	4.32	✓
19	9:56 AM	10.500	0.6	1.150	0.6000	0.690	80	1.2203	1.0000	1.2203	0.5750	0.7017	5.71	✓
20	9:57 AM	11.000	0.6	1.080	0.6000	0.648	80	0.9109	1.0000	0.9109	0.5400	0.4919	4.00	✓
21	9:58 AM	11.500	0.6	1.080	0.6000	0.648	80	0.0339	1.0000	0.0339	0.5400	0.0183	0.15	✓
22	9:59 AM	12.000	0.6	0.920	0.6000	0.552	80	0.0005	1.0000	0.0005	0.5060	0.0002	0.00	✓
23	10:00 AM	12.600	None	0.000	0.0000	0.000	0	0.0000	1.0000	0.0005	0.0000	0.0000	0.00	✓

Discharge Measurement Summary

Site name	Watson Cr
Site number	002
Operator(s)	JEL
File name	Watson Cr_20190604-100146.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
6	9:41 AM	4.000	0.6	1.290	0.6000	0.774	Standard Error > QC
7	9:42 AM	4.500	0.6	1.250	0.6000	0.750	Standard Error > QC
9	9:44 AM	5.500	0.6	1.100	0.6000	0.660	Standard Error > QC
10	9:45 AM	6.000	0.6	1.120	0.6000	0.672	Standard Error > QC
12	9:48 AM	7.000	0.6	1.190	0.6000	0.714	Large SNR Variation
14	9:50 AM	8.000	0.6	1.100	0.6000	0.660	Standard Error > QC
15	9:51 AM	8.500	0.6	1.200	0.6000	0.720	Standard Error > QC
16	9:52 AM	9.000	0.6	1.100	0.6000	0.660	Standard Error > QC
18	9:54 AM	10.000	0.6	1.300	0.6000	0.780	Standard Error > QC
21	9:58 AM	11.500	0.6	1.080	0.6000	0.648	Boundary Interference,Large SNR Variation
22	9:59 AM	12.000	0.6	0.920	0.6000	0.552	Beam SNRs Not Similar,SNR Threshold Variation
23	10:00 AM	12.600	None	0.000	0.0000	0.000	Water Depth > QC

Discharge Measurement Summary

Site name	Watson Cr
Site number	002
Operator(s)	JEL
File name	Watson Cr_20190604-100146.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
6/4/2019 10:00 AM	3.030				

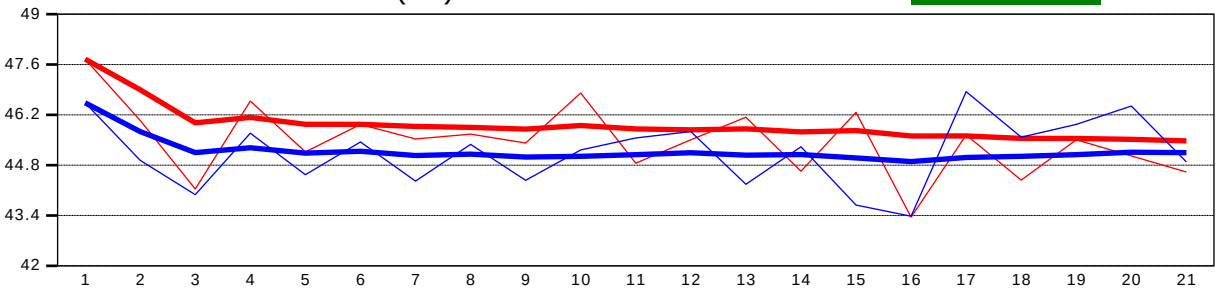
Discharge Measurement Summary

Site name	Watson Cr
Site number	002
Operator(s)	JEL
File name	Watson Cr_20190604-100146.ft
Comment	Temp gage

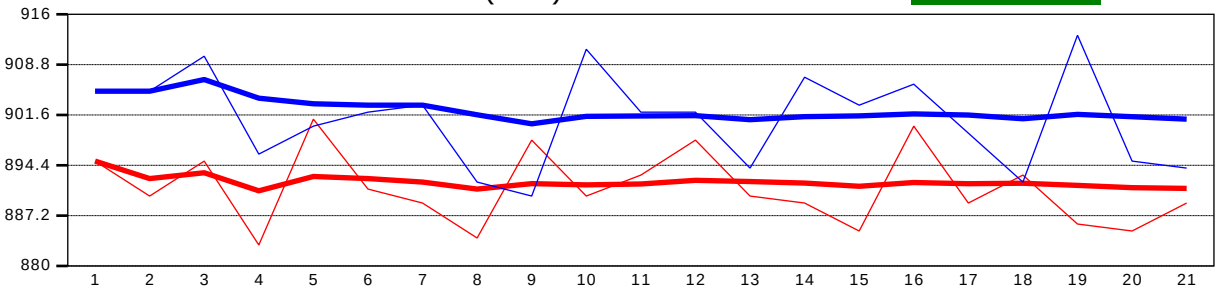
Beam 1	
Beam 2	

Automated beam check Start time 6/4/2019 9:34:10 AM

Automated beam check SNR(dB) PASS



Automated beam check Noise level(cnts) PASS



Automated beam check Quality control warnings

No quality control warnings

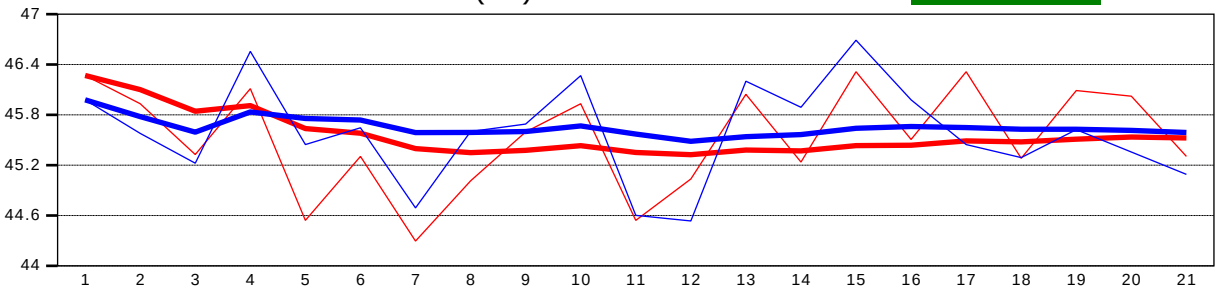
Discharge Measurement Summary

Site name	Watson Cr
Site number	002
Operator(s)	JEL
File name	Watson Cr_20190604-100146.ft
Comment	Temp gage

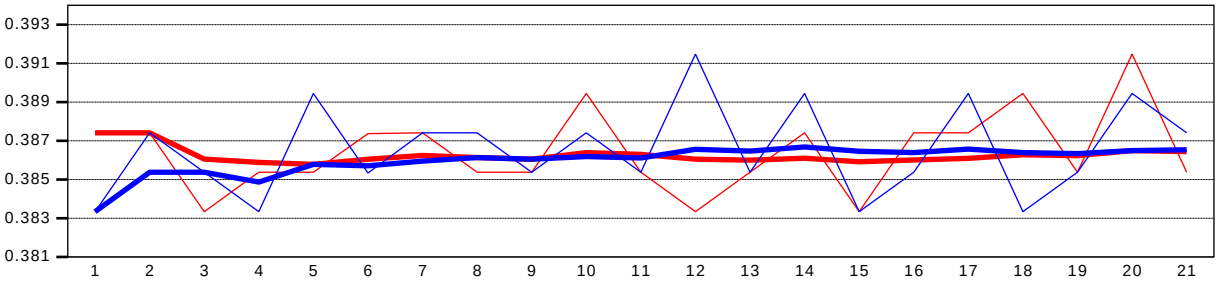
Beam 1	
Beam 2	

Automated beam check Start time 6/4/2019 9:34:10 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	Watson Creek D6
Site number	003
Operator(s)	JEL
File name	Watson Creek D6_20190628-104748.ft
Comment	Temp gage

Start time	6/28/2019 10:18 AM
End time	6/28/2019 10:44 AM
Start location latitude	40.165
Start location longitude	-106.928
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)
23	40	11.5425

Total width (ft)	Total area (ft²)	Wetted Perimeter (ft)
11.100	11.6990	12.390

Mean SNR (dB)	Mean depth (ft)	Mean velocity (ft/s)
44	1.054	0.9866

Mean temp (°F)	Max depth (ft)	Max velocity (ft/s)
56.255	1.700	1.2791

Discharge Uncertainty		
Category	**ISO**	**IVE**
Accuracy	1.0%	1.0%
Depth	0.2%	1.9%
Velocity	0.7%	3.0%
Width	0.1%	0.1%
Method	1.8%	
# Stations	2.2%	
Overall	**3.1%**	**3.7%**

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

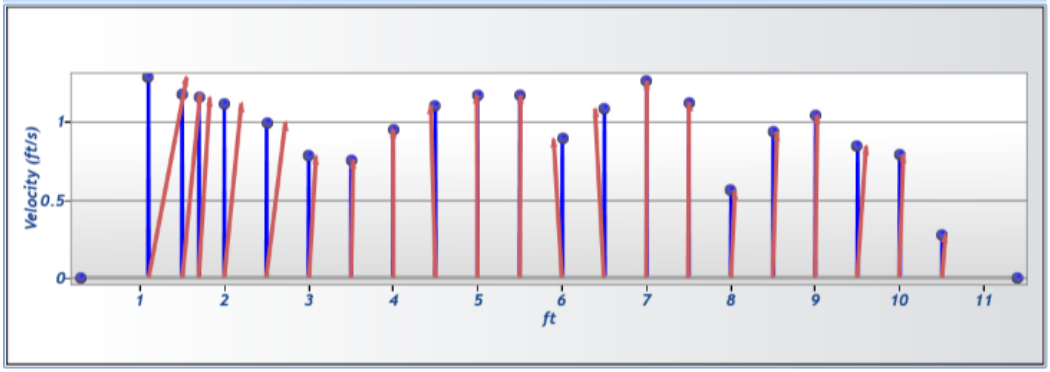
Discharge Measurement Summary

Site name	Watson Creek D6
Site number	003
Operator(s)	JEL
File name	Watson Creek D6_20190628-104748.ft
Comment	Temp gage

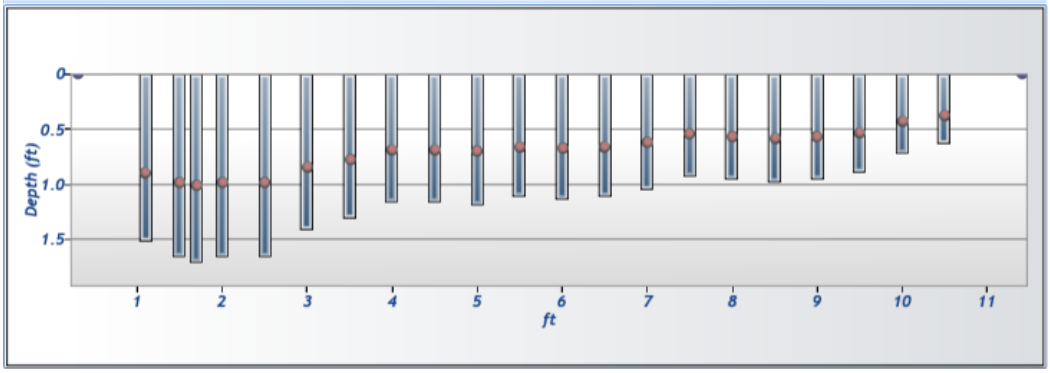
Station Warning Settings		
Station discharge OK	Station discharge < 5.00%	
Station discharge caution	5.00% >= Station discharge < 10.00%	
Station discharge warning	Station discharge >= 10.00%	

Discharge chart

Velocity chart



Depth chart



Discharge Measurement Summary

Site name	Watson Creek D6
Site number	003
Operator(s)	JEL
File name	Watson Creek D6_20190628-104748.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	10:18 AM	0.300	None	0.000	0.0000	0.000	0	0.0000	1.0000	1.2791	0.0000	0.0000	0.00	✓
1	10:19 AM	1.100	0.6	1.500	0.6000	0.900	80	1.2791	1.0000	1.2791	0.9000	1.1512	9.97	✓
2	10:20 AM	1.500	0.6	1.650	0.6000	0.990	80	1.1753	1.0000	1.1753	0.4950	0.5818	5.04	✓
3	10:44 AM	1.700	0.6	1.700	0.6000	1.020	80	1.1508	1.0000	1.1508	0.4250	0.4891	4.24	✓
4	10:22 AM	2.000	0.6	1.650	0.6000	0.990	80	1.1120	1.0000	1.1120	0.6600	0.7339	6.36	✓
5	10:23 AM	2.500	0.6	1.650	0.6000	0.990	80	0.9913	1.0000	0.9913	0.8250	0.8179	7.09	✓
6	10:24 AM	3.000	0.6	1.400	0.6000	0.840	80	0.7756	1.0000	0.7756	0.7000	0.5429	4.70	✓
7	10:25 AM	3.500	0.6	1.300	0.6000	0.780	80	0.7523	1.0000	0.7523	0.6500	0.4890	4.24	✓
8	10:27 AM	4.000	0.6	1.150	0.6000	0.690	80	0.9443	1.0000	0.9443	0.5750	0.5430	4.70	✓
9	10:28 AM	4.500	0.6	1.150	0.6000	0.690	80	1.1006	1.0000	1.1006	0.5750	0.6328	5.48	✓
10	10:29 AM	5.000	0.6	1.180	0.6000	0.708	80	1.1658	1.0000	1.1658	0.5900	0.6878	5.96	✓
11	10:30 AM	5.500	0.6	1.100	0.6000	0.660	80	1.1621	1.0000	1.1621	0.5500	0.6392	5.54	✓
12	10:31 AM	6.000	0.6	1.120	0.6000	0.672	80	0.8844	1.0000	0.8844	0.5600	0.4953	4.29	✓
13	10:33 AM	6.500	0.6	1.100	0.6000	0.660	80	1.0778	1.0000	1.0778	0.5500	0.5928	5.14	✓
14	10:34 AM	7.000	0.6	1.040	0.6000	0.624	80	1.2540	1.0000	1.2540	0.5200	0.6521	5.65	✓
15	10:35 AM	7.500	0.6	0.920	0.6000	0.552	80	1.1176	1.0000	1.1176	0.4600	0.5141	4.45	✓
16	10:36 AM	8.000	0.6	0.950	0.6000	0.570	80	0.5603	1.0000	0.5603	0.4750	0.2662	2.31	✓
17	10:37 AM	8.500	0.6	0.970	0.6000	0.582	80	0.9314	1.0000	0.9314	0.4850	0.4517	3.91	✓
18	10:38 AM	9.000	0.6	0.950	0.6000	0.570	80	1.0389	1.0000	1.0389	0.4750	0.4935	4.28	✓
19	10:39 AM	9.500	0.6	0.880	0.6000	0.528	80	0.8389	1.0000	0.8389	0.4400	0.3691	3.20	✓
20	10:41 AM	10.000	0.6	0.710	0.6000	0.426	80	0.7876	1.0000	0.7876	0.3550	0.2796	2.42	✓
21	10:42 AM	10.500	0.6	0.620	0.6000	0.372	80	0.2759	1.0000	0.2759	0.4340	0.1197	1.04	✓
22	10:43 AM	11.400	None	0.000	0.0000	0.000	0	0.0000	1.0000	0.2759	0.0000	0.0000	0.00	✓

Discharge Measurement Summary

Site name	Watson Creek D6
Site number	003
Operator(s)	JEL
File name	Watson Creek D6_20190628-104748.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
4	10:22 AM	2.000	0.6	1.650	0.6000	0.990	Standard Error > QC
5	10:23 AM	2.500	0.6	1.650	0.6000	0.990	Large SNR Variation
6	10:24 AM	3.000	0.6	1.400	0.6000	0.840	Standard Error > QC
16	10:36 AM	8.000	0.6	0.950	0.6000	0.570	Standard Error > QC

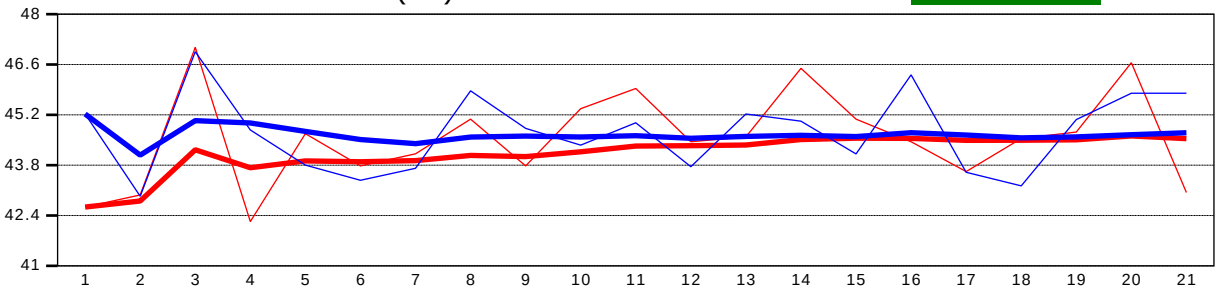
Discharge Measurement Summary

Site name	Watson Creek D6
Site number	003
Operator(s)	JEL
File name	Watson Creek D6_20190628-104748.ft
Comment	Temp gage

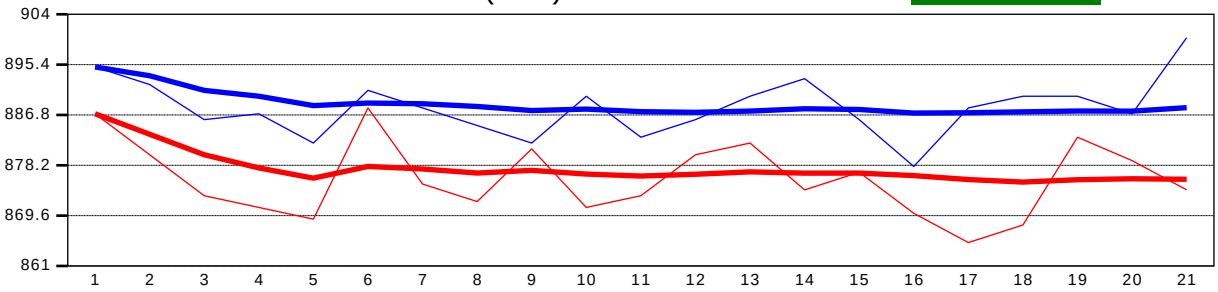
Beam 1	
Beam 2	

Automated beam check Start time 6/28/2019 10:18:31 AM

Automated beam check SNR(dB) PASS



Automated beam check Noise level(cnts) PASS



Automated beam check Quality control warnings

No quality control warnings

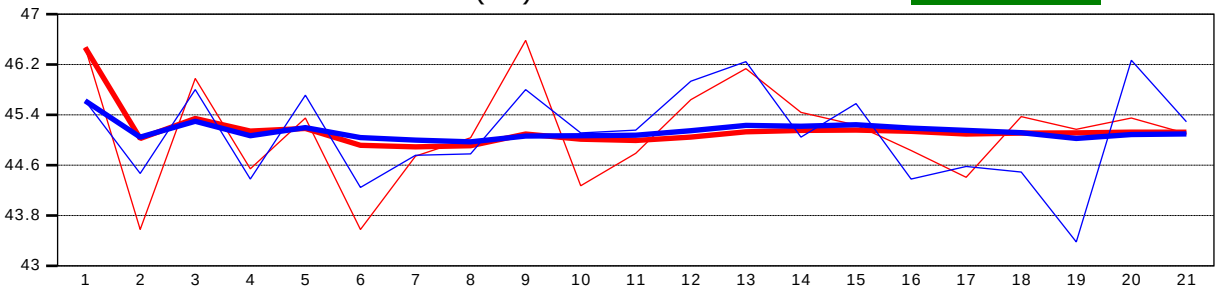
Discharge Measurement Summary

Site name	Watson Creek D6
Site number	003
Operator(s)	JEL
File name	Watson Creek D6_20190628-104748.ft
Comment	Temp gage

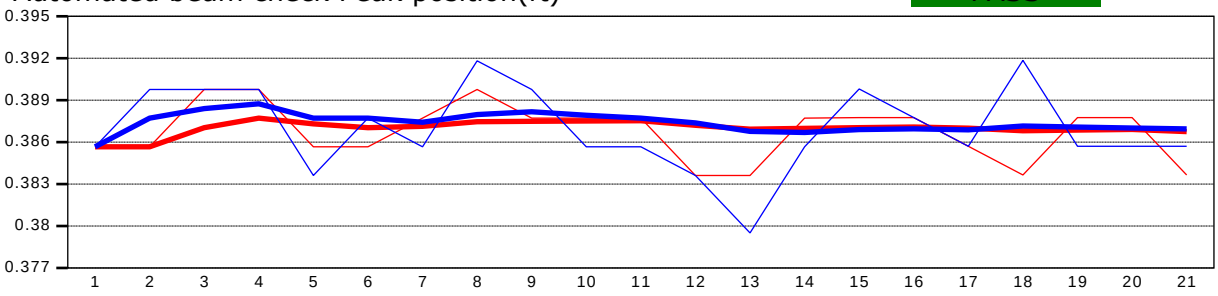
Beam 1	
Beam 2	

Automated beam check Start time 6/28/2019 10:18:31 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	Watson Creek at Co Rd 17
Site number	004
Operator(s)	Jack Landers
File name	Watson Creek at Co Rd 17_20190729-162757.ft
Comment	Temp gage

Start time	7/29/2019 4:12 PM
End time	7/29/2019 4:27 PM
Start location latitude	40.165
Start location longitude	-106.928
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)
14	40	10.2487

Total width (ft)	Total area (ft²)	Wetted Perimeter (ft)
5.100	5.2790	6.687

Mean SNR (dB)	Mean depth (ft)	Mean velocity (ft/s)
41	1.035	1.9414

Mean temp (°F)	Max depth (ft)	Max velocity (ft/s)
68.447	1.630	2.4679

Discharge Uncertainty		
Category	**ISO**	**IVE**
Accuracy	1.0%	1.0%
Depth	0.2%	3.1%
Velocity	0.5%	3.6%
Width	0.1%	0.1%
Method	2.2%	
# Stations	3.6%	
Overall	**4.4%**	**4.8%**

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 %

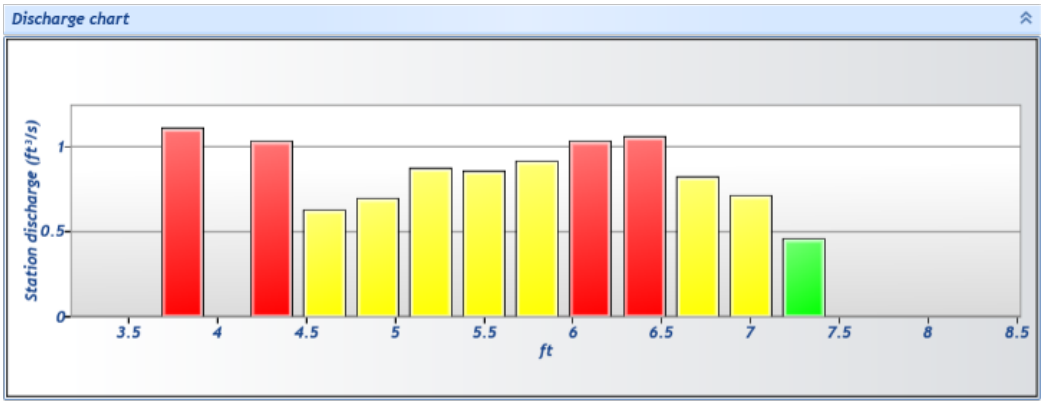
Summary overview

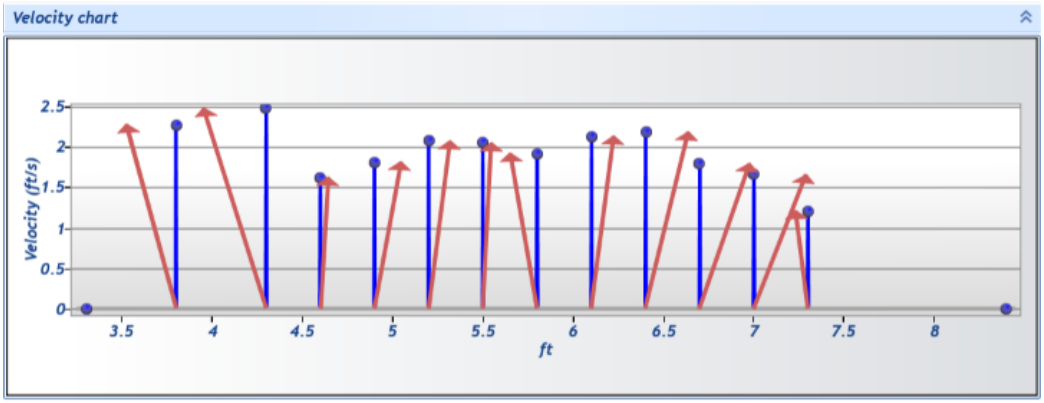
No changes were made to this file
Quality control warnings

Discharge Measurement Summary

Site name	Watson Creek at Co Rd 17
Site number	004
Operator(s)	Jack Landers
File name	Watson Creek at Co Rd 17_20190729-162757.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	Watson Creek at Co Rd 17
Site number	004
Operator(s)	Jack Landers
File name	Watson Creek at Co Rd 17_20190729-162757.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	4:12 PM	3.300	None	0.000	0.0000	0.000	0	0.0000	1.0000	2.2680	0.0000	0.0000	0.00	✓
1	4:12 PM	3.800	0.6	0.980	0.6000	0.588	80	2.2680	1.0000	2.2680	0.4900	1.1113	10.84	✓
2	4:14 PM	4.300	0.6	1.050	0.6000	0.630	80	2.4679	1.0000	2.4679	0.4200	1.0365	10.11	✓
3	4:15 PM	4.600	0.6	1.300	0.6000	0.780	80	1.6172	1.0000	1.6172	0.3900	0.6307	6.15	✓
4	4:17 PM	4.900	0.6	1.300	0.6000	0.780	80	1.8050	1.0000	1.8050	0.3900	0.7040	6.87	✓
5	4:18 PM	5.200	0.6	1.420	0.6000	0.852	80	2.0620	1.0000	2.0620	0.4260	0.8784	8.57	✓
6	4:19 PM	5.500	0.6	1.400	0.6000	0.840	80	2.0424	1.0000	2.0424	0.4200	0.8578	8.37	✓
7	4:20 PM	5.800	0.6	1.600	0.6000	0.960	80	1.9095	1.0000	1.9095	0.4800	0.9165	8.94	✓
8	4:21 PM	6.100	0.6	1.630	0.6000	0.978	80	2.1207	1.0000	2.1207	0.4890	1.0370	10.12	✓
9	4:22 PM	6.400	0.6	1.630	0.6000	0.978	80	2.1764	1.0000	2.1764	0.4890	1.0643	10.38	✓
10	4:23 PM	6.700	0.6	1.550	0.6000	0.930	80	1.7853	1.0000	1.7853	0.4650	0.8302	8.10	✓
11	4:24 PM	7.000	0.6	1.450	0.6000	0.870	80	1.6531	1.0000	1.6531	0.4350	0.7191	7.02	✓
12	4:25 PM	7.300	0.6	0.550	0.6000	0.330	80	1.2024	1.0000	1.2024	0.3850	0.4629	4.52	✓
13	4:27 PM	8.400	None	0.000	0.0000	0.000	0	0.0000	1.0000	1.2024	0.0000	0.0000	0.00	✓

Discharge Measurement Summary

Site name	Watson Creek at Co Rd 17
Site number	004
Operator(s)	Jack Landers
File name	Watson Creek at Co Rd 17_20190729-162757.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	4:12 PM	3.800	0.6	0.980	0.6000	0.588	Boundary Interference,High Stn % Discharge
2	4:14 PM	4.300	0.6	1.050	0.6000	0.630	High Stn % Discharge
3	4:15 PM	4.600	0.6	1.300	0.6000	0.780	Standard Error > QC
4	4:17 PM	4.900	0.6	1.300	0.6000	0.780	Standard Error > QC
5	4:18 PM	5.200	0.6	1.420	0.6000	0.852	Standard Error > QC
6	4:19 PM	5.500	0.6	1.400	0.6000	0.840	Standard Error > QC
7	4:20 PM	5.800	0.6	1.600	0.6000	0.960	Standard Error > QC
8	4:21 PM	6.100	0.6	1.630	0.6000	0.978	High Stn % Discharge
9	4:22 PM	6.400	0.6	1.630	0.6000	0.978	High Stn % Discharge
10	4:23 PM	6.700	0.6	1.550	0.6000	0.930	Standard Error > QC
11	4:24 PM	7.000	0.6	1.450	0.6000	0.870	Standard Error > QC
13	4:27 PM	8.400	None	0.000	0.0000	0.000	Stn Spacing > QC

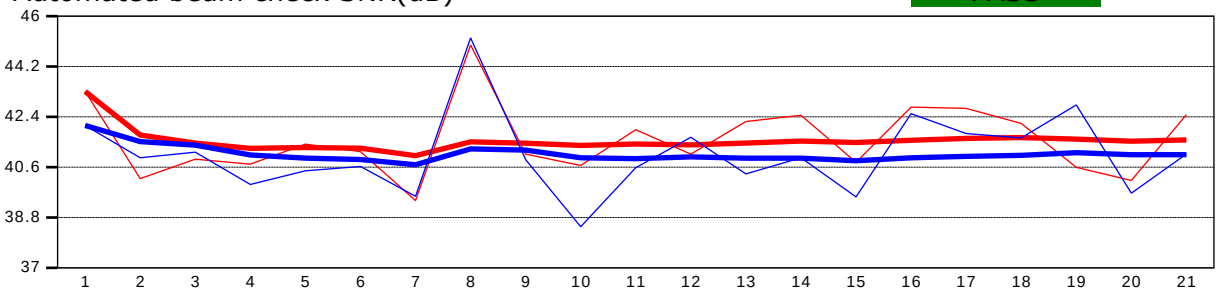
Discharge Measurement Summary

Site name	Watson Creek at Co Rd 17
Site number	004
Operator(s)	Jack Landers
File name	Watson Creek at Co Rd 17_20190729-162757.ft
Comment	Temp gage

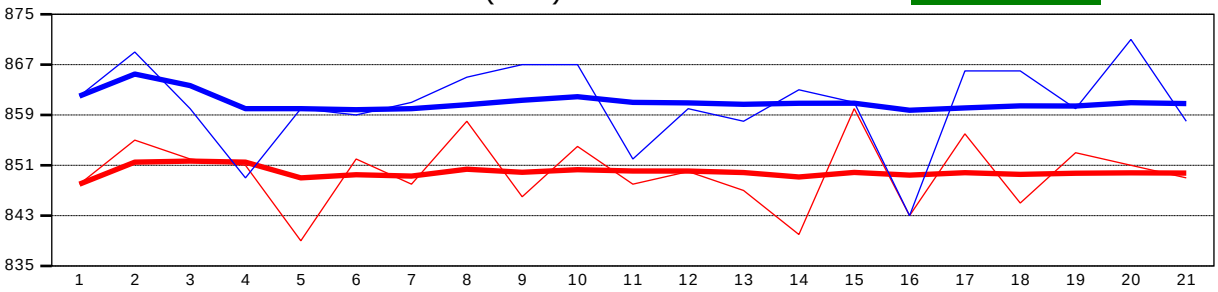
Beam 1	
Beam 2	

Automated beam check Start time 7/29/2019 4:11:54 PM

Automated beam check SNR(dB) PASS



Automated beam check Noise level(cnts) PASS



Automated beam check Quality control warnings

No quality control warnings

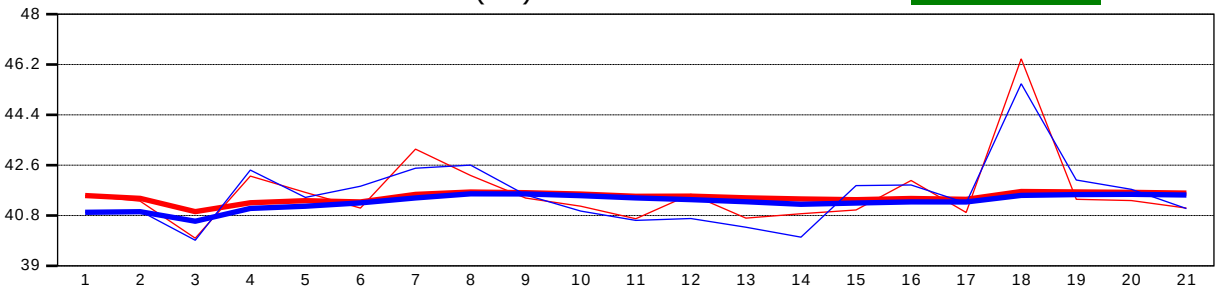
Discharge Measurement Summary

Site name	Watson Creek at Co Rd 17
Site number	004
Operator(s)	Jack Landers
File name	Watson Creek at Co Rd 17_20190729-162757.ft
Comment	Temp gage

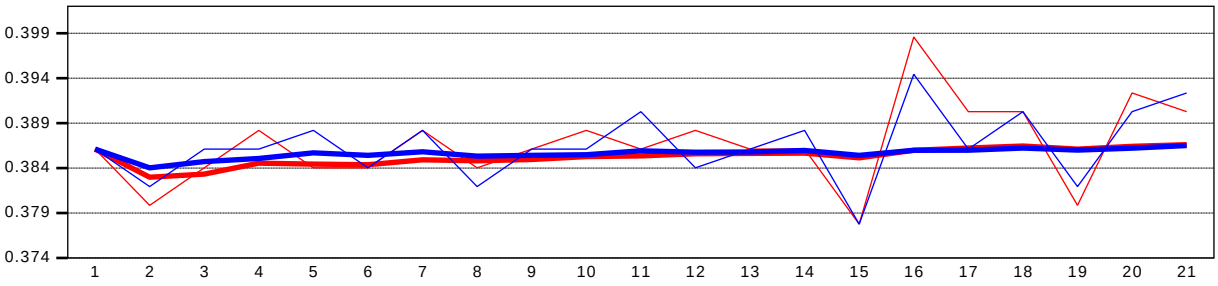
Beam 1	
Beam 2	

Automated beam check Start time 7/29/2019 4:11:54 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	Watson Cr on BLM
Site number	001
Operator(s)	JEL
File name	Watson Cr on BLM_20190729-180034.ft
Comment	Spot meas

Start time	7/29/2019 5:38 PM
End time	7/29/2019 5:59 PM
Start location latitude	40.147
Start location longitude	-106.953
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)
14	40	4.6209

Total width (ft)	Total area (ft²)	Wetted Perimeter (ft)
6.800	11.2675	9.889

Mean SNR (dB)	Mean depth (ft)	Mean velocity (ft/s)
43	1.657	0.4101

Mean temp (°F)	Max depth (ft)	Max velocity (ft/s)
63.416	2.850	0.5773

Discharge Uncertainty		
Category	**ISO**	**IVE**
Accuracy	1.0%	1.0%
Depth	0.2%	1.6%
Velocity	0.5%	3.8%
Width	0.2%	0.2%
Method	1.5%	
# Stations	3.6%	
Overall	**4.0%**	**4.3%**

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 %

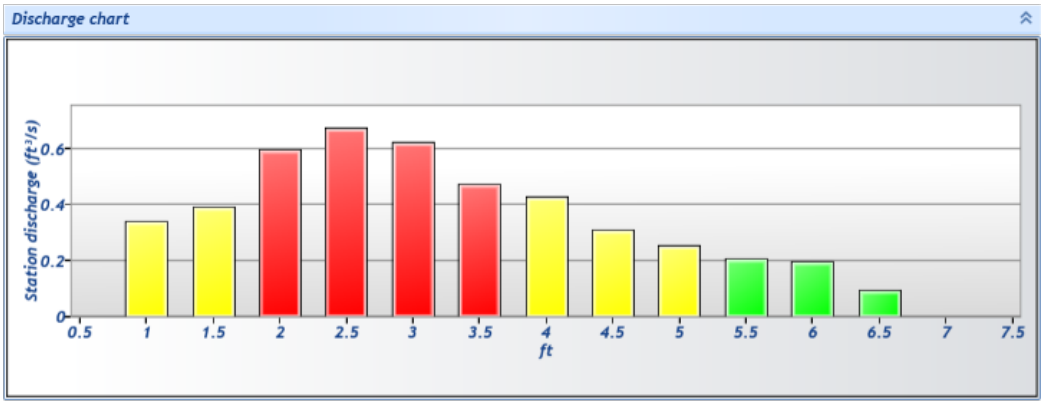
Summary overview

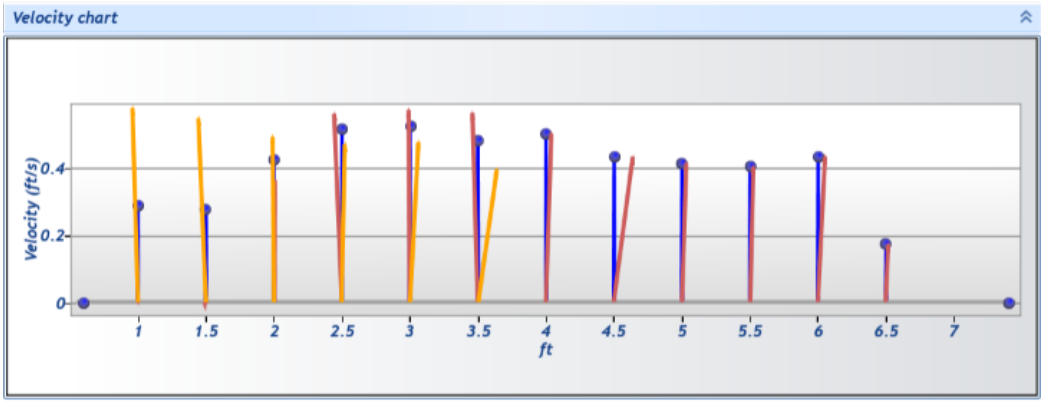
No changes were made to this file
Quality control warnings

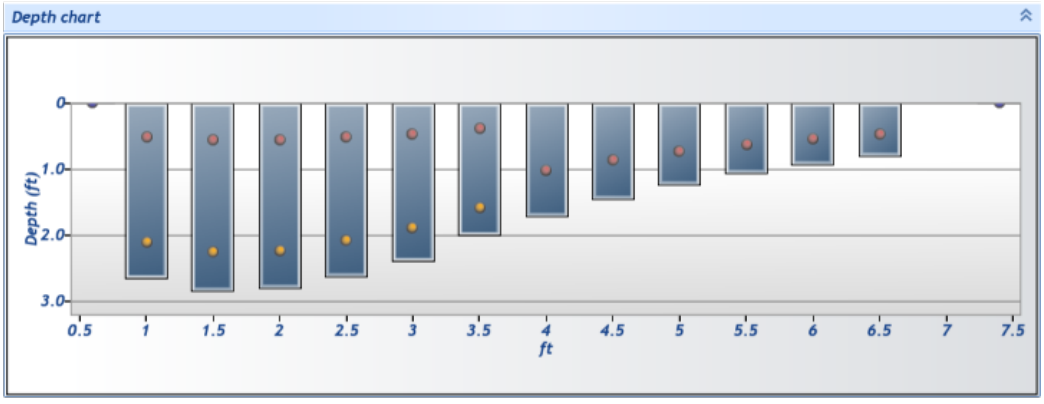
Discharge Measurement Summary

Site name	Watson Cr on BLM
Site number	001
Operator(s)	JEL
File name	Watson Cr on BLM_20190729-180034.ft
Comment	Spot 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	Watson Cr on BLM
Site number	001
Operator(s)	JEL
File name	Watson Cr on BLM_20190729-180034.ft
Comment	Spot 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	5:38 PM	0.600	None	0.000	0.0000	0.000	0	0.0000	1.0000	0.2879	0.0000	0.0000	0.00	✓
1	5:39 PM	1.000	0.2/0.8	2.650	0.2000	0.530	80	-0.0015	1.0000	0.2879	1.1925	0.3433	7.43	✓
1	5:39 PM	1.000	0.2/0.8	2.650	0.8000	2.120	80	0.5773	1.0000	0.2879	1.1925	0.3433	7.43	✓
2	5:42 PM	1.500	0.2/0.8	2.850	0.2000	0.570	80	0.0060	1.0000	0.2762	1.4250	0.3936	8.52	✓
2	5:42 PM	1.500	0.2/0.8	2.850	0.8000	2.280	80	0.5464	1.0000	0.2762	1.4250	0.3936	8.52	✓
3	5:44 PM	2.000	0.2/0.8	2.800	0.2000	0.560	80	0.3627	1.0000	0.4269	1.4000	0.5977	12.93	✓
3	5:44 PM	2.000	0.2/0.8	2.800	0.8000	2.240	80	0.4912	1.0000	0.4269	1.4000	0.5977	12.93	✓
4	5:46 PM	2.500	0.2/0.8	2.620	0.2000	0.524	80	0.5604	1.0000	0.5150	1.3100	0.6747	14.60	✓
4	5:46 PM	2.500	0.2/0.8	2.620	0.8000	2.096	80	0.4696	1.0000	0.5150	1.3100	0.6747	14.60	✓
5	5:48 PM	3.000	0.2/0.8	2.380	0.2000	0.476	80	0.5716	1.0000	0.5238	1.1900	0.6233	13.49	✓
5	5:48 PM	3.000	0.2/0.8	2.380	0.8000	1.904	80	0.4760	1.0000	0.5238	1.1900	0.6233	13.49	✓
6	5:51 PM	3.500	0.2/0.8	2.000	0.2000	0.400	80	0.5630	1.0000	0.4787	1.0000	0.4787	10.36	✓
6	5:51 PM	3.500	0.2/0.8	2.000	0.8000	1.600	80	0.3944	1.0000	0.4787	1.0000	0.4787	10.36	✓
7	5:53 PM	4.000	0.6	1.720	0.6000	1.032	80	0.5019	1.0000	0.5019	0.8600	0.4317	9.34	✓
8	5:54 PM	4.500	0.6	1.450	0.6000	0.870	80	0.4329	1.0000	0.4329	0.7250	0.3139	6.79	✓
9	5:55 PM	5.000	0.6	1.240	0.6000	0.744	80	0.4140	1.0000	0.4140	0.6200	0.2567	5.55	✓
10	5:56 PM	5.500	0.6	1.050	0.6000	0.630	80	0.4030	1.0000	0.4030	0.5250	0.2116	4.58	✓
11	5:57 PM	6.000	0.6	0.920	0.6000	0.552	80	0.4332	1.0000	0.4332	0.4600	0.1993	4.31	✓
12	5:58 PM	6.500	0.6	0.800	0.6000	0.480	80	0.1724	1.0000	0.1724	0.5600	0.0965	2.09	✓
13	5:59 PM	7.400	None	0.000	0.0000	0.000	0	0.0000	1.0000	0.1724	0.0000	0.0000	0.00	✓

Discharge Measurement Summary

Site name	Watson Cr on BLM
Site number	001
Operator(s)	JEL
File name	Watson Cr on BLM_20190729-180034.ft
Comment	Spot 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	5:39 PM	1.000	0.2/0.8	2.650	0.2000	0.530	Water Depth > QC,Approaching Low SNR,Beam SNRs Not Similar,Large SNR Variation,SNR Threshold Variation
1	5:39 PM	1.000	0.2/0.8	2.650	0.8000	2.120	Water Depth > QC,Approaching Low SNR,Beam SNRs Not Similar,Large SNR Variation,SNR Threshold Variation
2	5:42 PM	1.500	0.2/0.8	2.850	0.2000	0.570	Boundary Interference
2	5:42 PM	1.500	0.2/0.8	2.850	0.8000	2.280	Boundary Interference
3	5:44 PM	2.000	0.2/0.8	2.800	0.2000	0.560	High Stn % Discharge
3	5:44 PM	2.000	0.2/0.8	2.800	0.8000	2.240	High Stn % Discharge
4	5:46 PM	2.500	0.2/0.8	2.620	0.2000	0.524	High Stn % Discharge
4	5:46 PM	2.500	0.2/0.8	2.620	0.8000	2.096	High Stn % Discharge
5	5:48 PM	3.000	0.2/0.8	2.380	0.2000	0.476	High Stn % Discharge
5	5:48 PM	3.000	0.2/0.8	2.380	0.8000	1.904	High Stn % Discharge
6	5:51 PM	3.500	0.2/0.8	2.000	0.2000	0.400	High Stn % Discharge
6	5:51 PM	3.500	0.2/0.8	2.000	0.8000	1.600	High Stn % Discharge
13	5:59 PM	7.400	None	0.000	0.0000	0.000	Water Depth > QC

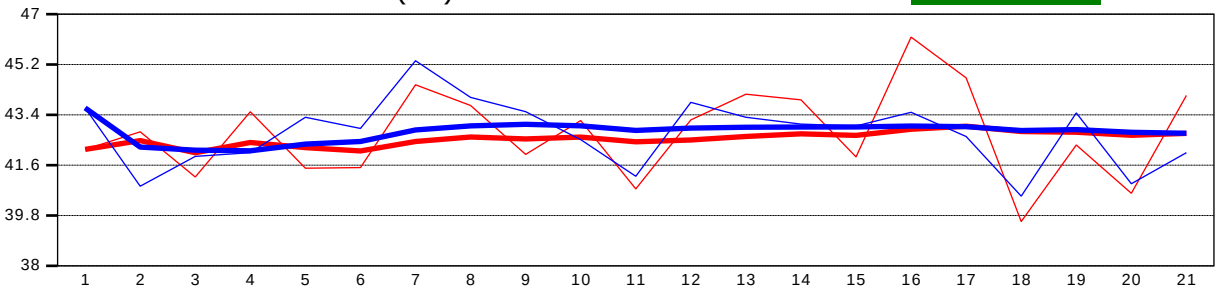
Discharge Measurement Summary

Site name	Watson Cr on BLM
Site number	001
Operator(s)	JEL
File name	Watson Cr on BLM_20190729-180034.ft
Comment	Spot meas

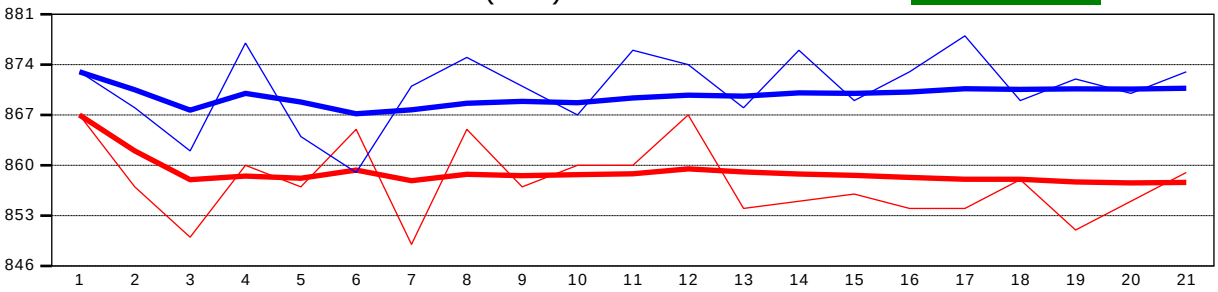
Beam 1	
Beam 2	

Automated beam check Start time 7/29/2019 5:38:15 PM

Automated beam check SNR(dB) PASS



Automated beam check Noise level(cnts) PASS



Automated beam check Quality control warnings

No quality control warnings

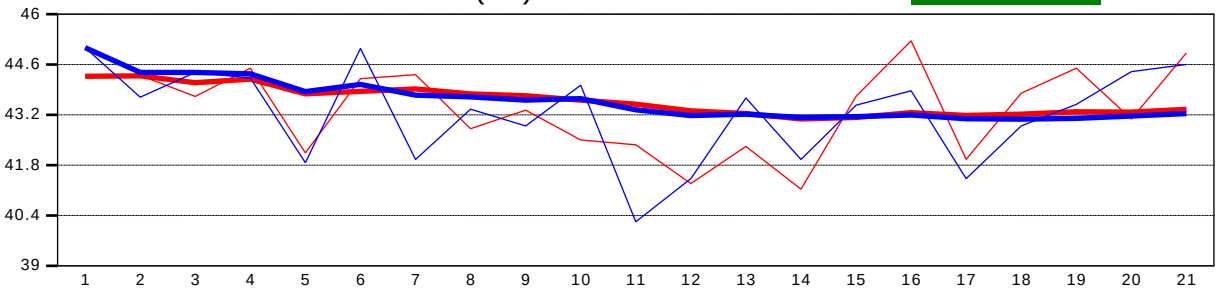
Discharge Measurement Summary

Site name	Watson Cr on BLM
Site number	001
Operator(s)	JEL
File name	Watson Cr on BLM_20190729-180034.ft
Comment	Spot meas

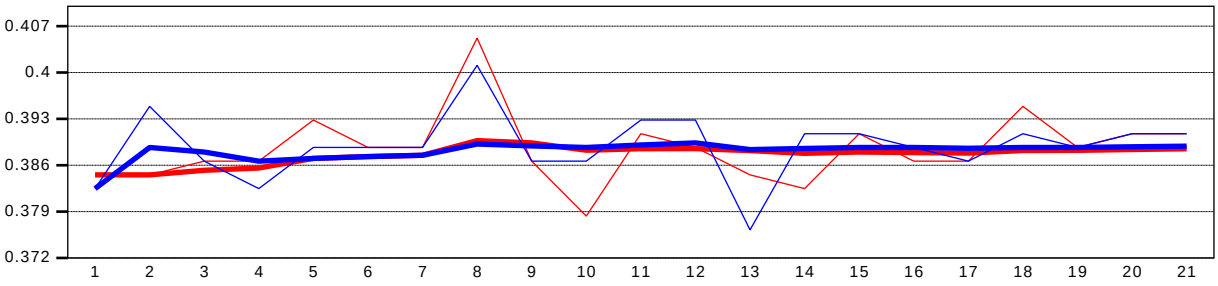
Beam 1	
Beam 2	

Automated beam check Start time 7/29/2019 5:38:15 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	Watson Creek at Co Rd 17
Site number	005
Operator(s)	Jack Landers
File name	Watson Creek at Co Rd 17_20191107-120140.ft
Comment	Temp gage

Start time	11/7/2019 11:24 AM
End time	11/7/2019 11:58 AM
Start location latitude	40.165
Start location longitude	-106.928
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)
25	40	3.6014

Total width (ft)	Total area (ft²)	Wetted Perimeter (ft)
11.800	5.9515	12.229

Mean SNR (dB)	Mean depth (ft)	Mean velocity (ft/s)
35	0.504	0.6051

Mean temp (°F)	Max depth (ft)	Max velocity (ft/s)
35.554	0.820	1.0489

Discharge Uncertainty		
Category	**ISO**	**IVE**
Accuracy	1.0%	1.0%
Depth	0.4%	4.4%
Velocity	0.7%	7.2%
Width	0.1%	0.1%
Method	1.8%	
# Stations	2.0%	
Overall	**3.0%**	**8.5%**

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 %

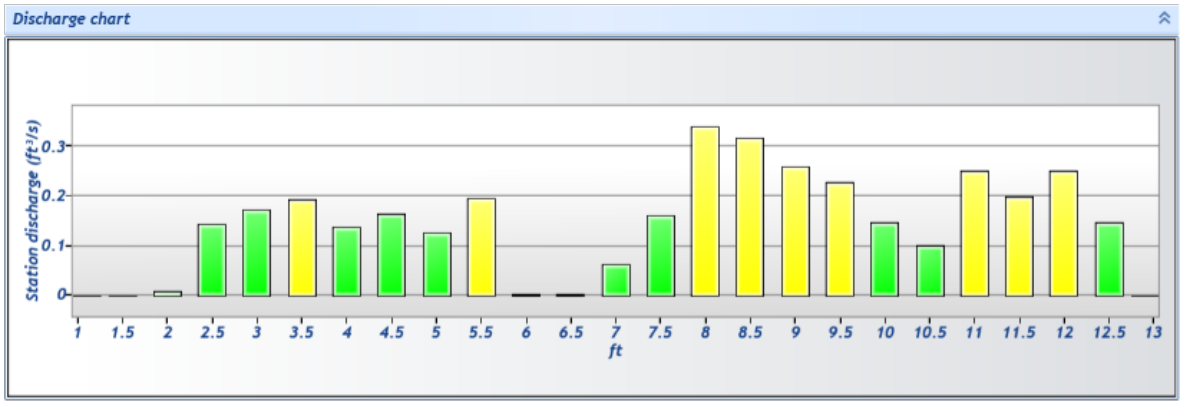
Summary overview

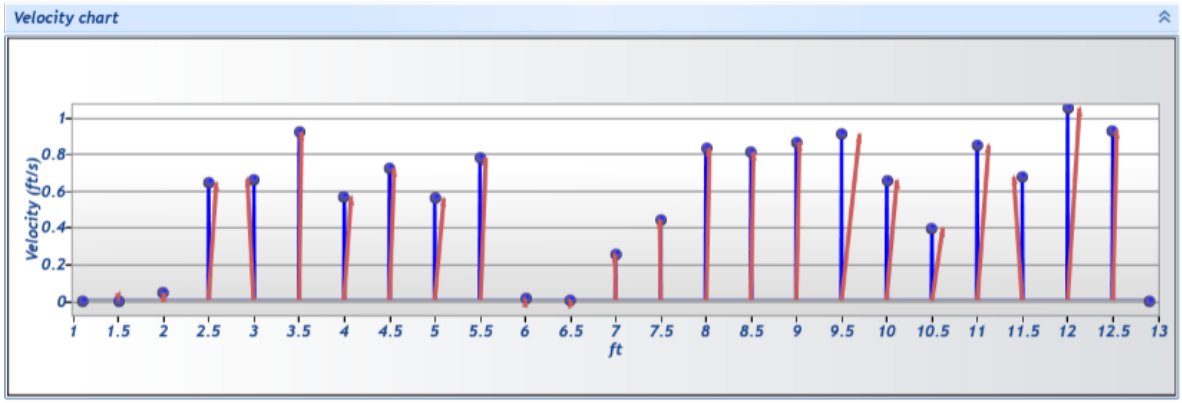
No changes were made to this file
Quality control warnings

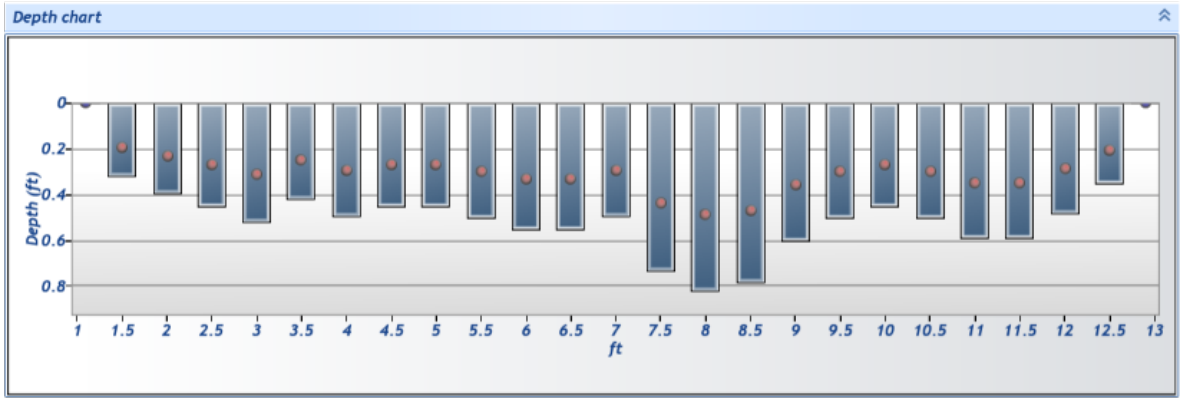
Discharge Measurement Summary

Site name	Watson Creek at Co Rd 17
Site number	005
Operator(s)	Jack Landers
File name	Watson Creek at Co Rd 17_20191107-120140.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	Watson Creek at Co Rd 17
Site number	005
Operator(s)	Jack Landers
File name	Watson Creek at Co Rd 17_20191107-120140.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	11:24 AM	1.100	None	0.000	0.0000	0.000	0	0.0000	1.0000	-0.0029	0.0000	0.0000	0.00	✓
1	11:26 AM	1.500	0.6	0.320	0.6000	0.192	80	-0.0029	1.0000	-0.0029	0.1440	-0.0004	-0.01	✓
2	11:28 AM	2.000	0.6	0.390	0.6000	0.234	80	0.0404	1.0000	0.0404	0.1950	0.0079	0.22	✓
3	11:29 AM	2.500	0.6	0.450	0.6000	0.270	80	0.6420	1.0000	0.6420	0.2250	0.1445	4.01	✓
4	11:31 AM	3.000	0.6	0.520	0.6000	0.312	80	0.6632	1.0000	0.6632	0.2600	0.1724	4.79	✓
5	11:33 AM	3.500	0.6	0.420	0.6000	0.252	80	0.9185	1.0000	0.9185	0.2100	0.1929	5.36	✓
6	11:34 AM	4.000	0.6	0.490	0.6000	0.294	80	0.5665	1.0000	0.5665	0.2450	0.1388	3.85	✓
7	11:36 AM	4.500	0.6	0.450	0.6000	0.270	80	0.7222	1.0000	0.7222	0.2250	0.1625	4.51	✓
8	11:37 AM	5.000	0.6	0.450	0.6000	0.270	80	0.5570	1.0000	0.5570	0.2250	0.1253	3.48	✓
9	11:39 AM	5.500	0.6	0.500	0.6000	0.300	80	0.7799	1.0000	0.7799	0.2500	0.1950	5.41	✓
10	11:40 AM	6.000	0.6	0.550	0.6000	0.330	80	0.0094	1.0000	0.0094	0.2750	0.0026	0.07	✓
11	11:41 AM	6.500	0.6	0.550	0.6000	0.330	80	0.0070	1.0000	0.0070	0.2750	0.0019	0.05	✓
12	11:43 AM	7.000	0.6	0.490	0.6000	0.294	80	0.2528	1.0000	0.2528	0.2450	0.0619	1.72	✓
13	11:44 AM	7.500	0.6	0.730	0.6000	0.438	80	0.4396	1.0000	0.4396	0.3650	0.1605	4.46	✓
14	11:45 AM	8.000	0.6	0.820	0.6000	0.492	80	0.8314	1.0000	0.8314	0.4100	0.3409	9.46	✓
15	11:47 AM	8.500	0.6	0.780	0.6000	0.468	80	0.8092	1.0000	0.8092	0.3900	0.3156	8.76	✓
16	11:48 AM	9.000	0.6	0.600	0.6000	0.360	80	0.8637	1.0000	0.8637	0.3000	0.2591	7.19	✓
17	11:50 AM	9.500	0.6	0.500	0.6000	0.300	80	0.9071	1.0000	0.9071	0.2500	0.2268	6.30	✓
18	11:51 AM	10.000	0.6	0.450	0.6000	0.270	80	0.6565	1.0000	0.6565	0.2250	0.1477	4.10	✓
19	11:52 AM	10.500	0.6	0.500	0.6000	0.300	80	0.3977	1.0000	0.3977	0.2500	0.0994	2.76	✓
20	11:53 AM	11.000	0.6	0.590	0.6000	0.354	80	0.8456	1.0000	0.8456	0.2950	0.2494	6.93	✓
21	11:54 AM	11.500	0.6	0.590	0.6000	0.354	80	0.6739	1.0000	0.6739	0.2950	0.1988	5.52	✓
22	11:55 AM	12.000	0.6	0.480	0.6000	0.288	80	1.0489	1.0000	1.0489	0.2400	0.2517	6.99	✓
23	11:56 AM	12.500	0.6	0.350	0.6000	0.210	80	0.9283	1.0000	0.9283	0.1575	0.1462	4.06	✓
24	11:58 AM	12.900	None	0.000	0.0000	0.000	0	0.0000	1.0000	0.9283	0.0000	0.0000	0.00	✓

Discharge Measurement Summary

Site name	Watson Creek at Co Rd 17
Site number	005
Operator(s)	Jack Landers
File name	Watson Creek at Co Rd 17_20191107-120140.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	11:26 AM	1.500	0.6	0.320	0.6000	0.192	Boundary Interference,Beam SNRs Not Similar,Large SNR Variation
2	11:28 AM	2.000	0.6	0.390	0.6000	0.234	Boundary Interference,Large SNR Variation
3	11:29 AM	2.500	0.6	0.450	0.6000	0.270	Boundary Interference
6	11:34 AM	4.000	0.6	0.490	0.6000	0.294	Beam SNRs Not Similar,SNR Threshold Variation
10	11:40 AM	6.000	0.6	0.550	0.6000	0.330	Large SNR Variation,SNR Threshold Variation
11	11:41 AM	6.500	0.6	0.550	0.6000	0.330	Large SNR Variation,SNR Threshold Variation,High % Spikes
12	11:43 AM	7.000	0.6	0.490	0.6000	0.294	Large SNR Variation
13	11:44 AM	7.500	0.6	0.730	0.6000	0.438	Boundary Interference
21	11:54 AM	11.500	0.6	0.590	0.6000	0.354	Boundary Interference

Discharge Measurement Summary

Site name	Watson Creek at Co Rd 17
Site number	005
Operator(s)	Jack Landers
File name	Watson Creek at Co Rd 17_20191107-120140.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
11/7/2019 11:58 AM	2.550				

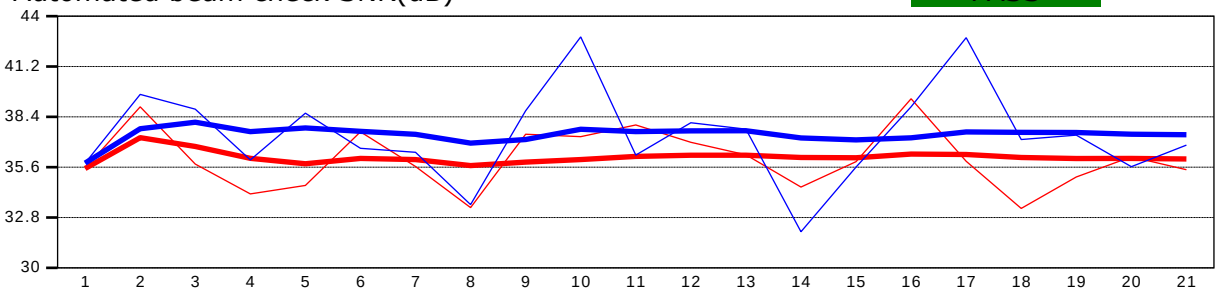
Discharge Measurement Summary

Site name	Watson Creek at Co Rd 17
Site number	005
Operator(s)	Jack Landers
File name	Watson Creek at Co Rd 17_20191107-120140.ft
Comment	Temp gage

Beam 1	
Beam 2	

Automated beam check Start time 11/7/2019 11:23:46 AM

Automated beam check SNR(dB) PASS



Automated beam check Noise level(cnts) PASS

Automated beam check Quality control warnings

No quality control warnings

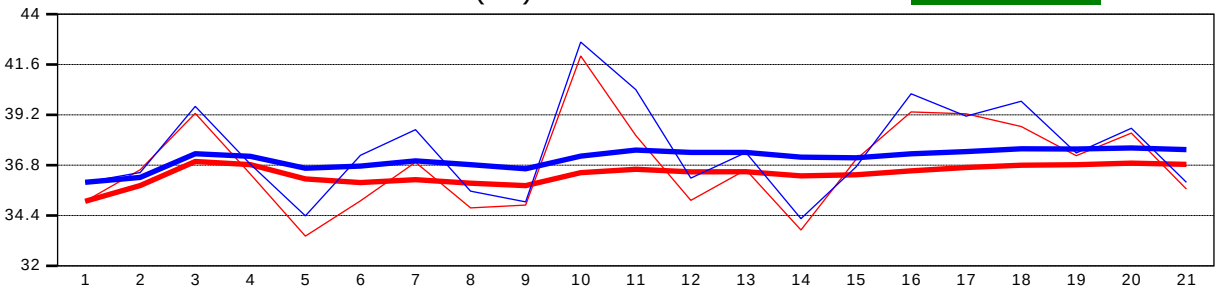
Discharge Measurement Summary

Site name	Watson Creek at Co Rd 17
Site number	005
Operator(s)	Jack Landers
File name	Watson Creek at Co Rd 17_20191107-120140.ft
Comment	Temp gage

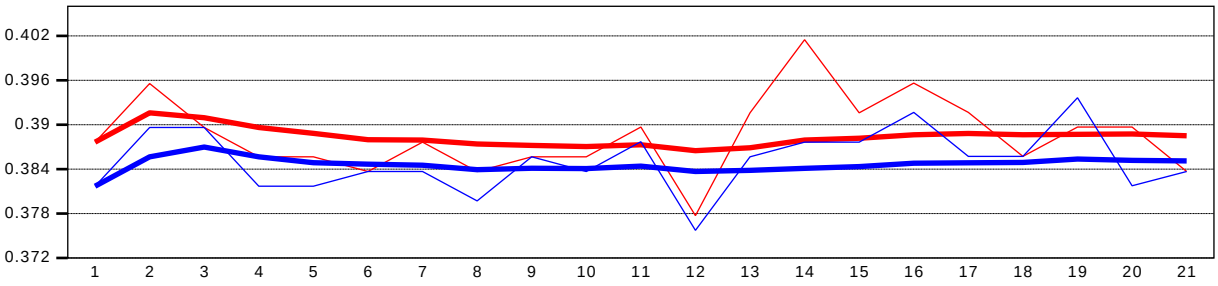
Beam 1	
Beam 2	

Automated beam check Start time 11/7/2019 11:23:46 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	Watson Creek at Co Rd 17
Site number	6
Operator(s)	Jack Landers
File name	Watson Creek at Co Rd 17_20191206-094320.ft
Comment	Temp gage

Start time	12/6/2019 9:16 AM
End time	12/6/2019 9:42 AM
Start location latitude	40.165
Start location longitude	-106.928
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)
25	40	2.9441

Total width (ft)	Total area (ft²)	Wetted Perimeter (ft)
7.600	4.2400	8.036

Mean SNR (dB)	Mean depth (ft)	Mean velocity (ft/s)
42	0.558	0.6944

Mean temp (°F)	Max depth (ft)	Max velocity (ft/s)
33.454	0.860	0.9612

Discharge Uncertainty		
Category	**ISO**	**IVE**
Accuracy	1.0%	1.0%
Depth	0.4%	3.4%
Velocity	0.2%	2.9%
Width	0.1%	0.1%
Method	1.8%	
# Stations	2.0%	
Overall	**2.9%**	**4.6%**

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 %

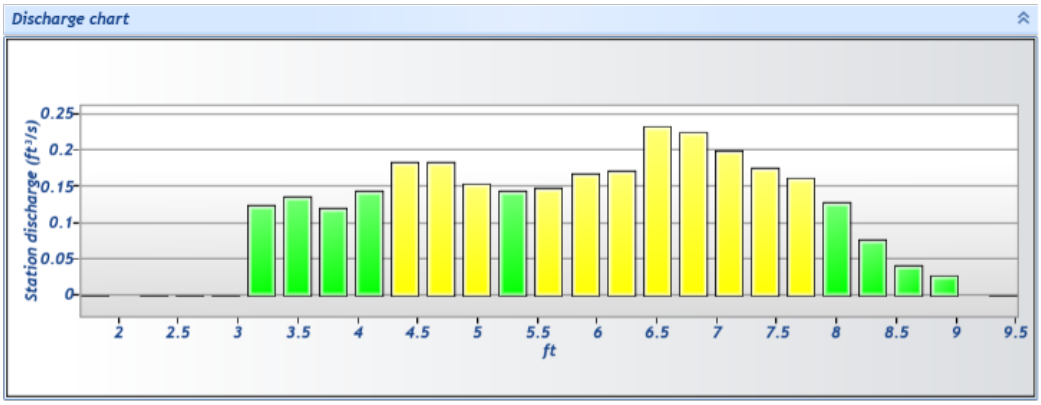
Summary overview

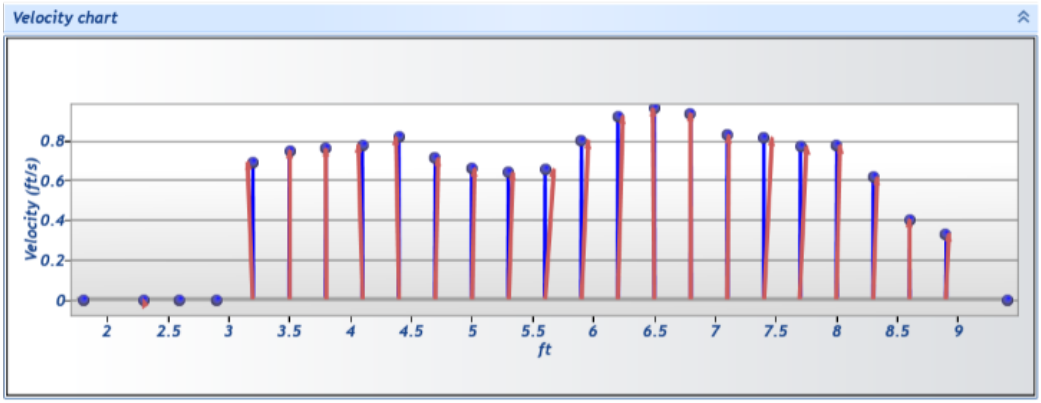
No changes were made to this file
Quality control warnings

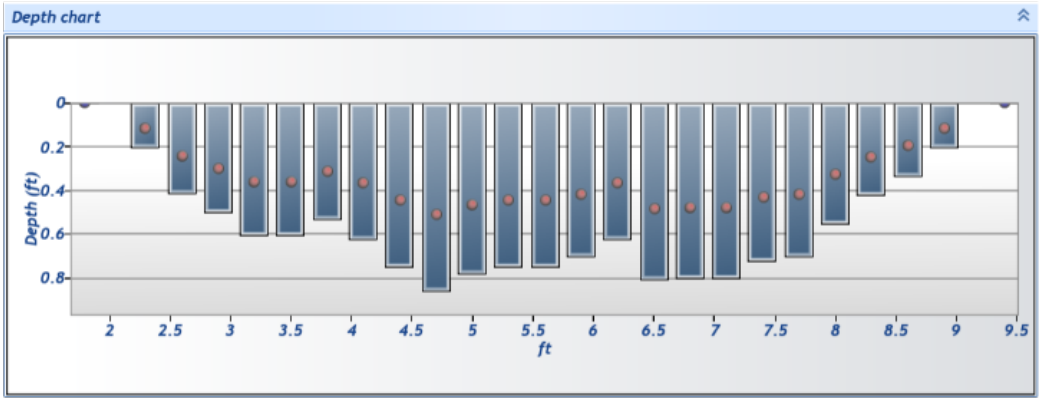
Discharge Measurement Summary

Site name	Watson Creek at Co Rd 17
Site number	6
Operator(s)	Jack Landers
File name	Watson Creek at Co Rd 17_20191206-094320.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	Watson Creek at Co Rd 17
Site number	6
Operator(s)	Jack Landers
File name	Watson Creek at Co Rd 17_20191206-094320.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	9:16 AM	1.800	None	0.000	0.0000	0.000	0	0.0000	1.0000	0.0012	0.0000	0.0000	0.00	✓
1	9:17 AM	2.300	0.6	0.200	0.6000	0.120	80	0.0012	1.0000	0.0012	0.0800	0.0001	0.00	✓
2	9:18 AM	2.600	0.6	0.410	0.6000	0.246	80	0.0009	1.0000	0.0009	0.1230	0.0001	0.00	✓
3	9:19 AM	2.900	0.6	0.500	0.6000	0.300	80	-0.0009	1.0000	-0.0009	0.1500	-0.0001	0.00	✓
4	9:20 AM	3.200	0.6	0.600	0.6000	0.360	80	0.6907	1.0000	0.6907	0.1800	0.1243	4.22	✓
5	9:21 AM	3.500	0.6	0.600	0.6000	0.360	80	0.7506	1.0000	0.7506	0.1800	0.1351	4.59	✓
6	9:22 AM	3.800	0.6	0.530	0.6000	0.318	80	0.7583	1.0000	0.7583	0.1590	0.1206	4.10	✓
7	9:24 AM	4.100	0.6	0.620	0.6000	0.372	80	0.7782	1.0000	0.7782	0.1860	0.1448	4.92	✓
8	9:25 AM	4.400	0.6	0.750	0.6000	0.450	80	0.8163	1.0000	0.8163	0.2250	0.1837	6.24	✓
9	9:26 AM	4.700	0.6	0.860	0.6000	0.516	80	0.7122	1.0000	0.7122	0.2580	0.1837	6.24	✓
10	9:27 AM	5.000	0.6	0.780	0.6000	0.468	80	0.6581	1.0000	0.6581	0.2340	0.1540	5.23	✓
11	9:28 AM	5.300	0.6	0.750	0.6000	0.450	80	0.6384	1.0000	0.6384	0.2250	0.1436	4.88	✓
12	9:29 AM	5.600	0.6	0.750	0.6000	0.450	80	0.6569	1.0000	0.6569	0.2250	0.1478	5.02	✓
13	9:30 AM	5.900	0.6	0.700	0.6000	0.420	80	0.8011	1.0000	0.8011	0.2100	0.1682	5.71	✓
14	9:31 AM	6.200	0.6	0.620	0.6000	0.372	80	0.9217	1.0000	0.9217	0.1860	0.1714	5.82	✓
15	9:32 AM	6.500	0.6	0.810	0.6000	0.486	80	0.9612	1.0000	0.9612	0.2430	0.2336	7.93	✓
16	9:33 AM	6.800	0.6	0.800	0.6000	0.480	80	0.9368	1.0000	0.9368	0.2400	0.2248	7.64	✓
17	9:34 AM	7.100	0.6	0.800	0.6000	0.480	80	0.8282	1.0000	0.8282	0.2400	0.1988	6.75	✓
18	9:35 AM	7.400	0.6	0.720	0.6000	0.432	80	0.8139	1.0000	0.8139	0.2160	0.1758	5.97	✓
19	9:36 AM	7.700	0.6	0.700	0.6000	0.420	80	0.7699	1.0000	0.7699	0.2100	0.1617	5.49	✓
20	9:37 AM	8.000	0.6	0.550	0.6000	0.330	80	0.7763	1.0000	0.7763	0.1650	0.1281	4.35	✓
21	9:38 AM	8.300	0.6	0.420	0.6000	0.252	80	0.6150	1.0000	0.6150	0.1260	0.0775	2.63	✓
22	9:39 AM	8.600	0.6	0.330	0.6000	0.198	80	0.4035	1.0000	0.4035	0.0990	0.0399	1.36	✓
23	9:41 AM	8.900	0.6	0.200	0.6000	0.120	80	0.3320	1.0000	0.3320	0.0800	0.0266	0.90	✓
24	9:42 AM	9.400	None	0.000	0.0000	0.000	0	0.0000	1.0000	0.3320	0.0000	0.0000	0.00	✓

Discharge Measurement Summary

Site name	Watson Creek at Co Rd 17
Site number	6
Operator(s)	Jack Landers
File name	Watson Creek at Co Rd 17_20191206-094320.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	9:17 AM	2.300	0.6	0.200	0.6000	0.120	SNR Threshold Variation
2	9:18 AM	2.600	0.6	0.410	0.6000	0.246	Boundary Interference
3	9:19 AM	2.900	0.6	0.500	0.6000	0.300	SNR Threshold Variation

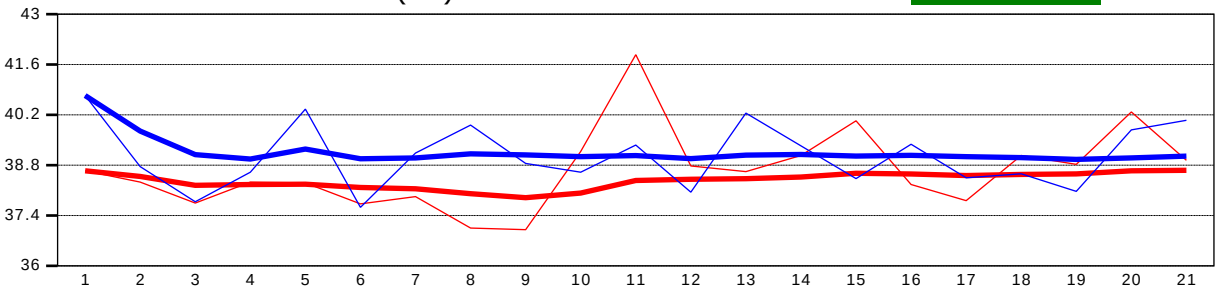
Discharge Measurement Summary

Site name	Watson Creek at Co Rd 17
Site number	6
Operator(s)	Jack Landers
File name	Watson Creek at Co Rd 17_20191206-094320.ft
Comment	Temp gage

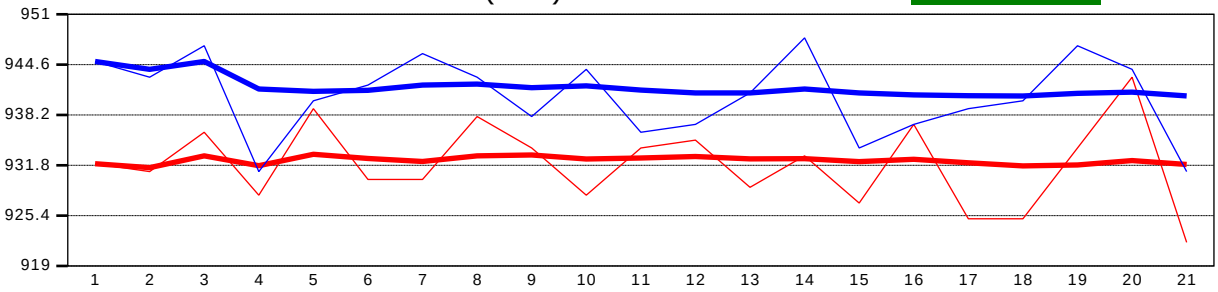
Beam 1	
Beam 2	

Automated beam check Start time 12/6/2019 9:16:24 AM

Automated beam check SNR(dB) PASS



Automated beam check Noise level(cnts) PASS



Automated beam check Quality control warnings

No quality control warnings

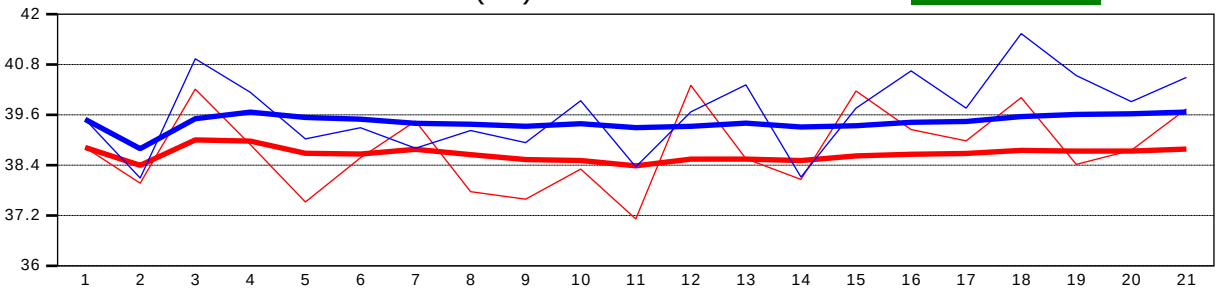
Discharge Measurement Summary

Site name	Watson Creek at Co Rd 17
Site number	6
Operator(s)	Jack Landers
File name	Watson Creek at Co Rd 17_20191206-094320.ft
Comment	Temp gage

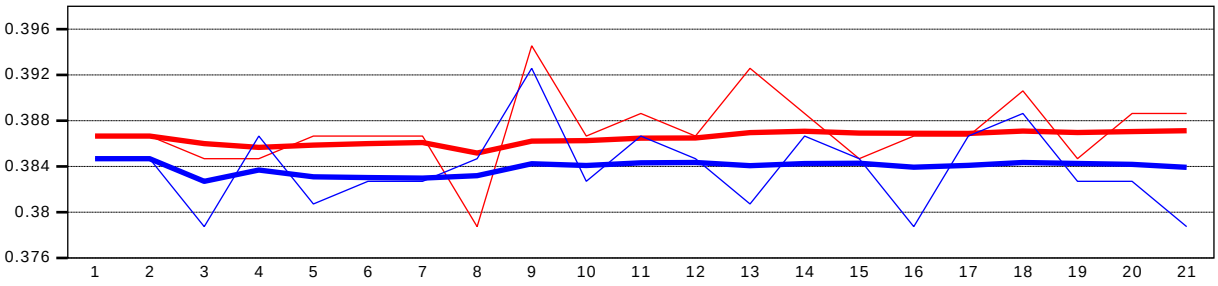
Beam 1	
Beam 2	

Automated beam check Start time 12/6/2019 9:16:24 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	Watson Creek at Co Rd 17
Site number	782020
Operator(s)	Laura FS
File name	Watson Creek at Co Rd 17_20200708-114621.ft
Comment	0.67 staffg

Start time	7/8/2020 10:56 AM
End time	7/8/2020 11:33 AM
Start location latitude	40.165
Start location longitude	-106.928
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)
26	40	3.5945

Total width (ft)	Total area (ft²)	Wetted Perimeter (ft)
15.650	13.1398	16.103

Mean SNR (dB)	Mean depth (ft)	Mean velocity (ft/s)
45	0.840	0.2736

Mean temp (°F)	Max depth (ft)	Max velocity (ft/s)
60.206	1.400	0.6978

Discharge Uncertainty		
Category	**ISO**	**IVE**
Accuracy	1.0%	1.0%
Depth	0.2%	2.5%
Velocity	1.7%	12.9%
Width	0.1%	0.1%
Method	1.9%	
# Stations	2.0%	
Overall	**3.4%**	**13.2%**

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 %

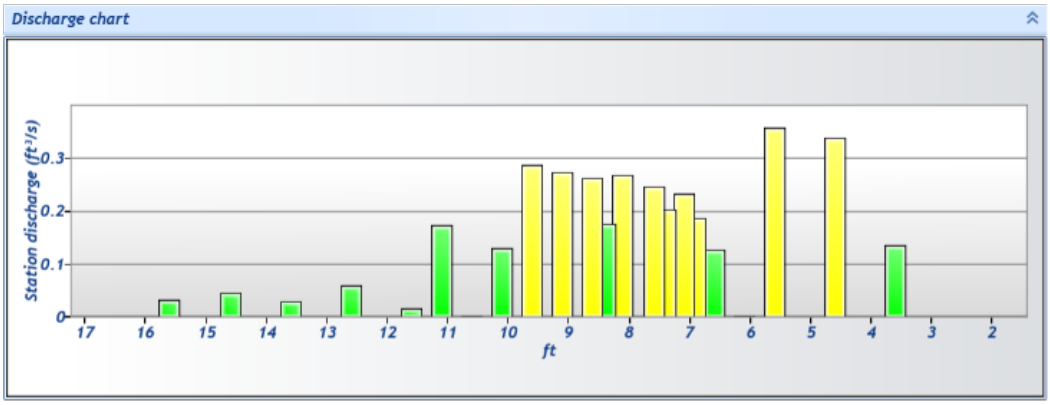
Summary overview

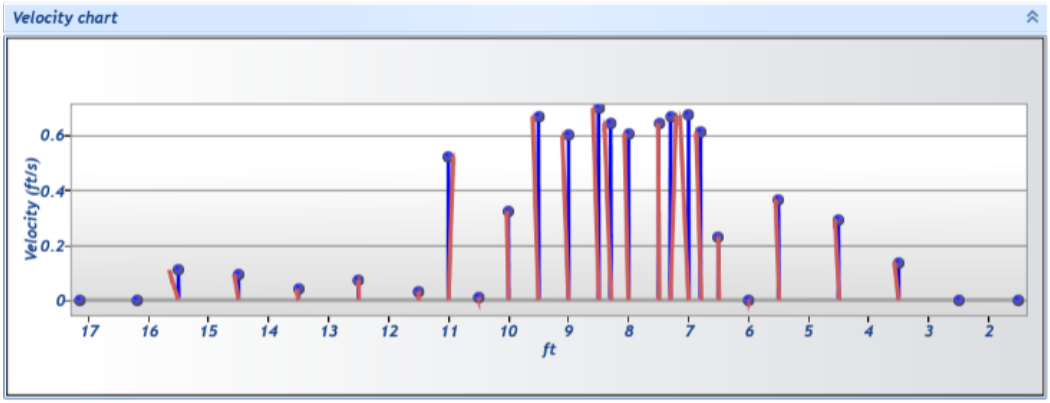
No changes were made to this file
Quality control warnings

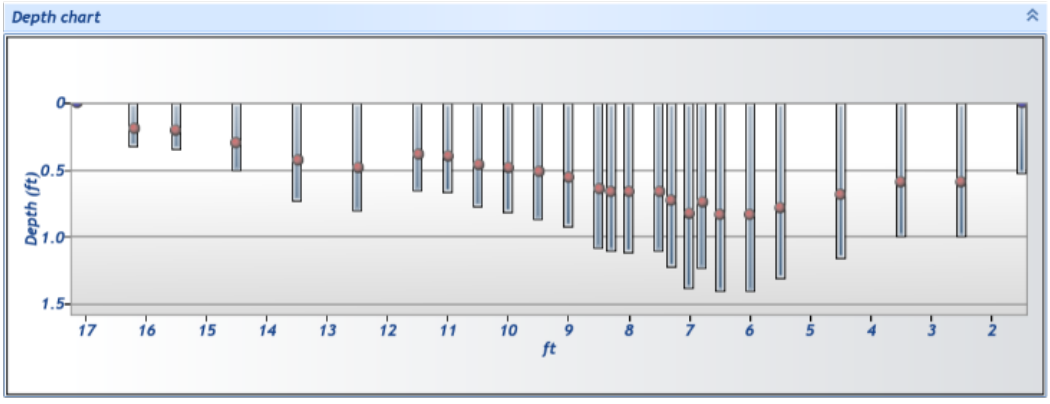
Discharge Measurement Summary

Site name	Watson Creek at Co Rd 17
Site number	782020
Operator(s)	Laura FS
File name	Watson Creek at Co Rd 17_20200708-114621.ft
Comment	0.67 staffg

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	Watson Creek at Co Rd 17
Site number	782020
Operator(s)	Laura FS
File name	Watson Creek at Co Rd 17_20200708-114621.ft
Comment	0.67 staffg

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	
25	11:27 AM	1.500	None	0.520	0.0000	0.000	0	0.0000	0.0000	0.0000	0.2600	0.0000	0.00	✓
24	11:25 AM	2.500	0.6	0.990	0.6000	0.594	80	0.0005	1.0000	0.0005	0.9900	0.0005	0.01	✓
23	11:24 AM	3.500	0.6	0.990	0.6000	0.594	80	0.1377	1.0000	0.1377	0.9900	0.1364	3.79	✓
22	11:23 AM	4.500	0.6	1.150	0.6000	0.690	80	0.2950	1.0000	0.2950	1.1500	0.3392	9.44	✓
21	11:21 AM	5.500	0.6	1.300	0.6000	0.780	80	0.3660	1.0000	0.3660	0.9750	0.3569	9.93	✓
20	11:28 AM	6.000	0.6	1.400	0.6000	0.840	80	0.0035	1.0000	0.0035	0.7000	0.0025	0.07	✓
19	11:19 AM	6.500	0.6	1.400	0.6000	0.840	80	0.2297	1.0000	0.2297	0.5600	0.1287	3.58	✓
18	11:31 AM	6.800	0.6	1.230	0.6000	0.738	80	0.6105	1.0000	0.6105	0.3075	0.1877	5.22	✓
17	11:18 AM	7.000	0.6	1.380	0.6000	0.828	80	0.6723	1.0000	0.6723	0.3450	0.2319	6.45	✓
16	11:30 AM	7.300	0.6	1.220	0.6000	0.732	80	0.6689	1.0000	0.6689	0.3050	0.2040	5.68	✓
15	11:17 AM	7.500	0.6	1.100	0.6000	0.660	80	0.6422	1.0000	0.6422	0.3850	0.2472	6.88	✓
14	11:16 AM	8.000	0.6	1.110	0.6000	0.666	80	0.6057	1.0000	0.6057	0.4440	0.2689	7.48	✓
13	11:33 AM	8.300	0.6	1.100	0.6000	0.660	80	0.6428	1.0000	0.6428	0.2750	0.1768	4.92	✓
12	11:14 AM	8.500	0.6	1.080	0.6000	0.648	80	0.6978	1.0000	0.6978	0.3780	0.2638	7.34	✓
11	11:13 AM	9.000	0.6	0.920	0.6000	0.552	80	0.5979	1.0000	0.5979	0.4600	0.2750	7.65	✓
10	11:11 AM	9.500	0.6	0.860	0.6000	0.516	80	0.6685	1.0000	0.6685	0.4300	0.2874	8.00	✓
9	11:10 AM	10.000	0.6	0.810	0.6000	0.486	80	0.3216	1.0000	0.3216	0.4050	0.1302	3.62	✓
8	11:09 AM	10.500	0.6	0.770	0.6000	0.462	80	0.0093	1.0000	0.0093	0.3850	0.0036	0.10	✓
7	11:07 AM	11.000	0.6	0.660	0.6000	0.396	80	0.5223	1.0000	0.5223	0.3300	0.1724	4.80	✓
6	11:05 AM	11.500	0.6	0.650	0.6000	0.390	80	0.0323	1.0000	0.0323	0.4875	0.0157	0.44	✓
5	11:04 AM	12.500	0.6	0.800	0.6000	0.480	80	0.0733	1.0000	0.0733	0.8000	0.0587	1.63	✓
4	11:02 AM	13.500	0.6	0.720	0.6000	0.432	80	0.0403	1.0000	0.0403	0.7200	0.0290	0.81	✓
3	11:00 AM	14.500	0.6	0.500	0.6000	0.300	80	0.0933	1.0000	0.0933	0.5000	0.0467	1.30	✓
2	10:59 AM	15.500	0.6	0.340	0.6000	0.204	80	0.1085	1.0000	0.1085	0.2890	0.0313	0.87	✓
1	10:57 AM	16.200	0.6	0.320	0.6000	0.192	80	0.0003	1.0000	0.0003	0.2640	0.0001	0.00	✓
0	10:56 AM	17.150	None	0.010	0.0000	0.000	0	0.0000	0.0000	0.0000	0.0048	0.0000	0.00	✓

Discharge Measurement Summary

Site name	Watson Creek at Co Rd 17
Site number	782020
Operator(s)	Laura FS
File name	Watson Creek at Co Rd 17_20200708-114621.ft
Comment	0.67 staffg

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
24	11:25 AM	2.500	0.6	0.990	0.6000	0.594	Beam SNRs Not Similar,Large SNR Variation
23	11:24 AM	3.500	0.6	0.990	0.6000	0.594	Velocity Angle > QC
22	11:23 AM	4.500	0.6	1.150	0.6000	0.690	Boundary Interference,Large SNR Variation,Standard Error > QC
21	11:21 AM	5.500	0.6	1.300	0.6000	0.780	Large SNR Variation
20	11:28 AM	6.000	0.6	1.400	0.6000	0.840	Large SNR Variation
19	11:19 AM	6.500	0.6	1.400	0.6000	0.840	Boundary Interference
9	11:10 AM	10.000	0.6	0.810	0.6000	0.486	Large SNR Variation
8	11:09 AM	10.500	0.6	0.770	0.6000	0.462	Large SNR Variation,SNR Threshold Variation
6	11:05 AM	11.500	0.6	0.650	0.6000	0.390	Boundary Interference
3	11:00 AM	14.500	0.6	0.500	0.6000	0.300	Boundary Interference,Velocity Angle > QC
2	10:59 AM	15.500	0.6	0.340	0.6000	0.204	Velocity Angle > QC
1	10:57 AM	16.200	0.6	0.320	0.6000	0.192	Large SNR Variation,SNR Threshold Variation

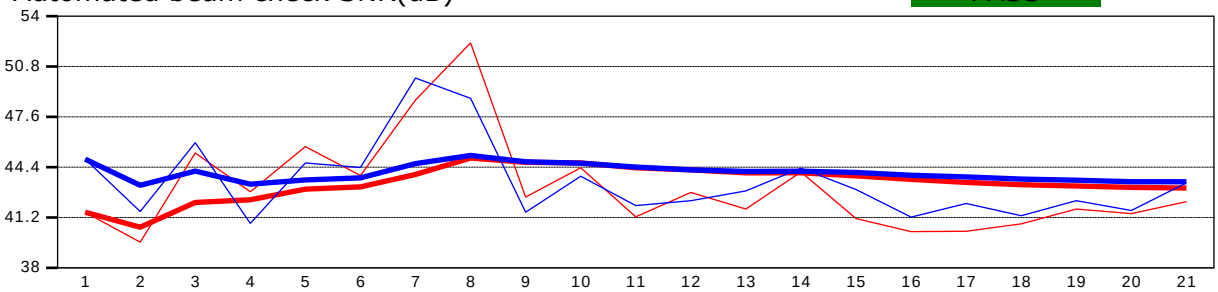
Discharge Measurement Summary

Site name	Watson Creek at Co Rd 17
Site number	782020
Operator(s)	Laura FS
File name	Watson Creek at Co Rd 17_20200708-114621.ft
Comment	0.67 staffg

Beam 1	
Beam 2	

Automated beam check Start time 7/8/2020 10:56:00 AM

Automated beam check SNR(dB) PASS



Automated beam check Noise level(cnts) PASS

Automated beam check Quality control warnings

No quality control warnings

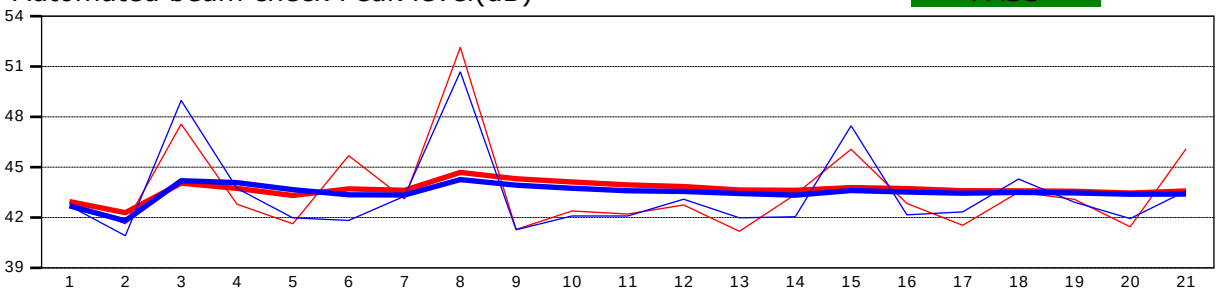
Discharge Measurement Summary

Site name	Watson Creek at Co Rd 17
Site number	782020
Operator(s)	Laura FS
File name	Watson Creek at Co Rd 17_20200708-114621.ft
Comment	0.67 staffg

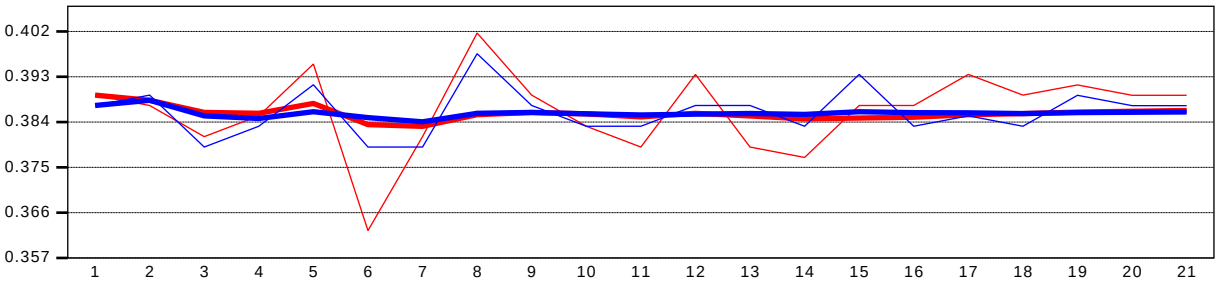
Beam 1	
Beam 2	

Automated beam check Start time 7/8/2020 10:56:00 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	Watson Creek at Co Rd 17
Site number	72320
Operator(s)	Kara
File name	Watson Creek at Co Rd 17_20200723-102009.ft
Comment	

Start time	7/23/2020 9:36 AM
End time	7/23/2020 10:09 AM
Start location latitude	40.165
Start location longitude	-106.928
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)
24	40	6.1604

Total width (ft)	Total area (ft²)	Wetted Perimeter (ft)
12.300	12.4100	12.987

Mean SNR (dB)	Mean depth (ft)	Mean velocity (ft/s)
40	1.009	0.4964

Mean temp (°F)	Max depth (ft)	Max velocity (ft/s)
60.307	1.550	1.1539

Discharge Uncertainty		
Category	**ISO**	**IVE**
Accuracy	1.0%	1.0%
Depth	0.1%	2.3%
Velocity	1.0%	6.5%
Width	0.1%	0.1%
Method	2.2%	
# Stations	2.1%	
Overall	**3.4%**	**7.0%**

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

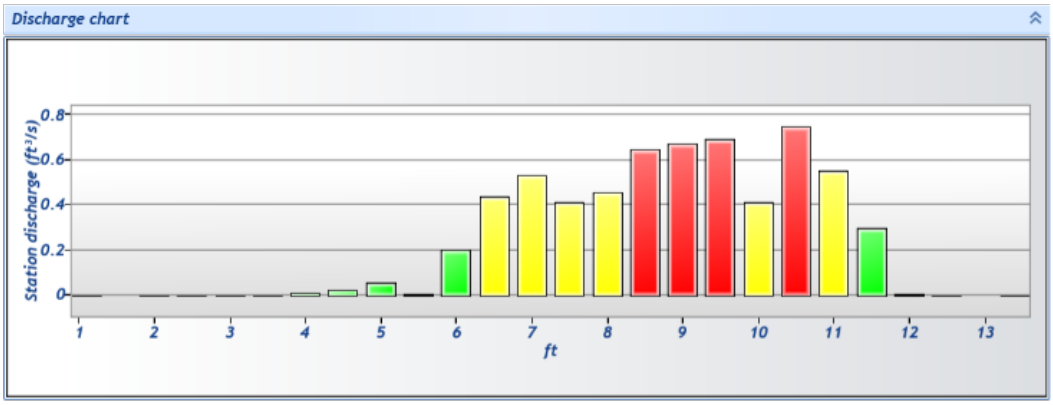
No changes were made to this file
Quality control warnings

Discharge Measurement Summary

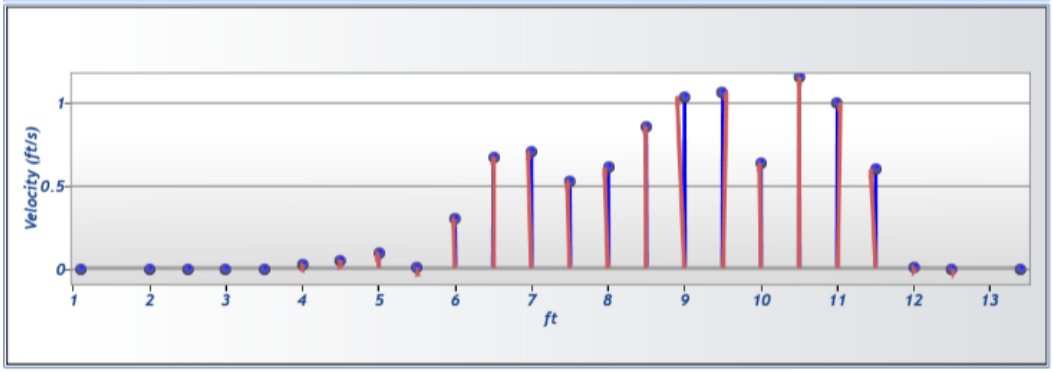
Site name	Watson Creek at Co Rd 17
Site number	72320
Operator(s)	Kara
File name	Watson Creek at Co Rd 17_20200723-102009.ft
Comment	

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%

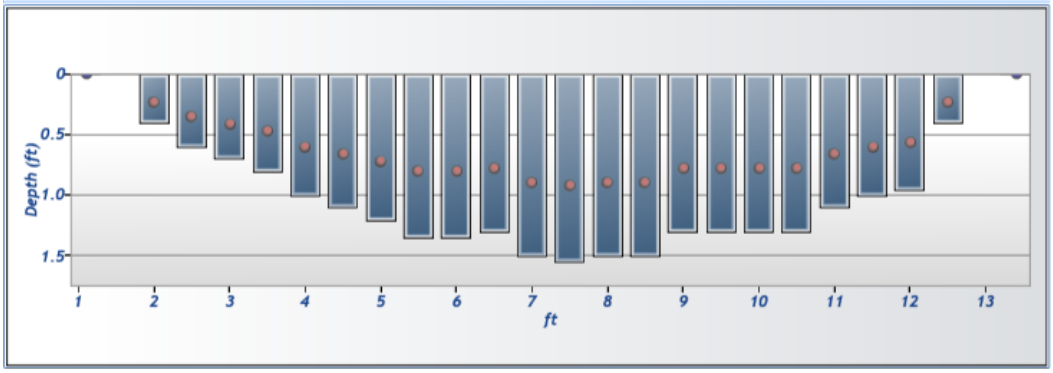
Discharge chart



Velocity chart



Depth chart



Discharge Measurement Summary

Site name	Watson Creek at Co Rd 17
Site number	72320
Operator(s)	Kara
File name	Watson Creek at Co Rd 17_20200723-102009.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	9:36 AM	1.100	None	0.000	0.0000	0.000	0	0.0000	1.0000	0.0008	0.0000	0.0000	0.00	✓
1	9:37 AM	2.000	0.6	0.400	0.6000	0.240	80	0.0008	1.0000	0.0008	0.2800	0.0002	0.00	✓
2	9:39 AM	2.500	0.6	0.600	0.6000	0.360	80	-0.0004	1.0000	-0.0004	0.3000	-0.0001	0.00	✓
3	9:41 AM	3.000	0.6	0.700	0.6000	0.420	80	-0.0005	1.0000	-0.0005	0.3500	-0.0002	0.00	✓
4	9:43 AM	3.500	0.6	0.800	0.6000	0.480	80	0.0002	1.0000	0.0002	0.4000	0.0001	0.00	✓
5	9:44 AM	4.000	0.6	1.000	0.6000	0.600	80	0.0266	1.0000	0.0266	0.5000	0.0133	0.22	✓
6	9:45 AM	4.500	0.6	1.100	0.6000	0.660	80	0.0481	1.0000	0.0481	0.5500	0.0264	0.43	✓
7	9:47 AM	5.000	0.6	1.200	0.6000	0.720	80	0.0957	1.0000	0.0957	0.6000	0.0574	0.93	✓
8	9:48 AM	5.500	0.6	1.350	0.6000	0.810	80	0.0026	1.0000	0.0026	0.6750	0.0018	0.03	✓
9	9:49 AM	6.000	0.6	1.350	0.6000	0.810	80	0.3001	1.0000	0.3001	0.6750	0.2025	3.29	✓
10	9:51 AM	6.500	0.6	1.300	0.6000	0.780	80	0.6726	1.0000	0.6726	0.6500	0.4372	7.10	✓
11	9:52 AM	7.000	0.6	1.500	0.6000	0.900	80	0.7059	1.0000	0.7059	0.7500	0.5294	8.59	✓
12	9:54 AM	7.500	0.6	1.550	0.6000	0.930	80	0.5269	1.0000	0.5269	0.7750	0.4083	6.63	✓
13	9:55 AM	8.000	0.6	1.500	0.6000	0.900	80	0.6082	1.0000	0.6082	0.7500	0.4562	7.40	✓
14	9:57 AM	8.500	0.6	1.500	0.6000	0.900	80	0.8581	1.0000	0.8581	0.7500	0.6436	10.45	✓
15	9:58 AM	9.000	0.6	1.300	0.6000	0.780	80	1.0365	1.0000	1.0365	0.6500	0.6737	10.94	✓
16	9:59 AM	9.500	0.6	1.300	0.6000	0.780	80	1.0632	1.0000	1.0632	0.6500	0.6911	11.22	✓
17	10:00 AM	10.000	0.6	1.300	0.6000	0.780	80	0.6375	1.0000	0.6375	0.6500	0.4144	6.73	✓
18	10:03 AM	10.500	0.6	1.300	0.6000	0.780	80	1.1539	1.0000	1.1539	0.6500	0.7500	12.18	✓
19	10:04 AM	11.000	0.6	1.100	0.6000	0.660	80	1.0002	1.0000	1.0002	0.5500	0.5501	8.93	✓
20	10:05 AM	11.500	0.6	1.000	0.6000	0.600	80	0.5991	1.0000	0.5991	0.5000	0.2995	4.86	✓
21	10:06 AM	12.000	0.6	0.950	0.6000	0.570	80	0.0106	1.0000	0.0106	0.4750	0.0050	0.08	✓
22	10:08 AM	12.500	0.6	0.400	0.6000	0.240	80	0.0014	1.0000	0.0014	0.2800	0.0004	0.01	✓
23	10:09 AM	13.400	None	0.000	0.0000	0.000	0	0.0000	1.0000	0.0014	0.0000	0.0000	0.00	✓

Discharge Measurement Summary

Site name	Watson Creek at Co Rd 17
Site number	72320
Operator(s)	Kara
File name	Watson Creek at Co Rd 17_20200723-102009.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
1	9:37 AM	2.000	0.6	0.400	0.6000	0.240	Boundary Interference
2	9:39 AM	2.500	0.6	0.600	0.6000	0.360	SNR Threshold Variation
4	9:43 AM	3.500	0.6	0.800	0.6000	0.480	Large SNR Variation,SNR Threshold Variation
5	9:44 AM	4.000	0.6	1.000	0.6000	0.600	Boundary Interference
6	9:45 AM	4.500	0.6	1.100	0.6000	0.660	Large SNR Variation
7	9:47 AM	5.000	0.6	1.200	0.6000	0.720	Boundary Interference,Large SNR Variation,SNR Threshold Variation
8	9:48 AM	5.500	0.6	1.350	0.6000	0.810	Large SNR Variation,SNR Threshold Variation
9	9:49 AM	6.000	0.6	1.350	0.6000	0.810	Large SNR Variation
13	9:55 AM	8.000	0.6	1.500	0.6000	0.900	Large SNR Variation,Standard Error > QC
14	9:57 AM	8.500	0.6	1.500	0.6000	0.900	High Stn % Discharge
15	9:58 AM	9.000	0.6	1.300	0.6000	0.780	High Stn % Discharge
16	9:59 AM	9.500	0.6	1.300	0.6000	0.780	High Stn % Discharge
17	10:00 AM	10.000	0.6	1.300	0.6000	0.780	Standard Error > QC
18	10:03 AM	10.500	0.6	1.300	0.6000	0.780	High Stn % Discharge
20	10:05 AM	11.500	0.6	1.000	0.6000	0.600	SNR Threshold Variation
21	10:06 AM	12.000	0.6	0.950	0.6000	0.570	Boundary Interference,Large SNR Variation,SNR Threshold Variation
22	10:08 AM	12.500	0.6	0.400	0.6000	0.240	Boundary Interference,Beam SNRs Not Similar,SNR Threshold Variation

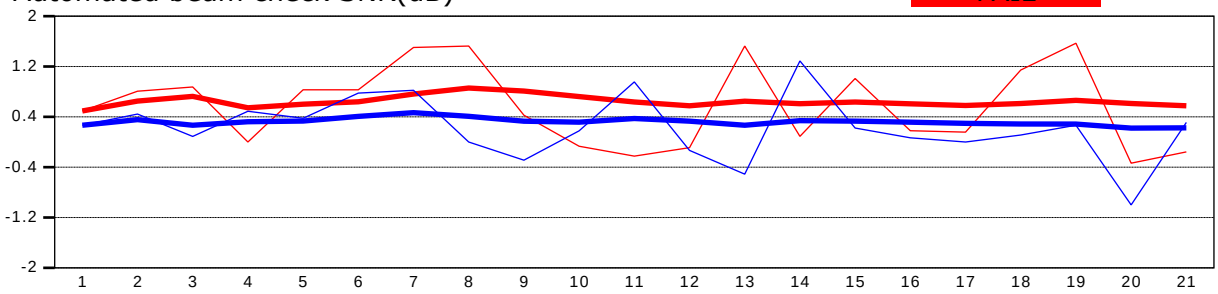
Discharge Measurement Summary

Site name	Watson Creek at Co Rd 17
Site number	72320
Operator(s)	Kara
File name	Watson Creek at Co Rd 17_20200723-102009.ft
Comment	

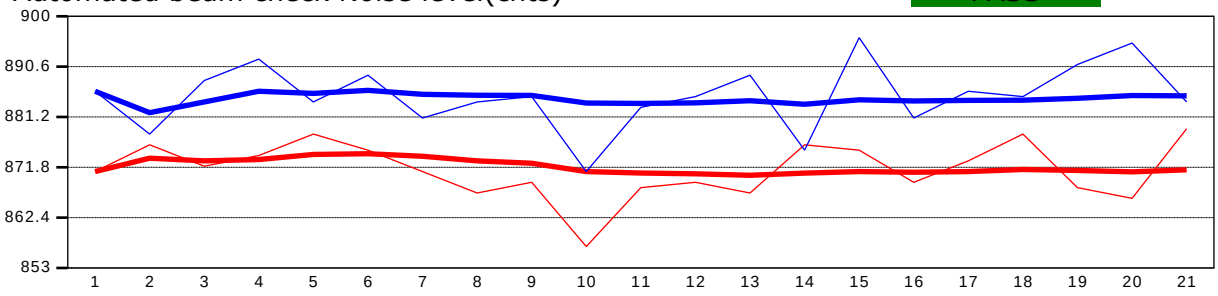
Beam 1	
Beam 2	

Automated beam check Start time 7/23/2020 9:36:05 AM

Automated beam check SNR(dB) FAIL



Automated beam check Noise level(cnts) PASS



Automated beam check Quality control warnings
Low SNR

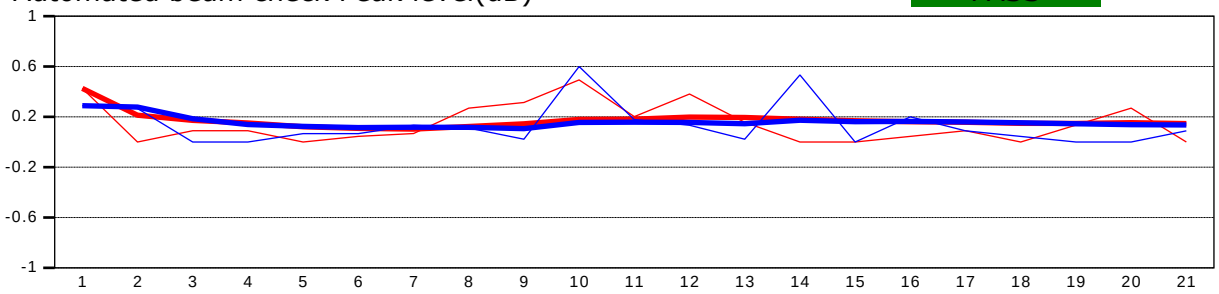
Discharge Measurement Summary

Site name	Watson Creek at Co Rd 17
Site number	72320
Operator(s)	Kara
File name	Watson Creek at Co Rd 17_20200723-102009.ft
Comment	

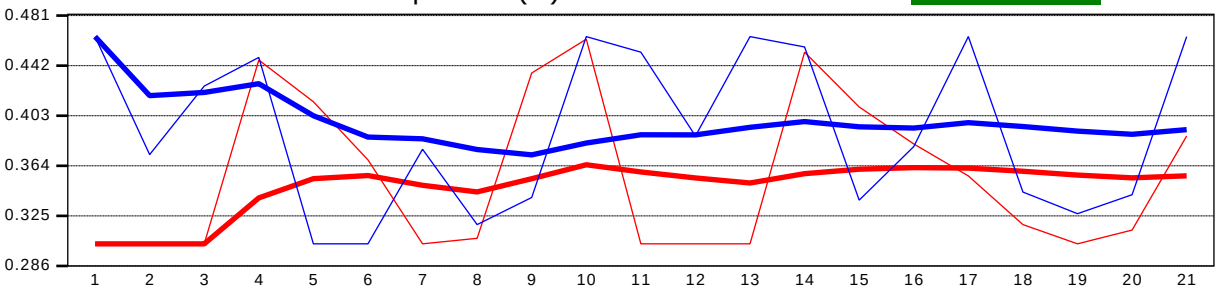
Beam 1	
Beam 2	

Automated beam check Start time 7/23/2020 9:36:05 AM

Automated beam check Peak level(dB) PASS



Automated beam check Peak position(ft) PASS



Automated beam check Quality control warnings
Low SNR

Discharge Measurement Summary

Site name	Watson Creek at Co Rd 17
Site number	9182020
Operator(s)	Laura FS
File name	Watson Creek at Co Rd 17_20200918-113506.ft
Comment	

Start time	9/18/2020 10:51 AM
End time	9/18/2020 11:32 AM
Start location latitude	40.165
Start location longitude	-106.928
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)
26	40	2.5830

Total width (ft)	Total area (ft²)	Wetted Perimeter (ft)
11.300	9.9030	11.914

Mean SNR (dB)	Mean depth (ft)	Mean velocity (ft/s)
37	0.876	0.2608

Mean temp (°F)	Max depth (ft)	Max velocity (ft/s)
50.810	1.360	0.5247

Discharge Uncertainty		
Category	**ISO**	**IVE**
Accuracy	1.0%	1.0%
Depth	0.1%	2.0%
Velocity	0.7%	4.3%
Width	0.1%	0.1%
Method	1.7%	
# Stations	2.0%	
Overall	**2.9%**	**4.9%**

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

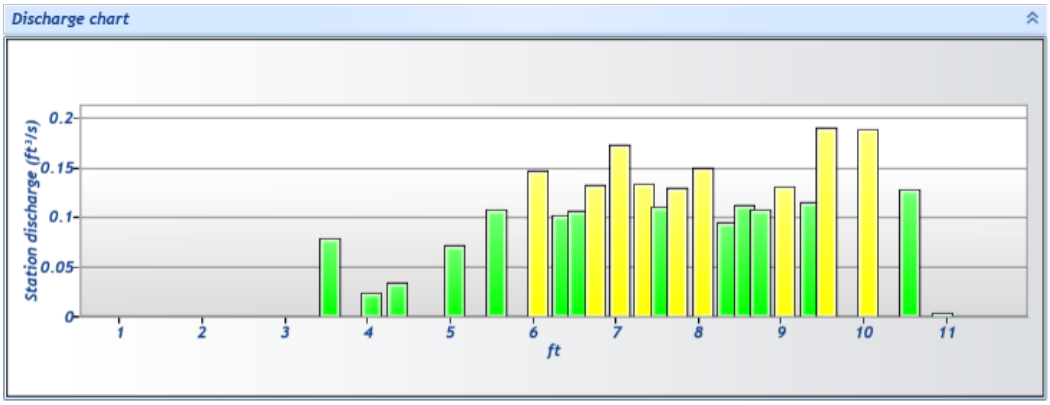
No changes were made to this file
Quality control warnings

Discharge Measurement Summary

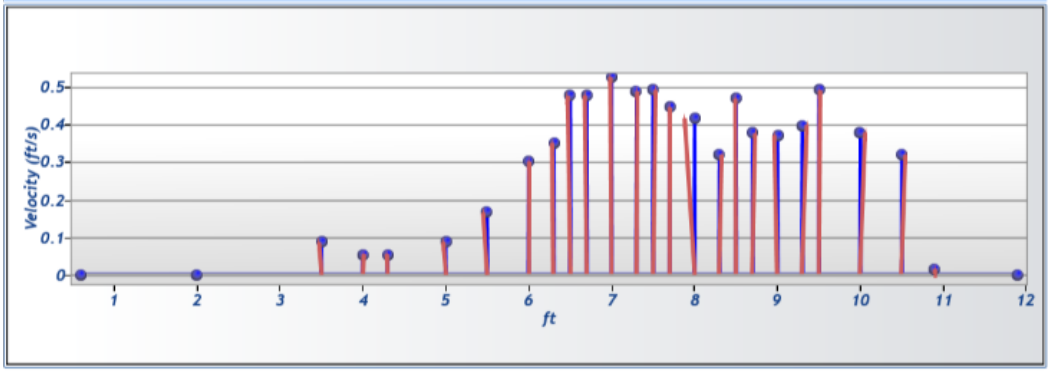
Site name	Watson Creek at Co Rd 17
Site number	9182020
Operator(s)	Laura FS
File name	Watson Creek at Co Rd 17_20200918-113506.ft
Comment	

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%

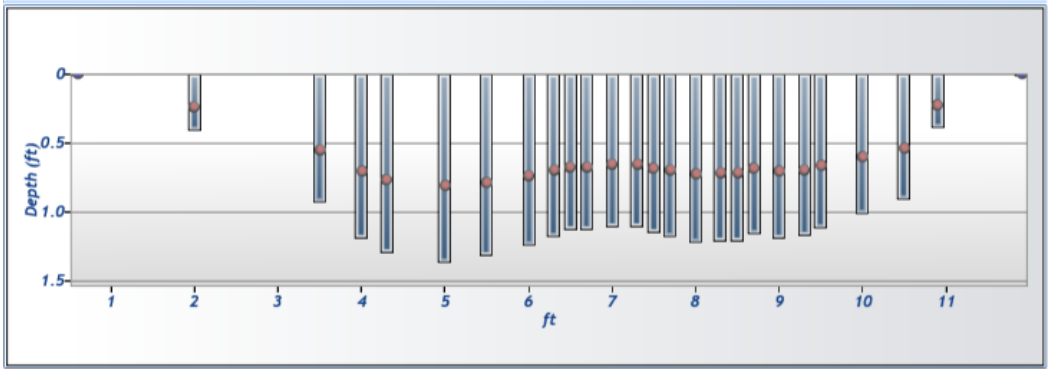
Discharge chart



Velocity chart



Depth chart



Discharge Measurement Summary

Site name	Watson Creek at Co Rd 17
Site number	9182020
Operator(s)	Laura FS
File name	Watson Creek at Co Rd 17_20200918-113506.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	
25	11:19 AM	0.600	None	0.010	0.0000	0.000	0	0.0000	1.0000	0.0005	0.0070	0.0000	0.00	✓
24	11:17 AM	2.000	0.6	0.400	0.6000	0.240	80	0.0005	1.0000	0.0005	0.5800	0.0003	0.01	✓
23	11:15 AM	3.500	0.6	0.920	0.6000	0.552	80	0.0868	1.0000	0.0868	0.9200	0.0798	3.09	✓
22	11:13 AM	4.000	0.6	1.180	0.6000	0.708	80	0.0534	1.0000	0.0534	0.4720	0.0252	0.98	✓
21	11:12 AM	4.300	0.6	1.280	0.6000	0.768	80	0.0533	1.0000	0.0533	0.6400	0.0341	1.32	✓
20	11:08 AM	5.000	0.6	1.360	0.6000	0.816	80	0.0880	1.0000	0.0880	0.8160	0.0718	2.78	✓
19	11:06 AM	5.500	0.6	1.310	0.6000	0.786	80	0.1659	1.0000	0.1659	0.6550	0.1087	4.21	✓
18	11:05 AM	6.000	0.6	1.230	0.6000	0.738	80	0.3002	1.0000	0.3002	0.4920	0.1477	5.72	✓
17	11:20 AM	6.300	0.6	1.170	0.6000	0.702	80	0.3501	1.0000	0.3501	0.2925	0.1024	3.96	✓
16	11:04 AM	6.500	0.6	1.120	0.6000	0.672	80	0.4750	1.0000	0.4750	0.2240	0.1064	4.12	✓
15	11:22 AM	6.700	0.6	1.120	0.6000	0.672	80	0.4759	1.0000	0.4759	0.2800	0.1332	5.16	✓
14	11:02 AM	7.000	0.6	1.100	0.6000	0.660	80	0.5247	1.0000	0.5247	0.3300	0.1732	6.70	✓
13	11:24 AM	7.300	0.6	1.100	0.6000	0.660	80	0.4870	1.0000	0.4870	0.2750	0.1339	5.19	✓
12	11:01 AM	7.500	0.6	1.140	0.6000	0.684	80	0.4908	1.0000	0.4908	0.2280	0.1119	4.33	✓
11	11:27 AM	7.700	0.6	1.170	0.6000	0.702	80	0.4439	1.0000	0.4439	0.2925	0.1298	5.03	✓
10	10:59 AM	8.000	0.6	1.210	0.6000	0.726	80	0.4150	1.0000	0.4150	0.3630	0.1506	5.83	✓
9	11:25 AM	8.300	0.6	1.200	0.6000	0.720	80	0.3182	1.0000	0.3182	0.3000	0.0955	3.70	✓
8	10:57 AM	8.500	0.6	1.200	0.6000	0.720	80	0.4671	1.0000	0.4671	0.2400	0.1121	4.34	✓
7	11:29 AM	8.700	0.6	1.150	0.6000	0.690	80	0.3753	1.0000	0.3753	0.2875	0.1079	4.18	✓
6	10:56 AM	9.000	0.6	1.180	0.6000	0.708	80	0.3705	1.0000	0.3705	0.3540	0.1311	5.08	✓
5	11:30 AM	9.300	0.6	1.160	0.6000	0.696	80	0.3978	1.0000	0.3978	0.2900	0.1154	4.47	✓
4	10:55 AM	9.500	0.6	1.110	0.6000	0.666	80	0.4896	1.0000	0.4896	0.3885	0.1902	7.36	✓
3	10:53 AM	10.000	0.6	1.000	0.6000	0.600	80	0.3779	1.0000	0.3779	0.5000	0.1889	7.32	✓
2	10:52 AM	10.500	0.6	0.900	0.6000	0.540	80	0.3181	1.0000	0.3181	0.4050	0.1288	4.99	✓
1	11:32 AM	10.900	0.6	0.380	0.6000	0.228	80	0.0141	1.0000	0.0141	0.2660	0.0038	0.15	✓
0	10:51 AM	11.900	None	0.010	0.0000	0.000	0	0.0000	1.0000	0.0141	0.0050	0.0001	0.00	✓

Discharge Measurement Summary

Site name	Watson Creek at Co Rd 17
Site number	9182020
Operator(s)	Laura FS
File name	Watson Creek at Co Rd 17_20200918-113506.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
24	11:17 AM	2.000	0.6	0.400	0.6000	0.240	Boundary Interference,SNR Threshold Variation
23	11:15 AM	3.500	0.6	0.920	0.6000	0.552	Velocity Angle > QC
22	11:13 AM	4.000	0.6	1.180	0.6000	0.708	Boundary Interference
21	11:12 AM	4.300	0.6	1.280	0.6000	0.768	Stn Spacing > QC
20	11:08 AM	5.000	0.6	1.360	0.6000	0.816	Velocity Angle > QC
1	11:32 AM	10.900	0.6	0.380	0.6000	0.228	Large SNR Variation,SNR Threshold Variation
0	10:51 AM	11.900	None	0.010	0.0000	0.000	Stn Spacing > QC

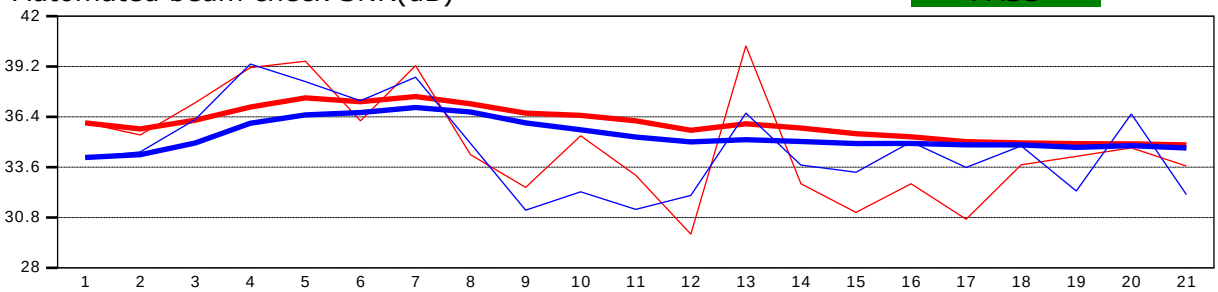
Discharge Measurement Summary

Site name	Watson Creek at Co Rd 17
Site number	9182020
Operator(s)	Laura FS
File name	Watson Creek at Co Rd 17_20200918-113506.ft
Comment	

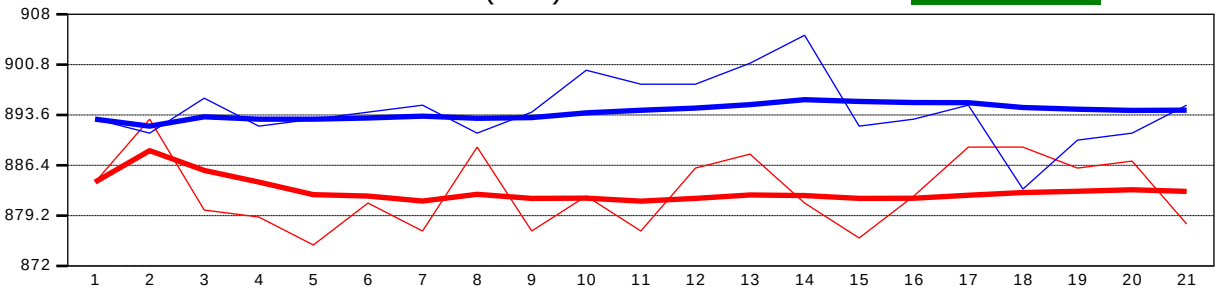
Beam 1	
Beam 2	

Automated beam check Start time 9/18/2020 10:49:56 AM

Automated beam check SNR(dB) PASS



Automated beam check Noise level(cnts) PASS



Automated beam check Quality control warnings

No quality control warnings

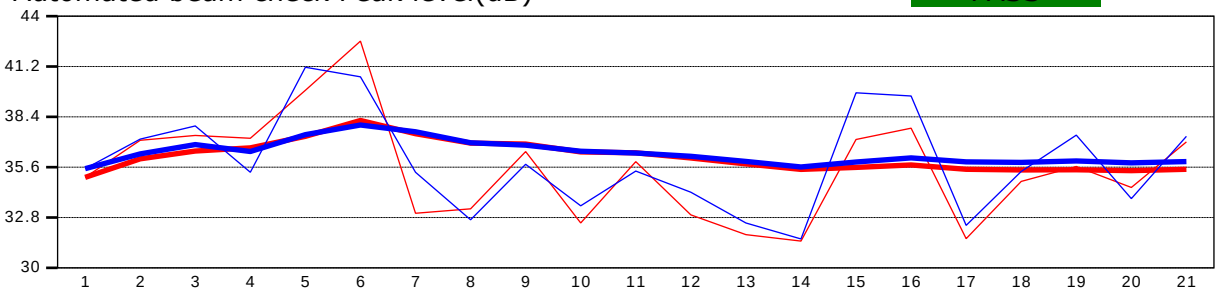
Discharge Measurement Summary

Site name	Watson Creek at Co Rd 17
Site number	9182020
Operator(s)	Laura FS
File name	Watson Creek at Co Rd 17_20200918-113506.ft
Comment	

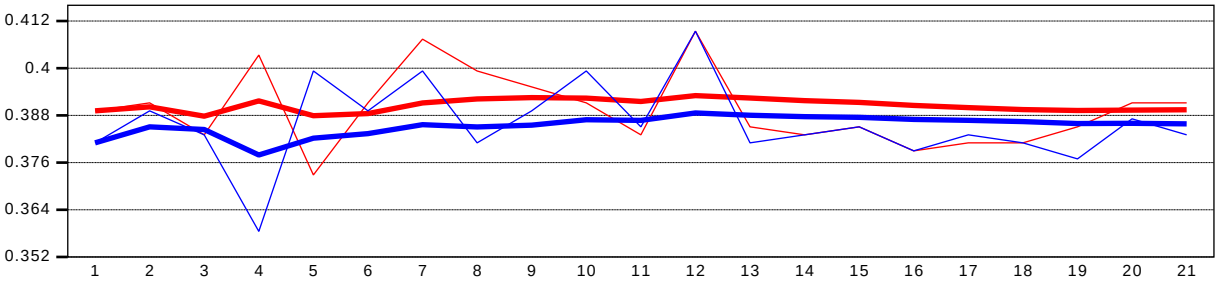
Beam 1	
Beam 2	

Automated beam check Start time 9/18/2020 10:49:56 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	Watson Creek at Co Rd 17
Site number	10112020
Operator(s)	Laura FS
File name	Watson Creek at Co Rd 17_20201011-153428.ft
Comment	

Start time	10/11/2020 3:01 PM
End time	10/11/2020 3:31 PM
Start location latitude	40.165
Start location longitude	-106.928
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)
24	40	2.5252

Total width (ft)	Total area (ft²)	Wetted Perimeter (ft)
15.700	13.8437	16.434

Mean SNR (dB)	Mean depth (ft)	Mean velocity (ft/s)
37	0.882	0.1824

Mean temp (°F)	Max depth (ft)	Max velocity (ft/s)
45.738	1.420	-0.7043

Discharge Uncertainty		
Category	**ISO**	**IVE**
Accuracy	1.0%	1.0%
Depth	0.4%	6.7%
Velocity	22.5%	13.1%
Width	0.2%	0.2%
Method	2.7%	
# Stations	2.1%	
Overall	**22.8%**	**14.7%**

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 %

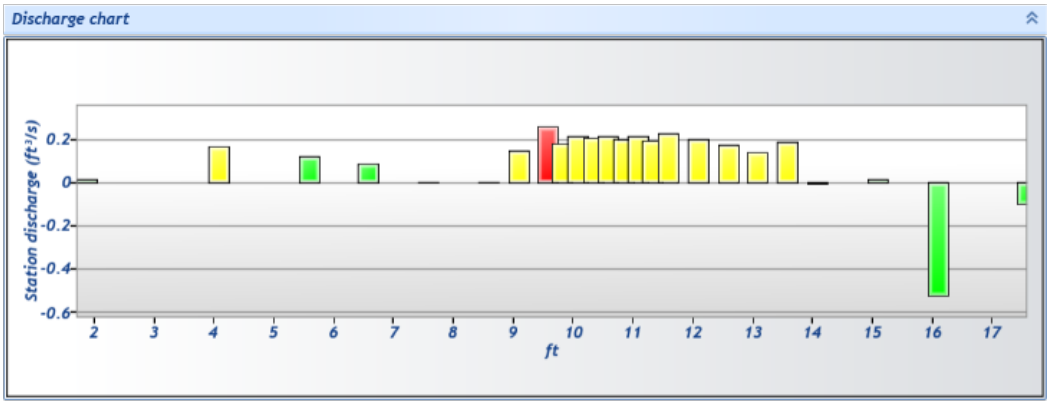
Summary overview

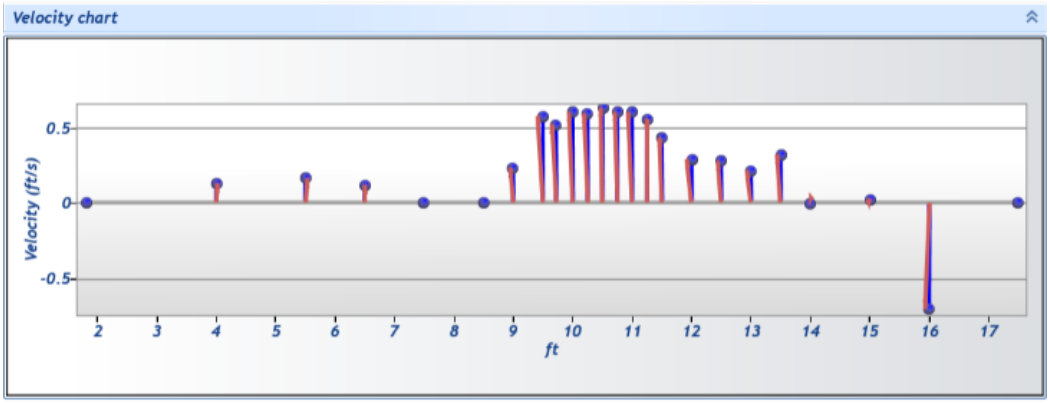
No changes were made to this file
Quality control warnings

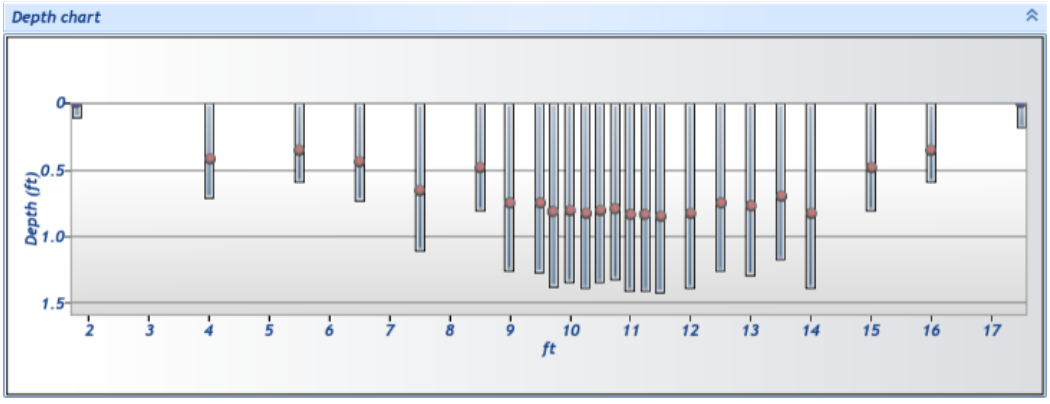
Discharge Measurement Summary

Site name	Watson Creek at Co Rd 17
Site number	10112020
Operator(s)	Laura FS
File name	Watson Creek at Co Rd 17_20201011-153428.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	Watson Creek at Co Rd 17
Site number	10112020
Operator(s)	Laura FS
File name	Watson Creek at Co Rd 17_20201011-153428.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	
23	3:25 PM	1.800	None	0.100	0.0000	0.000	0	0.0000	1.0000	0.1288	0.1100	0.0142	0.56	✓
22	3:23 PM	4.000	0.6	0.700	0.6000	0.420	80	0.1288	1.0000	0.1288	1.2950	0.1667	6.60	✓
21	3:22 PM	5.500	0.6	0.590	0.6000	0.354	80	0.1611	1.0000	0.1611	0.7375	0.1188	4.70	✓
20	3:21 PM	6.500	0.6	0.730	0.6000	0.438	80	0.1166	1.0000	0.1166	0.7300	0.0851	3.37	✓
19	3:19 PM	7.500	0.6	1.100	0.6000	0.660	80	-0.0008	1.0000	-0.0008	1.1000	-0.0008	-0.03	✓
18	3:18 PM	8.500	0.6	0.800	0.6000	0.480	80	0.0009	1.0000	0.0009	0.6000	0.0006	0.02	✓
17	3:17 PM	9.000	0.6	1.250	0.6000	0.750	80	0.2308	1.0000	0.2308	0.6250	0.1442	5.71	✓
16	3:15 PM	9.500	0.6	1.260	0.6000	0.756	80	0.5768	1.0000	0.5768	0.4536	0.2617	10.36	✓
15	3:26 PM	9.720	0.6	1.370	0.6000	0.822	80	0.5202	1.0000	0.5202	0.3425	0.1782	7.06	✓
14	3:14 PM	10.000	0.6	1.340	0.6000	0.804	80	0.6011	1.0000	0.6011	0.3551	0.2134	8.45	✓
13	3:27 PM	10.250	0.6	1.380	0.6000	0.828	80	0.5914	1.0000	0.5914	0.3450	0.2040	8.08	✓
12	3:13 PM	10.500	0.6	1.340	0.6000	0.804	80	0.6294	1.0000	0.6294	0.3350	0.2109	8.35	✓
11	3:29 PM	10.750	0.6	1.320	0.6000	0.792	80	0.6018	1.0000	0.6018	0.3300	0.1986	7.86	✓
10	3:12 PM	11.000	0.6	1.400	0.6000	0.840	80	0.6014	1.0000	0.6014	0.3500	0.2105	8.34	✓
9	3:31 PM	11.250	0.6	1.400	0.6000	0.840	80	0.5562	1.0000	0.5562	0.3500	0.1947	7.71	✓
8	3:11 PM	11.500	0.6	1.420	0.6000	0.852	80	0.4319	1.0000	0.4319	0.5325	0.2300	9.11	✓
7	3:09 PM	12.000	0.6	1.380	0.6000	0.828	80	0.2881	1.0000	0.2881	0.6900	0.1988	7.87	✓
6	3:08 PM	12.500	0.6	1.250	0.6000	0.750	80	0.2750	1.0000	0.2750	0.6250	0.1719	6.81	✓
5	3:07 PM	13.000	0.6	1.290	0.6000	0.774	80	0.2132	1.0000	0.2132	0.6450	0.1375	5.44	✓
4	3:06 PM	13.500	0.6	1.170	0.6000	0.702	80	0.3201	1.0000	0.3201	0.5850	0.1872	7.42	✓
3	3:04 PM	14.000	0.6	1.380	0.6000	0.828	80	-0.0039	1.0000	-0.0039	1.0350	-0.0040	-0.16	✓
2	3:03 PM	15.000	0.6	0.800	0.6000	0.480	80	0.0220	1.0000	0.0220	0.8000	0.0176	0.70	✓
1	3:01 PM	16.000	0.6	0.590	0.6000	0.354	80	-0.7043	1.0000	-0.7043	0.7375	-0.5194	-20.57	✓
0	3:01 PM	17.500	None	0.180	0.0000	0.000	0	0.0000	1.0000	-0.7043	0.1350	-0.0951	-3.77	✓

Discharge Measurement Summary

Site name	Watson Creek at Co Rd 17
Site number	10112020
Operator(s)	Laura FS
File name	Watson Creek at Co Rd 17_20201011-153428.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
19	3:19 PM	7.500	0.6	1.100	0.6000	0.660	Boundary Interference,Beam SNRs Not Similar,Large SNR Variation
18	3:18 PM	8.500	0.6	0.800	0.6000	0.480	Boundary Interference,SNR Threshold Variation
16	3:15 PM	9.500	0.6	1.260	0.6000	0.756	High Stn % Discharge
3	3:04 PM	14.000	0.6	1.380	0.6000	0.828	SNR Threshold Variation
2	3:03 PM	15.000	0.6	0.800	0.6000	0.480	SNR Threshold Variation
1	3:01 PM	16.000	0.6	0.590	0.6000	0.354	Low SNR,SNR Threshold Variation,Standard Error > QC,Velocity Angle > QC

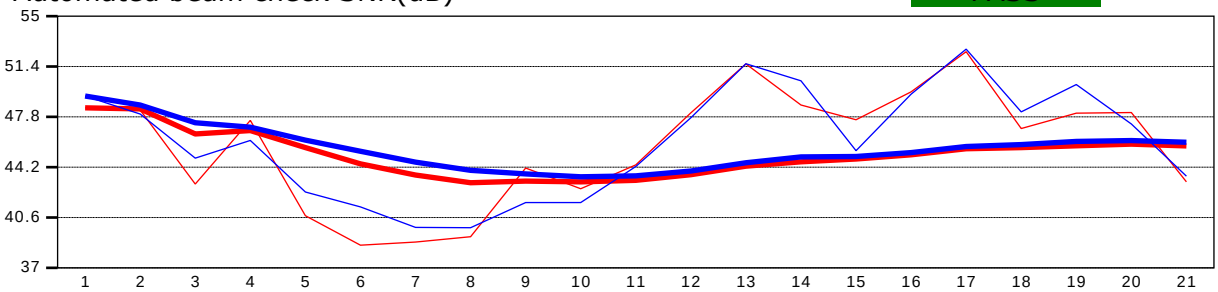
Discharge Measurement Summary

Site name	Watson Creek at Co Rd 17
Site number	10112020
Operator(s)	Laura FS
File name	Watson Creek at Co Rd 17_20201011-153428.ft
Comment	

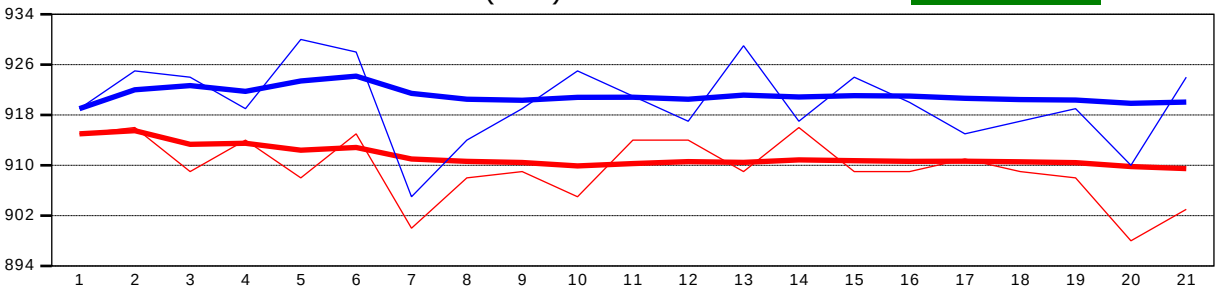
Beam 1	
Beam 2	

Automated beam check Start time 10/11/2020 3:00:16 PM

Automated beam check SNR(dB) PASS



Automated beam check Noise level(cnts) PASS



Automated beam check Quality control warnings

No quality control warnings

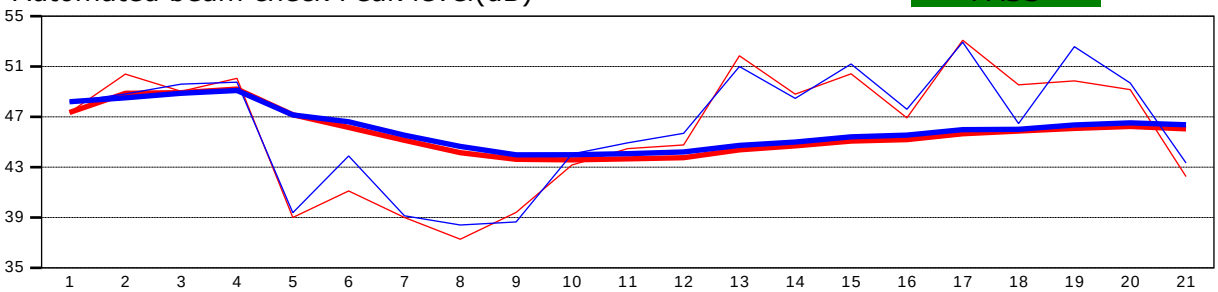
Discharge Measurement Summary

Site name	Watson Creek at Co Rd 17
Site number	10112020
Operator(s)	Laura FS
File name	Watson Creek at Co Rd 17_20201011-153428.ft
Comment	

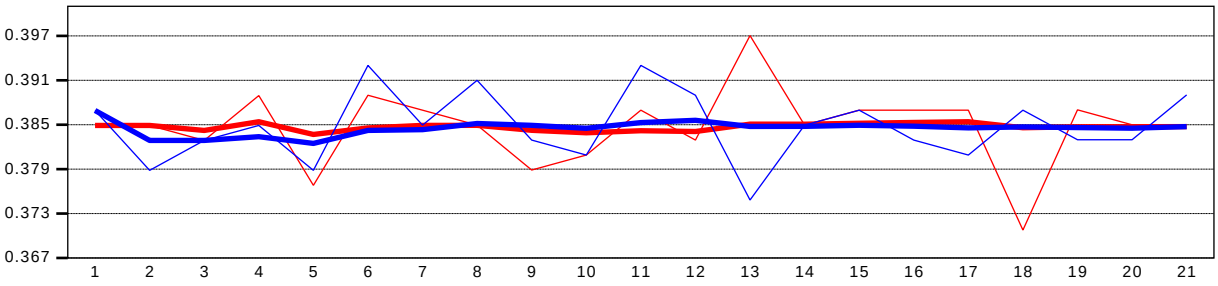
Beam 1	
Beam 2	

Automated beam check Start time 10/11/2020 3:00:16 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	Watson
Site number	
Operator(s)	Lfs
File name	Watson_20210404-211051.ft
Comment	

Start time	4/4/2021 8:37 PM
End time	4/4/2021 9:05 PM
Start location latitude	40.165
Start location longitude	-106.928
Calculations engine	FlowTracker2

Sensor type	Top Setting
Handheld serial number	FT2H2104006
Probe serial number	FT2P2103011
Probe firmware	1.30
Handheld software	1.6.4

# Stations	Avg interval (s)	Total discharge (ft³/s)
20 *[20]*	40	9.6327 *[9.6087]*

Total width (ft)	Total area (ft²)	Wetted Perimeter (ft)
15.000 *[15.000]*	16.9850 *[16.9850]*	15.752 *[15.752]*

Mean SNR (dB)	Mean depth (ft)	Mean velocity (ft/s)
41 *[41]*	1.132 *[1.132]*	0.5671 *[0.5657]*

Mean temp (°F)	Max depth (ft)	Max velocity (ft/s)
43.443 *[43.443]*	1.680 *[1.680]*	1.0917 *[1.0917]*

Discharge Uncertainty		
Category	**ISO**	**IVE**
Accuracy	1.0%	1.0%
Depth	0.1%	2.4%
Velocity	4.9%	3.4%
Width	0.1%	0.1%
Method	1.7%	
# Stations	2.5%	
Overall	**5.9%**	**4.3%**

Discharge equation	Mid Section
Discharge uncertainty	IVE
Discharge reference	Measured

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

Summary overview

Configuration settings were modified
One measurement was edited
Quality control warnings

**The data in brackets [] are the original data before editing*

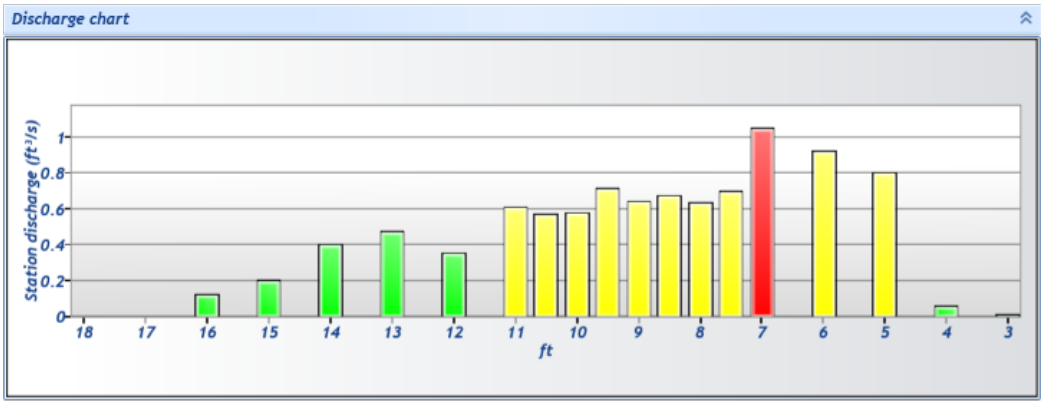
Configuration changes

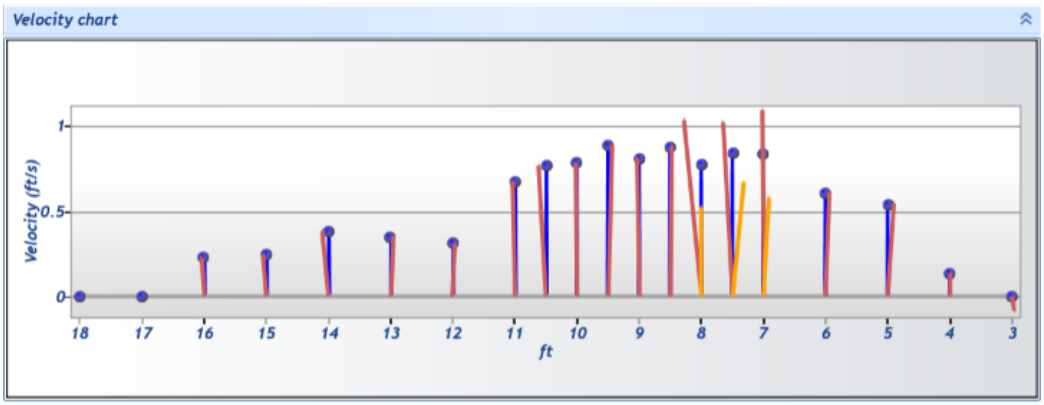
Discharge reference was changed from Rated to Measured

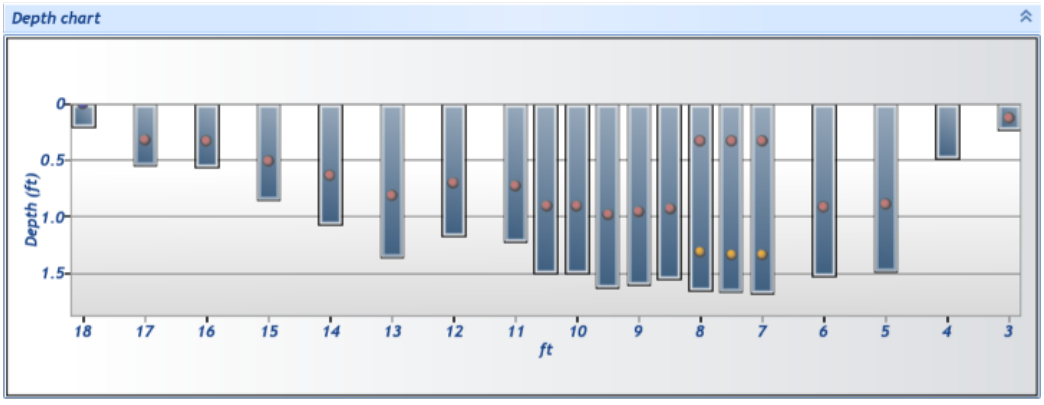
Discharge Measurement Summary

Site name	Watson
Site number	
Operator(s)	Lfs
File name	Watson_20210404-211051.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	Watson
Site number	
Operator(s)	Lfs
File name	Watson_20210404-211051.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	
19	*9:05 PM*	*3.000*	*None*	*0.220*	*0.6000*	*0.132*	*80*	*-0.0830*	*1.0000*	*0.1351*	*0.1100*	*0.0149*	*0.15*	✓
18	9:03 PM	4.000	0.6	0.480	0.6000	-0.032	80	0.1351	1.0000	0.1351	0.4800	0.0649	0.67	✓
17	9:02 PM	5.000	0.6	1.490	0.6000	0.894	80	0.5431	1.0000	0.5431	1.4900	0.8093	8.40	✓
16	9:01 PM	6.000	0.6	1.530	0.6000	0.918	80	0.6087	1.0000	0.6087	1.5300	0.9313	9.67	✓
15	8:58 PM	7.000	0.2/0.8	1.680	0.2000	0.336	80	1.0917	1.0000	0.8351	1.2600	1.0522	10.92	✓
15	8:58 PM	7.000	0.2/0.8	1.680	0.8000	1.344	80	0.5784	1.0000	0.8351	1.2600	1.0522	10.92	✓
14	8:56 PM	7.500	0.2/0.8	1.670	0.2000	0.334	80	1.0201	1.0000	0.8453	0.8350	0.7058	7.33	✓
14	8:56 PM	7.500	0.2/0.8	1.670	0.8000	1.336	80	0.6705	1.0000	0.8453	0.8350	0.7058	7.33	✓
13	8:53 PM	8.000	0.2/0.8	1.650	0.2000	0.330	80	1.0318	1.0000	0.7773	0.8250	0.6413	6.66	✓
13	8:53 PM	8.000	0.2/0.8	1.650	0.8000	1.320	80	0.5228	1.0000	0.7773	0.8250	0.6413	6.66	✓
12	8:52 PM	8.500	0.6	1.550	0.6000	0.930	80	0.8799	1.0000	0.8799	0.7750	0.6819	7.08	✓
11	8:51 PM	9.000	0.6	1.600	0.6000	0.960	80	0.8114	1.0000	0.8114	0.8000	0.6491	6.74	✓
10	8:50 PM	9.500	0.6	1.630	0.6000	0.978	80	0.8835	1.0000	0.8835	0.8150	0.7201	7.48	✓
9	8:49 PM	10.000	0.6	1.500	0.6000	0.900	80	0.7796	1.0000	0.7796	0.7500	0.5847	6.07	✓
8	8:48 PM	10.500	0.6	1.500	0.6000	0.900	80	0.7666	1.0000	0.7666	0.7500	0.5749	5.97	✓
7	8:46 PM	11.000	0.6	1.220	0.6000	0.732	80	0.6745	1.0000	0.6745	0.9150	0.6171	6.41	✓
6	8:45 PM	12.000	0.6	1.170	0.6000	0.702	80	0.3093	1.0000	0.3093	1.1700	0.3619	3.76	✓
5	8:42 PM	13.000	0.6	1.360	0.6000	0.816	80	0.3512	1.0000	0.3512	1.3600	0.4776	4.96	✓
4	8:41 PM	14.000	0.6	1.070	0.6000	0.642	80	0.3822	1.0000	0.3822	1.0700	0.4090	4.25	✓
3	8:40 PM	15.000	0.6	0.850	0.6000	0.510	80	0.2466	1.0000	0.2466	0.8500	0.2096	2.18	✓
2	8:39 PM	16.000	0.6	0.560	0.6000	0.336	80	0.2271	1.0000	0.2271	0.5600	0.1272	1.32	✓
1	8:37 PM	17.000	0.6	0.540	0.6000	0.324	80	0.0001	1.0000	0.0001	0.5400	0.0001	0.00	✓
0	8:37 PM	18.000	None	0.200	0.0000	0.000	0	0.0000	1.0000	0.0001	0.1000	0.0000	0.00	✓

Discharge Measurement Summary

Site name	Watson
Site number	
Operator(s)	Lfs
File name	Watson_20210404-211051.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
19	9:05 PM	3.000	None	0.220	0.6000	0.132	Velocity Angle > QC
18	9:03 PM	4.000	0.6	0.480	0.6000	-0.032	Large SNR Variation,SNR Threshold Variation
15	8:58 PM	7.000	0.2/0.8	1.680	0.2000	0.336	High Stn % Discharge
15	8:58 PM	7.000	0.2/0.8	1.680	0.8000	1.344	High Stn % Discharge
5	8:42 PM	13.000	0.6	1.360	0.6000	0.816	Boundary Interference,Low SNR,Beam SNRs Not Similar,SNR Threshold Variation,Standard Error > QC
1	8:37 PM	17.000	0.6	0.540	0.6000	0.324	Boundary Interference,Large SNR Variation,SNR Threshold Variation

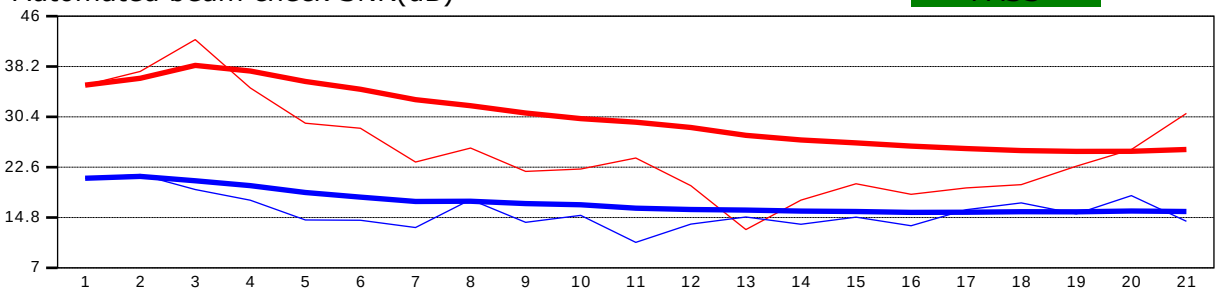
Discharge Measurement Summary

Site name	Watson
Site number	
Operator(s)	Lfs
File name	Watson_20210404-211051.ft
Comment	

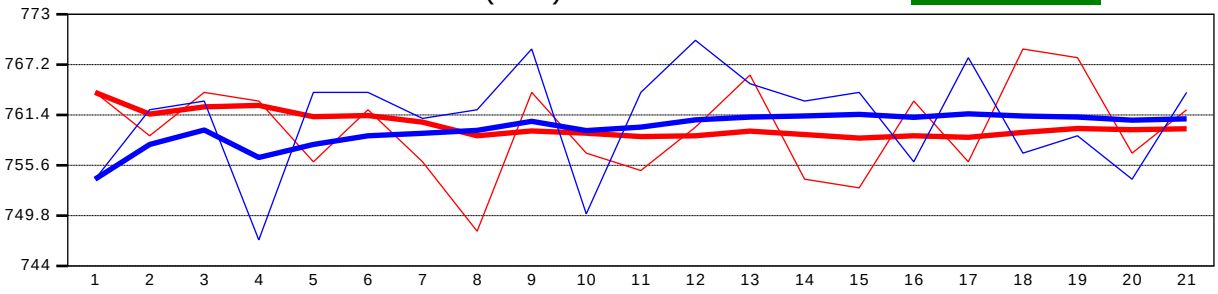
Beam 1	
Beam 2	

Automated beam check Start time 4/4/2021 8:35:12 PM

Automated beam check SNR(dB) PASS



Automated beam check Noise level(cnts) PASS



Automated beam check Quality control warnings
Peak Location > QC

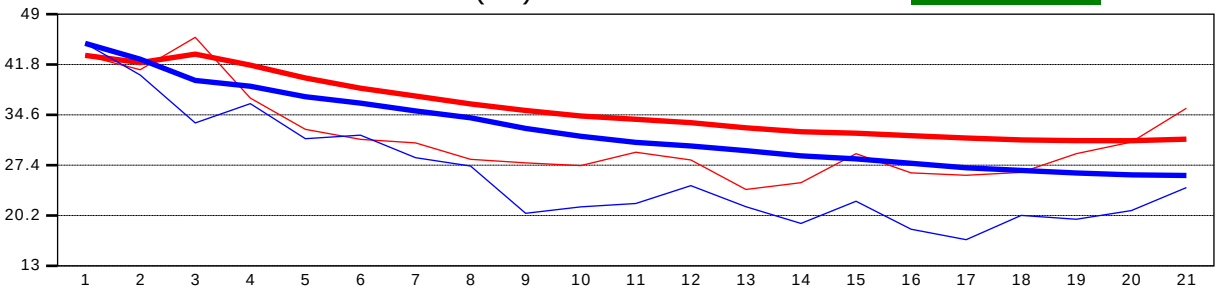
Discharge Measurement Summary

Site name	Watson
Site number	
Operator(s)	Lfs
File name	Watson_20210404-211051.ft
Comment	

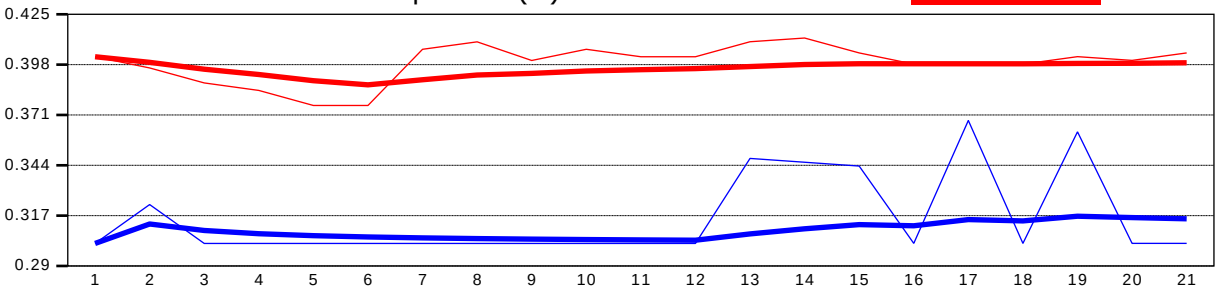
Beam 1	
Beam 2	

Automated beam check Start time 4/4/2021 8:35:12 PM

Automated beam check Peak level(dB) PASS



Automated beam check Peak position(ft) FAIL



Automated beam check Quality control warnings
Peak Location > QC

COLORADO
Department of Natural Resources

Date	6/9/2021
Observer	RS, RV, BL
Cross Section #	1
System	UTM Zone 13
X (easting)	493163
Y (northing)	4491717

FIELD MEASUREMENTS FOR DISCHARGE CALCULATOR

Stream Name	**Stream Location**
Watson Creek	near CWCB temp gage

Feature	Station (ft)	Water Depth (ft)	Velocity (ft/s)
	3.4	0.01	0
	3.8	0.25	0
	4	0.35	0
	4.2	0.4	0.07
	4.4	1.2	0.27
	4.6	1.2	0.29
	4.8	1.2	0.22
	5	1.2	0.44
	5.2	1.05	0.54
	5.4	0.95	0.74
	5.6	0.85	0.74
	5.8	0.85	0.63
	6	0.85	0.39
	6.2	0.8	0.23
	6.4	0.75	0.31
	6.6	0.7	0.31
	6.8	0.7	0.53
	7	0.5	0.55
	7.2	0.45	0.43
	7.4	0.45	0.6
	7.6	0.4	0.63
	7.8	0.35	0.5
	8	0.35	0.22
	8.2	0	

Stream Name	Watson Creek
Stream Location	near CWCB temp gage
Fieldwork Date	2021-06-09
Cross-section number	1
Observers	RS, RV, BL
Coordinate System	UTM Zone 13
X (easting)	493163
Y (northing)	4491717
Measured Flow (Qm)	1.301
Max Measured Depth (Dm)	1.2

Feature	Station (ft)	Water depth (ft)	Velocity (ft/s)	Water Depth (ft)	Area (SQ ft)	Discharge (cfs)	Percent Discharge
	3.4	0	0	0	0	0	0
	3.8	0.25	0	0.25	0.075	0	0
	4	0.35	0	0.35	0.07	0	0
	4.2	0.4	0.07	0.4	0.08	0.0056	0.4304
	4.4	1.2	0.27	1.2	0.24	0.0648	4.981
	4.6	1.2	0.29	1.2	0.24	0.0696	5.35
	4.8	1.2	0.22	1.2	0.24	0.0528	4.058
	5	1.2	0.44	1.2	0.24	0.1056	8.117
	5.2	1.05	0.54	1.05	0.21	0.1134	8.716
	5.4	0.95	0.74	0.95	0.19	0.1406	10.81
	5.6	0.85	0.74	0.85	0.17	0.1258	9.669
	5.8	0.85	0.63	0.85	0.17	0.1071	8.232
	6	0.85	0.39	0.85	0.17	0.0663	5.096
	6.2	0.8	0.23	0.8	0.16	0.0368	2.829
	6.4	0.75	0.31	0.75	0.15	0.0465	3.574
	6.6	0.7	0.31	0.7	0.14	0.0434	3.336
	6.8	0.7	0.53	0.7	0.14	0.0742	5.703
	7	0.5	0.55	0.5	0.1	0.055	4.228
	7.2	0.45	0.43	0.45	0.09	0.0387	2.975
	7.4	0.45	0.6	0.45	0.09	0.054	4.151
	7.6	0.4	0.63	0.4	0.08	0.0504	3.874
	7.8	0.35	0.5	0.35	0.07	0.035	2.69
	8	0.35	0.22	0.35	0.07	0.0154	1.184
	8.2	0		0	0	0	0