



United States Department of the Interior
BUREAU OF LAND MANAGEMENT



Colorado State Office
Denver Federal Center, Building 40
Lakewood, Colorado 80225
www.blm.gov/colorado

In Reply Refer To:
CO-932 (7250)

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

Dear Mr. Viehl:

The Bureau of Land Management (BLM) is writing this letter to formally communicate its recommendation for an instream flow water right on West Muddy Creek, located in Water Division 4.

Location and Land Status. West Muddy Creek originates on the eastern slope of Chalk Mountain, approximately 17 miles north of Paonia. This recommendation covers a reach that starts at the confluence with Sheep Creek and extends to the confluence with East Muddy Creek. This stream reach covers a distance of approximately 8.25 miles. BLM manages approximately 1.0 mile of this stream reach, the U.S. Forest Service manages 1.5 miles, and while 5.75 miles are in private ownership.

Biological Summary. West Muddy Creek is a cold-water, moderate gradient stream. The upper four miles of the reach flow through a valley approximately 0.5 miles in width with some meadows and irrigated fields. The lower four miles flow through a narrow mountain valley approximately 0.25 miles in width. The stream cuts through alluvial deposits in some locations and is constrained by bedrock in locations where the stream comes close to valley walls. The upper four miles of the creek generally has medium sized substrate, ranging from silt to one-foot boulders, while the lower four miles of the creek generally have large-sized substrate, ranging from small cobbles to two-foot boulders. The stream has a good mix of pool and riffle habitat for supporting native fish species.

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

The riparian community in this part of West Muddy Creek is generally comprised of willow species, alder, narrowleaf cottonwood and spruce. In general, the riparian community is in good condition, provides substantial shading and cover for fish habitat, and provides stream stability during flood events.

R2Cross Analysis. BLM collected the following R2Cross data from West Fork Muddy Creek:

Cross Section Date	Discharge Rate	Top Width	Winter Flow Recommendation (meets 2 of 3 hydraulic criteria)	Summer Flow Recommendation (meets 3 of 3 hydraulic criteria)
06/01/2018 #1	4.73 cfs	33.5 feet	3.28 cfs	10.08 cfs
06/01/2018 #2	5.82 cfs	33.5 feet	4.41 cfs	12.34 cfs
05/11/2021 #1	33.34 cfs	47.04 feet	7.43 cfs	19.16 cfs
08/06/2021 #1	4.57 cfs	30.13 feet	3.39 cfs	13.65 cfs
08/06/2021 #2	4.57 cfs	36.16 feet	8.75 cfs	9.30 cfs
Averages:			5.45 cfs	12.91 cfs

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

12.9 cubic feet per second is recommended for the snowmelt runoff period from April 1 through July 15 and meets all three instream flow criteria. This recommendation is driven by the average velocity criteria.

5.5 cubic feet per second is recommended from July 16 to July 31. This flow meets two of three instream flow criteria and is driven by the average depth criteria.

2.0 cubic feet per second is recommended during from August 1 through September 30. This recommendation is driven by limited water availability during this period. It provides the maximum amount of physical habitat possible to the fish community consistent with water availability constraints, which is important objective during this high growth period.

5.5 cubic feet per second is recommended between October 1 and March 31. This recommendation is driven by limited water availability during this period. On average, this flow rate comes very close to meeting two of the three instream flow criteria in the cross sections analyzed. This flow rate should maintain sufficiently cool temperatures in pools during late summer and should prevent icing in pools during the winter.

Water Availability. The BLM recommends relying upon historic gage data to confirm water availability. USGS Gage 09131200 (West Muddy Creek Near Somerset, CO) was operated between 1961 and 1973, reflecting a 13-year period of record. The gage records will have to be adjusted to account for new diversions below the gage that have commenced since 1973. In

addition, the gage data will need be adjusted to reflect the fact that some tributaries enter the creek downstream of the gage.

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

Relationship to Land Management Plans. The BLM land use plan for this area calls for actions to maintain and enhance riparian and fisheries habitat. In general, any proposed new land use, such as right-of-way corridors or mineral development, must be implemented with no surface occupancy to avoid impacts to the creek. Establishing an instream flow water right would assist in meeting these objectives.

Data sheets, R2Cross output, fishery survey information, and photographs of the cross section were included with BLM's draft recommendation in February 2020. We thank both Colorado Parks and Wildlife and the Colorado Water Conservation Board for their cooperation in this effort.

If you have any questions regarding our instream flow recommendation, please contact Roy Smith at 303-239-3940.

Sincerely,

JOEL
HUMPHRIES

Digitally signed by
JOEL HUMPHRIES
Date: 2024.11.27
09:03:10 -07'00'

for

Alan Bittner
Deputy State Director
Resources

Cc: Kevin Hyatt, Uncompahgre FO
Dan Ben-Horin, Uncompahgre FO
Stephanie McCormick, Southwest District



Combined Summaries

Water **41777** Muddy Creek, West
Station **GU2515** 1 Km ABV Willow Creek

Date **6/28/2016**

Drainage **Gunnison River**

UtmX **283522**

UtmY **4327941**

Elevation **7896 ft**

Length **336 ft**

Width **12.00 ft**

Area **0.09 acre**

Surveyors **Woody, Branson, Hayner**

Gear

Effort

Metric

Protocol **PRESENCE/ABSENCE**

Proportional Stocking Density and Catch/Unit Effort

Species	Total Catch	Min Cut inch	Max Cut inch	Total used	Proportional Stock Density (%)	Percent Stock Size	Percent Quality Size	Percent Preferred Size	Percent Memorable Size	Percent Trophy Size	Max Length inches
BLUEHEAD SUCKER	1			1							7.05
BROOK TROUT	1			1							3.98
MOTTLED SCULPIN	7			7							4.80
SPECKLED DACE	27			27							3.78
WHITE-BLUEHEAD SUCKER HYBRID	1			1							6.06

Mean, Minimum and Maximum Length and Weight

Species	Total Catch	Min cut inch	Max cut inch	Total Used	Mean	Length (inches) Minimum	Maximum	Mean	Weight (lb) Minimum	Maximum
BLUEHEAD SUCKER	1			1	7.05	7.05	7.05	0.11	0.11	0.11
BROOK TROUT	1			1	3.98	3.98	3.98	0.03	0.03	0.03
MOTTLED SCULPIN	7			7	3.44	2.76	4.80	0.02	0.01	0.06
SPECKLED DACE	27			27	3.03	2.28	3.78	0.01	0.01	0.02
WHITE-BLUEHEAD SUCKER HYBRID	1			1	6.06	6.06	6.06	0.07	0.07	0.07



Combined Summaries

Water **41777** Muddy Creek, West
Station **GU2515** 1 Km ABV Willow Creek

Date **6/28/2016**

Relative Abundance and Catch/Unit Effort

Species	Total Catch	Min.Cut inch	Max.Cut inch	Total used	Weight Lbs	Percent Number	Weight	Catch per Unit Effort Number/Effort	Lbs/Effort
BLUEHEAD SUCKER	1			1	0.11	2.70	16.90		
BROOK TROUT	1			1	0.03	2.70	3.87		
MOTTLED SCULPIN	7			7	0.17	18.92	25.47		
SPECKLED DACE	27			27	0.29	72.97	43.27		
WHITE-BLUEHEAD SUCKER HYBRID	1			1	0.07	2.70	10.49		

Abundance and Biomass

Species	Total Catch	Min.Cut inch	Max.Cut inch	Total Used	Population estimate	Biomass Lbs	Percent Number	Weight	Density estimates Lb/Acre	Fish/Acre	Fish/Mile
BLUEHEAD SUCKER	1			1		0.11	2.70	16.90	1.22	10.80	15.71
BROOK TROUT	1			1		0.03	2.70	3.87	0.28	10.80	15.71
MOTTLED SCULPIN	7			7		0.17	18.92	25.47	1.83	75.63	110.00
SPECKLED DACE	27			27		0.29	72.97	43.27	3.12	291.70	424.29
WHITE-BLUEHEAD SUCKER HYBRID	1			1		0.07	2.70	10.49	0.76	10.80	15.71

Notes: First pass- 589 sec; Second pass- 681 sec



COLORADO

Department of
Natural Resources

Date	6/1/2018
Observer	R. Smith, J. Sondergard
Cross-section#	1
System	UTM Zone 13
X (easting)	294644
Y (northing)	4319767

R2CROSS CROSS-SECTION NOTES

Stream Name	Stream Location			Slope
West Muddy Creek	Approx 1/4 mile upstream from BLM-private boundary			0.014
Feature	Distance From Initial Point (ft)	Rod Height (ft)	Water Depth (ft)	Velocity (ft/s)
Bankfull	0	4	0	0
	3	4.4	0	0
	6	4.88	0	0
Waterline	9	5.56	0	0
	9.1	5.65	0.1	0
	9.5	5.73	0.18	0
	10	5.55	0	0
	10.5	5.55	0	0
	11	5.55	0	0
	11.5	5.75	0.2	0
	12	5.85	0.3	0
	12.5	5.75	0.2	0
	13	5.75	0.2	0
	13.5	5.8	0.25	0.08
	14	5.55	0	0
	14.6	5.87	0.32	0.96
	15	5.95	0.4	0.55
	15.5	5.98	0.43	0.19
	16	6	0.45	0.06
	16.5	5.8	0.25	0.26
	17	5.98	0.43	0.65
	17.5	5.95	0.4	0.48
	18	6.4	0.85	1.07
	18.5	6.3	0.75	1.16
	19	5.85	0.3	1.51
	19.5	5.65	0.1	0.98
	20	5.7	0.15	1.08
	20.5	6	0.45	1.61
	21	6.3	0.75	1.56
	21.5	6	0.45	1.07
	22	6.05	0.5	1.09
	22.5	6.1	0.55	1.07
	23	6.25	0.7	0.79
	23.5	6.15	0.6	0.5
	24	6.15	0.6	0.54
	24.5	5.8	0.25	0.53
	25	6.05	0.5	0.53
	25.5	6.35	0.8	0.48
	26	6.35	0.8	0.28
Waterline	27	5.55	0	0
	30	5.08	0	0
Bankfull	33.5	4	0	0



COLORADO
Department of
Natural Resources

Date	6/1/2018
Observer	R. Smith, J. Sanderqard
section#	2
System	UTM Zone 13
X (easting)	294728
Y (northing)	4319727

R2CROSS CROSS-SECTION NOTES				
Stream Name	Stream Location			Slope
West Muddy Creek	Approx 1/4 mile upstream from BLM-private boundary			0.25
Feature	From Initial Point (ft)	Rod Height (ft)	Water Depth (ft)	Velocity (ft/s)
Bankfull	2	5.06	0	0
Waterline	4.3	6.15	0	0
	5	6.3	0.15	0
	5.5	6.15	0	0
	6	6.45	0.3	0.04
	6.5	6.15	0	0
	7	6.15	0	0
	7.5	6.25	0.1	0.41
	8	6.3	0.15	0.28
	8.5	6.65	0.5	0.47
	9	6.65	0.5	0.79
	9.5	6.65	0.5	0.2
	10	6.55	0.4	0.38
	10.5	6.35	0.2	0.42
	11	6.25	0.1	0.26
	11.5	6.75	0.6	0.18
	12	6.75	0.6	0.5
	12.5	6.85	0.7	0.86
	13	6.85	0.7	0.99
	13.5	6.55	0.4	1.48
	14	6.75	0.6	1.1
	15.5	6.7	0.55	0.38
	16	6.45	0.3	0.99
	16.5	6.65	0.5	0.77
	17	6.4	0.25	0
	17.5	6.6	0.45	0
	18	6.65	0.5	0.1
	18.5	6.85	0.7	1.03
	19	6.65	0.5	1.08
	19.5	6.45	0.3	0.35
	20	6.4	0.25	0.39
	20.5	6.45	0.3	0.08
	21	6.55	0.4	0.19
	21.5	6.55	0.4	1.44
	22	6.55	0.4	2.25
	22.5	6.45	0.3	1.72
	23	6.55	0.4	0.91
	23.5	6.65	0.5	0.56
	24	6.7	0.55	0.74
	24.5	6.75	0.6	0.92
	25	6.85	0.7	0.48
	25.5	6.15	0	0
	26	6.15	0	0
	26.5	6.35	0.2	0
	27	6.35	0.2	0.36
	27.5	6.35	0.2	1.07
	28	6.3	0.15	0
	28.5	6.15	0	0
	29	6.15	0	0
	29.5	6.2	0.05	0
Waterline	29.8	6.1	0	0
	32	5.63	0	0
	34	5.45	0	0
Bankfull	35.8	4.98	0	0



COLORADO

Department of
Natural Resources

Date	5/11/2021
Observer	R Smith, J Sondergard
Cross-section#	
System	UTM Zone 13
X (easting)	294724
Y (northing)	4319739

R2CROSS CROSS-SECTION NOTES

Stream Name	Stream Location			Slope
West Muddy Creek	1/4 mile upstream from BLM-private land boundary			0.009
Feature	Distance From Initial Point (ft)	Rod Height (ft)	Water Depth (ft)	Velocity (ft/s)
	0	5.52	0	0
Bankfull	0.8	6.08	0	0
	6.1	7.12	0	0
Waterline	11.6	8	0	0
	13	8.3	0.3	0.38
	14	8.1	0.1	0.41
	15	8.1	0.1	0.43
	16	8.8	0.8	0.84
	17	8.75	0.75	0.64
	18	8.75	0.75	1.21
	19	8.9	0.9	0.84
	20	8.6	0.6	0.7
	21	8.95	0.95	1.28
	22	8.8	0.8	1.21
	23	8.8	0.8	1.24
	24	8.8	0.8	1.64
	25	8.8	0.8	1.24
	26	8.75	0.75	2.25
	27	8.9	0.9	2.05
	28	9.1	1.1	1.82
	29	9.1	1.1	1.43
	30	9.1	1.1	1.62
	31	9.1	1.15	1.23
	32	8.8	0.8	2.1
	33	8.9	0.9	1.56
	34	9.1	1.1	0
	35	9.1	1.1	0.63
	36	8.8	0.8	2.03
	37	9.2	1.2	1.97
	38	9.3	1.3	1.62
	39	9.4	1.4	1.51
	40	8.9	0.9	1.04
	41	9.2	1.2	0.68
	42	8.45	0.45	0.81
Waterline	43	8	0	0
	44.7	7.53	0	0
Bankfull	47.9	6.05	0	0
	52	4.9	0	0



COLORADO

**Department of
Natural Resources**

Date	8/6/2021
Observer	R Smith, J Sondergard, K Birch
Cross-section#	1
System	UTM Zone 13
X (easting)	289802
Y (northing)	4324286

R2CROSS CROSS-SECTION NOTES

Stream Name	Stream Location			Slope
West Muddy Creek	1/4 mile upstream from confluence with Ault Creek			0.0041
Feature	Distance From Initial Point (ft)	Rod Height (ft)	Water Depth (ft)	Velocity (ft/s)
	0	4.06		
Bankfull	2.4	4.5		
	2.8	5.42		
	3.7	5.85		
Waterline	4.3	6.1	0	
	4.7	6.17	0.07	
	5.2	6.21	0.11	
	5.9	6.19	0.09	
	6.6	6.45	0.35	
	7.3	6.5	0.4	
	8	6.61	0.51	
	8.7	6.61	0.51	
	9.4	6.65	0.55	
	10.1	6.99	0.89	
	10.8	6.89	0.79	
	11.5	6.93	0.83	
	12.2	6.76	0.66	
	12.9	6.71	0.61	
	13.6	6.72	0.62	
	14.3	6.8	0.7	
	15	6.81	0.71	
	15.7	6.75	0.65	
	16.4	6.69	0.59	
	17.1	6.46	0.36	
	17.8	6.6	0.5	
	18.5	6.52	0.42	
	19.2	6.52	0.42	
	19.9	6.39	0.29	
Waterline	20.6	6.1	0	
	21.2	5.96		
	21.6	5.65		
	26.4	5.56		
	27.7	5.15		
Bankfull	32.6	4.49		
	36.4	3.71		



COLORADO
Department of
Natural Resources

Date	8/6/2021
Observer	R Smith, J Sondergard, K Birch
Cross-section#	
System	UTM Zone 13
X (easting)	289946
Y (northing)	4324302

R2CROSS CROSS-SECTION NOTES

Stream Name	Stream Location			Slope
West Muddy Creek	1/4 mile upstream from confluence with Ault Creek			0.0055
Feature	Distance From Initial Point (ft)	Rod Height (ft)	Water Depth (ft)	Velocity (ft/s)
	0	2.99		
Bankfull	4	3.76		
	7	4.2		
Waterline	10.5	4.9	0	
	12	5.13	0.23	
	13	5.1	0.2	
	14	5.26	0.36	
	15	5.22	0.32	
	16	5.23	0.33	
	17	5.11	0.21	
	18	5.17	0.27	
	18.5	5.28	0.38	
	19	5.33	0.43	
	19.5	5.3	0.4	
	20	5.29	0.39	
	20.5	5.19	0.29	
	21	5.06	0.16	
	22	5.19	0.29	
	23	5.21	0.31	
	24	5.11	0.21	
	25	5.18	0.28	
	26	4.92	0.02	
	27	5.16	0.26	
	28	5.3	0.4	
	29	5.4	0.5	
	30	5.34	0.44	
	31	5.34	0.44	
	32	5.22	0.32	
	33	5.05	0.15	
Waterline	34.3	4.9	0	
	35.7	4.68		
	37.4	4.31		
Bankfull	40.5	3.81		
	43.3	2.56		

R2Cross RESULTS

Stream Name: West Muddy Creek

Stream Locations: Approx 1/4 mile upstream from BLM-private boundary

Fieldwork Date: 06/01/2018

Cross-section: 1

Observers: R. Smith, J. Sondergard

Coordinate System: UTM Zone 13

X (easting): 294644

Y (northing): 4319767

Date Processed: 05/22/2023

Slope: 0.014

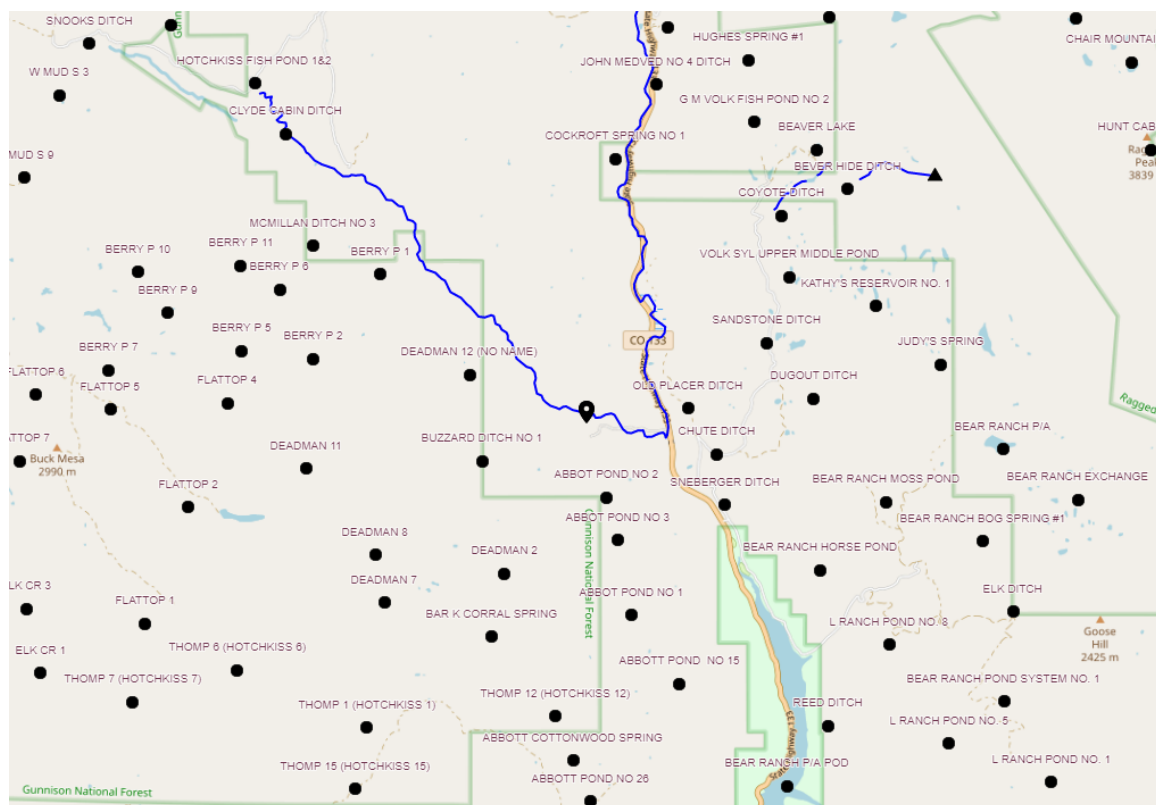
Discharge: R2Cross data file: 4.73 (cfs)

Computation method: Ferguson VPE

R2Cross data filename: West Muddy Creek 6-1-18.xlsx

R2Cross version: 2.0.2

LOCATION



ANALYSIS RESULTS

Habitat Criteria Results

Bankfull top width (ft) = 33.5

	Habitat Criteria	Discharge (cfs) Meeting Criteria
Mean Depth (ft)	0.3	2.98
Percent Wetted Perimeter (%)	50.0	3.28
Mean Velocity (ft/s)	1.0	10.08

STAGING TABLE

Feature	Distance to Water (ft)	Top Width (ft)	Mean Depth (ft)	Maximum Depth (ft)	Area (sq ft)	Wetted Perimeter (ft)	Percent Wetted Perimeter	Hydraulic Radius (ft)	Manning's n	Mean Velocity (ft/s)	Discharge (cfs)
Bankfull	4.0	33.5	1.39	2.4	46.67	35.41	100.0	1.32	0.06	3.83	178.62
	4.0	33.5	1.39	2.4	46.66	35.41	100.0	1.32	0.06	3.83	178.61
	4.05	32.96	1.37	2.35	45.0	34.86	98.45	1.29	0.06	3.74	168.2
	4.1	32.43	1.34	2.3	43.37	34.31	96.9	1.26	0.06	3.65	158.17
	4.15	31.89	1.31	2.25	41.76	33.77	95.36	1.24	0.06	3.56	148.51
	4.2	31.35	1.28	2.2	40.18	33.22	93.81	1.21	0.06	3.46	139.21
	4.25	30.81	1.25	2.15	38.63	32.67	92.26	1.18	0.06	3.37	130.28
	4.3	30.28	1.23	2.1	37.1	32.12	90.71	1.15	0.06	3.28	121.7
	4.35	29.74	1.2	2.05	35.6	31.57	89.17	1.13	0.06	3.19	113.46
	4.4	29.2	1.17	2.0	34.12	31.03	87.62	1.1	0.06	3.09	105.57
	4.45	28.73	1.14	1.95	32.68	30.54	86.25	1.07	0.06	2.99	97.77
	4.5	28.25	1.11	1.9	31.25	30.05	84.87	1.04	0.06	2.89	90.31
	4.55	27.78	1.07	1.85	29.85	29.57	83.5	1.01	0.06	2.79	83.19
	4.6	27.31	1.04	1.8	28.47	29.08	82.13	0.98	0.06	2.68	76.4
	4.65	26.83	1.01	1.75	27.12	28.6	80.76	0.95	0.07	2.58	69.94
	4.7	26.36	0.98	1.7	25.79	28.11	79.38	0.92	0.07	2.47	63.8
	4.75	25.88	0.95	1.65	24.48	27.62	78.01	0.89	0.07	2.37	57.98
	4.8	25.41	0.91	1.6	23.2	27.14	76.64	0.85	0.07	2.26	52.47
	4.85	24.93	0.88	1.55	21.94	26.65	75.27	0.82	0.07	2.15	47.28
	4.9	24.49	0.85	1.5	20.71	26.2	74.0	0.79	0.07	2.04	42.31
	4.95	24.11	0.81	1.45	19.49	25.81	72.88	0.76	0.08	1.93	37.54
	5.0	23.73	0.77	1.4	18.3	25.41	71.76	0.72	0.08	1.81	33.09
	5.05	23.35	0.73	1.35	17.12	25.01	70.64	0.68	0.08	1.69	28.94
	5.1	22.9	0.7	1.3	15.96	24.56	69.35	0.65	0.08	1.58	25.18
	5.15	22.36	0.66	1.25	14.83	24.01	67.8	0.62	0.09	1.47	21.84

	5.2	21.82	0.63	1.2	13.73	23.46	66.25	0.59	0.09	1.37	18.77
	5.25	21.28	0.59	1.15	12.65	22.91	64.7	0.55	0.09	1.26	15.98
	5.3	20.74	0.56	1.1	11.6	22.36	63.15	0.52	0.1	1.16	13.44
	5.35	20.2	0.52	1.05	10.58	21.81	61.6	0.48	0.1	1.05	11.15
	5.4	19.66	0.49	1.0	9.58	21.26	60.05	0.45	0.11	0.95	9.11
	5.45	19.12	0.45	0.95	8.61	20.71	58.49	0.42	0.12	0.85	7.31
	5.5	18.58	0.41	0.9	7.67	20.16	56.94	0.38	0.12	0.75	5.73
Waterline	5.55	17.04	0.4	0.85	6.75	18.61	52.57	0.36	0.13	0.7	4.72
	5.6	16.43	0.36	0.8	5.91	17.93	50.63	0.33	0.14	0.61	3.61
	5.65	15.86	0.32	0.75	5.11	17.27	48.78	0.3	0.15	0.52	2.66
	5.7	14.46	0.3	0.7	4.35	15.8	44.62	0.28	0.16	0.47	2.04
	5.75	13.14	0.28	0.65	3.65	14.39	40.65	0.25	0.17	0.42	1.52
	5.8	11.68	0.26	0.6	3.03	12.85	36.3	0.24	0.18	0.37	1.13
	5.85	10.38	0.24	0.55	2.48	11.44	32.32	0.22	0.19	0.33	0.82
	5.9	9.55	0.21	0.5	1.98	10.51	29.69	0.19	0.22	0.27	0.53
	5.95	8.66	0.18	0.45	1.52	9.52	26.9	0.16	0.25	0.21	0.32
	6.0	6.53	0.18	0.4	1.15	7.28	20.55	0.16	0.25	0.21	0.24
	6.05	5.52	0.15	0.35	0.85	6.15	17.37	0.14	0.28	0.17	0.14
	6.1	4.52	0.13	0.3	0.59	5.04	14.23	0.12	0.32	0.13	0.08
	6.15	3.36	0.11	0.25	0.38	3.76	10.61	0.1	0.35	0.11	0.04
	6.2	2.52	0.09	0.2	0.24	2.81	7.93	0.08	0.41	0.08	0.02
	6.25	1.68	0.08	0.15	0.13	1.86	5.24	0.07	0.48	0.06	0.01
	6.3	1.26	0.05	0.1	0.06	1.34	3.77	0.04	0.71	0.03	0.0
	6.35	0.31	0.02	0.05	0.01	0.33	0.93	0.02	1.22	0.01	0.0
	6.38	0.09	0.01	0.01	0.0	0.1	0.28	0.01	3.32	0.0	0.0

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

MODEL SUMMARY

Measured Flow (Qm) =	4.73	(cfs)
Calculated Flow (Qc) =	4.73	(cfs)
$(Qm-Qc)/Qm * 100 =$	0.16%	
Measured Waterline (WLm) =	5.55	(ft)
Calculated Waterline (WLc) =	5.55	(ft)
$(WLm-WLc)/WLm * 100 =$	0.09%	
Max Measured Depth (Dm) =	0.85	(ft)
Max Calculated Depth (Dc) =	0.85	(ft)
$(Dm-Dc)/Dm * 100 =$	0.01%	
Mean Velocity =	0.7	(ft/s)
Manning's n =	0.128	
$0.4 * Qm =$	1.89	(cfs)
$2.5 * Qm =$	11.83	(cfs)

FIELD DATA

Feature	Station (ft)	Rod Height (ft)	Water depth (ft)	Velocity (ft/s)
Bankfull	0	4	0	0
	3	4.4	0	0
	6	4.88	0	0
Waterline	9	5.56	0	0
	9.1	5.65	0.1	0
	9.5	5.73	0.18	0
	10	5.55	0	0
	10.5	5.55	0	0
	11	5.55	0	0
	11.5	5.75	0.2	0
	12	5.85	0.3	0
	12.5	5.75	0.2	0
	13	5.75	0.2	0
	13.5	5.8	0.25	0.08
	14	5.55	0	0
	14.6	5.87	0.32	0.96
	15	5.95	0.4	0.55
	15.5	5.98	0.43	0.19
	16	6	0.45	0.06
	16.5	5.8	0.25	0.26
	17	5.98	0.43	0.65
	17.5	5.95	0.4	0.48
	18	6.4	0.85	1.07
	18.5	6.3	0.75	1.16
	19	5.85	0.3	1.51
	19.5	5.65	0.1	0.98
	20	5.7	0.15	1.08
	20.5	6	0.45	1.61
	21	6.3	0.75	1.56
	21.5	6	0.45	1.07

	22	6.05	0.5	1.09
	22.5	6.1	0.55	1.07
	23	6.25	0.7	0.79
	23.5	6.15	0.6	0.5
	24	6.15	0.6	0.54
	24.5	5.8	0.25	0.53
	25	6.05	0.5	0.53
	25.5	6.35	0.8	0.48
	26	6.35	0.8	0.28
Waterline	27	5.55	0	0
	30	5.08	0	0
Bankfull	33.5	4	0	0

COMPUTED FROM MEASURED FIELD DATA

Wetted Perimeter (ft)	Water Depth (ft)	Area (ft^2)	Discharge (cfs)	Percent Discharge
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0.13	0.1	0.03	0	0
0.41	0.18	0.08	0	0
0.53	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0.54	0.2	0.1	0	0
0.51	0.3	0.15	0	0
0.51	0.2	0.1	0	0
0.5	0.2	0.1	0	0
0.5	0.25	0.12	0.01	0.21
0.56	0	0	0	0
0.68	0.32	0.16	0.15	3.25
0.41	0.4	0.18	0.1	2.09
0.5	0.43	0.21	0.04	0.86
0.5	0.45	0.23	0.01	0.29
0.54	0.25	0.12	0.03	0.69
0.53	0.43	0.21	0.14	2.95
0.5	0.4	0.2	0.1	2.03
0.67	0.85	0.42	0.45	9.61
0.51	0.75	0.38	0.43	9.19
0.67	0.3	0.15	0.23	4.79
0.54	0.1	0.05	0.05	1.03
0.5	0.15	0.07	0.08	1.71
0.58	0.45	0.23	0.36	7.65
0.58	0.75	0.38	0.58	12.36
0.58	0.45	0.23	0.24	5.09

0.5	0.5	0.25	0.27	5.76
0.5	0.55	0.28	0.29	6.22
0.52	0.7	0.35	0.28	5.84
0.51	0.6	0.3	0.15	3.17
0.5	0.6	0.3	0.16	3.42
0.61	0.25	0.12	0.07	1.4
0.56	0.5	0.25	0.13	2.8
0.58	0.8	0.4	0.19	4.06
0.5	0.8	0.6	0.17	3.55
1.28	0	0	0	0
0	0	0	0	0
0	0	0	0	0

DISCLAIMER

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R2Cross RESULTS

Stream Name: West Muddy Creek

Stream Locations: Approx 1/4 mile upstream from BLM-private boundary

Fieldwork Date: 06/01/2018

Cross-section: 2

Observers: R. Smith, J. Sondergard

Coordinate System: UTM Zone 13

X (easting): 294728

Y (northing): 4319727

Date Processed: 05/22/2023

Slope: 0.25

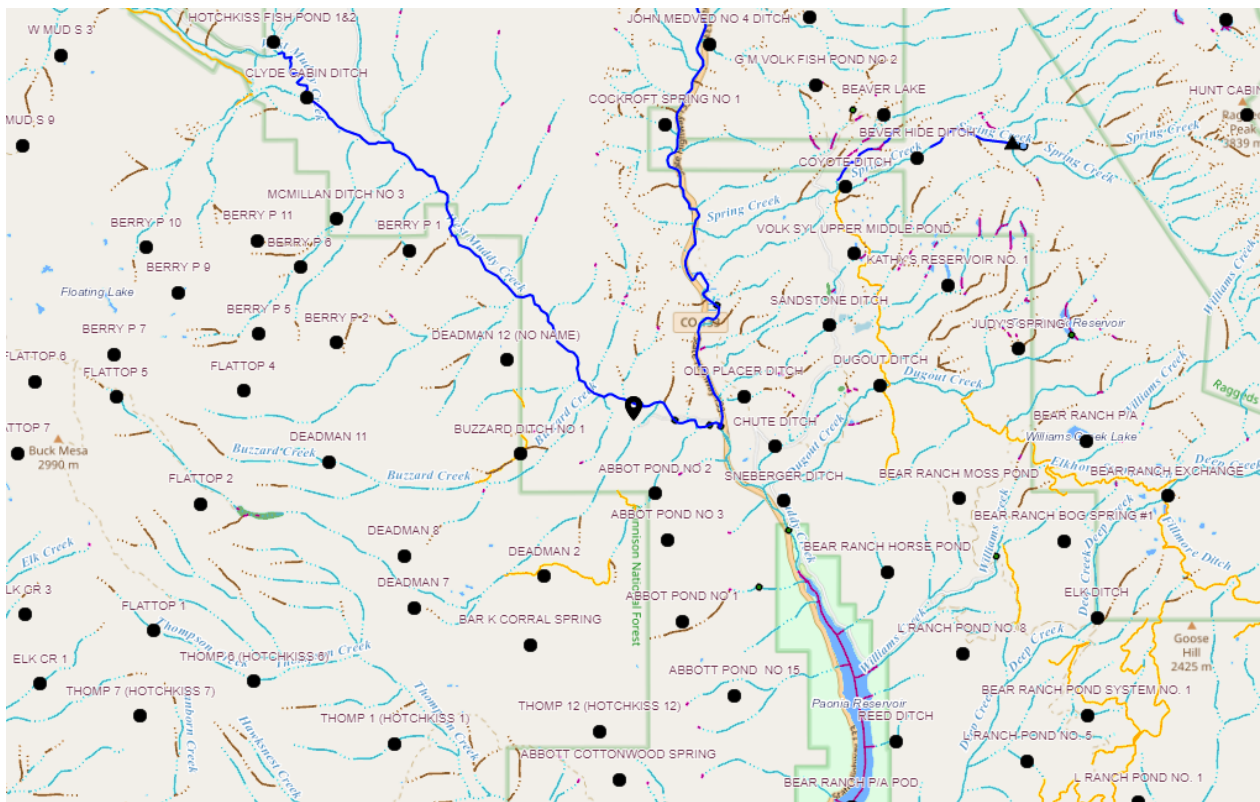
Discharge: R2Cross data file: 5.82 (cfs)

Computation method: Ferguson VPE

R2Cross data filename: West Muddy Creek 6-1-18 #2.xlsx

R2Cross version: 2.0.2

LOCATION



ANALYSIS RESULTS

Habitat Criteria Results

Bankfull top width (ft) = 33.49

	Habitat Criteria	Discharge (cfs) Meeting Criteria
Mean Depth (ft)	0.3	4.41
Percent Wetted Perimeter (%)	50.0	1.3
Mean Velocity (ft/s)	1.0	12.34

STAGING TABLE

Feature	Distance to Water (ft)	Top Width (ft)	Mean Depth (ft)	Maximum Depth (ft)	Area (sq ft)	Wetted Perimeter (ft)	Percent Wetted Perimeter	Hydraulic Radius (ft)	Manning's n	Mean Velocity (ft/s)	Discharge (cfs)
Bankfull	5.06	33.49	1.22	1.79	40.72	35.39	100.0	1.15	0.2	4.1	167.07
	5.1	33.26	1.18	1.75	39.39	35.14	99.29	1.12	0.2	3.95	155.59
	5.15	32.96	1.14	1.7	37.74	34.82	98.4	1.08	0.21	3.76	141.85
	5.2	32.66	1.11	1.65	36.1	34.51	97.51	1.05	0.21	3.57	128.85
	5.25	32.37	1.07	1.6	34.47	34.19	96.62	1.01	0.22	3.38	116.57
	5.3	32.07	1.02	1.55	32.86	33.88	95.73	0.97	0.23	3.2	105.01
	5.35	31.77	0.98	1.5	31.27	33.56	94.85	0.93	0.24	3.01	94.15
	5.4	31.48	0.94	1.45	29.68	33.25	93.96	0.89	0.24	2.83	83.98
	5.45	31.18	0.9	1.4	28.12	32.93	93.07	0.85	0.25	2.65	74.48
	5.5	30.52	0.87	1.35	26.58	32.26	91.16	0.82	0.26	2.51	66.78
	5.55	29.86	0.84	1.3	25.07	31.58	89.26	0.79	0.27	2.38	59.61
	5.6	29.2	0.81	1.25	23.59	30.91	87.35	0.76	0.28	2.24	52.95
	5.65	28.66	0.77	1.2	22.15	30.36	85.8	0.73	0.29	2.1	46.49
	5.7	28.32	0.73	1.15	20.72	30.01	84.8	0.69	0.3	1.94	40.12
	5.75	27.98	0.69	1.1	19.31	29.65	83.79	0.65	0.31	1.78	34.29
	5.8	27.64	0.65	1.05	17.92	29.29	82.78	0.61	0.33	1.62	29.0
	5.85	27.3	0.61	1.0	16.55	28.94	81.78	0.57	0.35	1.46	24.22
	5.9	26.96	0.56	0.95	15.19	28.58	80.77	0.53	0.37	1.31	19.94
	5.95	26.63	0.52	0.9	13.85	28.23	79.76	0.49	0.4	1.17	16.15
	6.0	26.29	0.48	0.85	12.53	27.87	78.76	0.45	0.43	1.02	12.82
Waterline	6.05	25.95	0.43	0.8	11.22	27.51	77.75	0.41	0.46	0.89	9.93
	6.1	25.61	0.39	0.75	9.93	27.16	76.75	0.37	0.51	0.75	7.47
	6.15	23.86	0.36	0.7	8.66	25.39	71.75	0.34	0.54	0.68	5.87
	6.2	22.06	0.34	0.65	7.51	23.49	66.39	0.32	0.56	0.62	4.62
	6.25	20.92	0.31	0.6	6.44	22.26	62.91	0.29	0.61	0.53	3.41

6.3	19.22	0.28	0.55	5.43	20.46	57.81	0.27	0.66	0.47	2.53
6.35	17.02	0.26	0.5	4.5	18.15	51.28	0.25	0.7	0.42	1.9
6.4	16.58	0.22	0.45	3.66	17.6	49.75	0.21	0.81	0.32	1.19
6.45	14.9	0.19	0.4	2.88	15.8	44.66	0.18	0.9	0.26	0.76
6.5	13.29	0.16	0.35	2.17	14.06	39.72	0.15	1.03	0.21	0.45
6.55	10.69	0.14	0.3	1.55	11.31	31.96	0.14	1.14	0.17	0.27
6.6	9.25	0.11	0.25	1.05	9.72	27.48	0.11	1.39	0.12	0.13
6.65	6.43	0.1	0.2	0.63	6.76	19.11	0.09	1.57	0.1	0.06
6.7	5.29	0.06	0.15	0.34	5.52	15.6	0.06	2.23	0.05	0.02
6.75	2.24	0.06	0.1	0.14	2.38	6.72	0.06	2.34	0.05	0.01
6.8	1.37	0.03	0.05	0.05	1.44	4.07	0.03	3.77	0.02	0.0
6.83	0.76	0.01	0.01	0.01	0.78	2.21	0.01	8.62	0.0	0.0

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

MODEL SUMMARY

Measured Flow (Qm) =	5.82	(cfs)
Calculated Flow (Qc) =	5.84	(cfs)
$(Qm-Qc)/Qm * 100 =$	-0.41%	
Measured Waterline (WLm) =	6.12	(ft)
Calculated Waterline (WLc) =	6.15	(ft)
$(WLm-WLc)/WLm * 100 =$	-0.41%	
Max Measured Depth (Dm) =	0.7	(ft)
Max Calculated Depth (Dc) =	0.7	(ft)
$(Dm-Dc)/Dm * 100 =$	-0.02%	
Mean Velocity =	0.67	(ft/s)
Manning's n =	0.538	
$0.4 * Qm =$	2.33	(cfs)
$2.5 * Qm =$	14.54	(cfs)

FIELD DATA

Feature	Station (ft)	Rod Height (ft)	Water depth (ft)	Velocity (ft/s)
Bankfull	2	5.06	0	0
Waterline	4.3	6.15	0	0
	5	6.3	0.15	0
	5.5	6.15	0	0
	6	6.45	0.3	0.04
	6.5	6.15	0	0
	7	6.15	0	0
	7.5	6.25	0.1	0.41
	8	6.3	0.15	0.28
	8.5	6.65	0.5	0.47
	9	6.65	0.5	0.79
	9.5	6.65	0.5	0.2
	10	6.55	0.4	0.38
	10.5	6.35	0.2	0.42
	11	6.25	0.1	0.26
	11.5	6.75	0.6	0.18
	12	6.75	0.6	0.5
	12.5	6.85	0.7	0.86
	13	6.85	0.7	0.99
	13.5	6.55	0.4	1.48
	14	6.75	0.6	1.1
	15.5	6.7	0.55	0.38
	16	6.45	0.3	0.99
	16.5	6.65	0.5	0.77
	17	6.4	0.25	0
	17.5	6.6	0.45	0
	18	6.65	0.5	0.1
	18.5	6.85	0.7	1.03
	19	6.65	0.5	1.08
	19.5	6.45	0.3	0.35

	20	6.4	0.25	0.39
	20.5	6.45	0.3	0.08
	21	6.55	0.4	0.19
	21.5	6.55	0.4	1.44
	22	6.55	0.4	2.25
	22.5	6.45	0.3	1.72
	23	6.55	0.4	0.91
	23.5	6.65	0.5	0.56
	24	6.7	0.55	0.74
	24.5	6.75	0.6	0.92
	25	6.85	0.7	0.48
	25.5	6.15	0	0
	26	6.15	0	0
	26.5	6.35	0.2	0
	27	6.35	0.2	0.36
	27.5	6.35	0.2	1.07
	28	6.3	0.15	0
	28.5	6.15	0	0
	29	6.15	0	0
	29.5	6.2	0.05	0
Waterline	29.8	6.1	0	0
	32	5.63	0	0
	34	5.45	0	0
Bankfull	35.8	4.98	0	0

COMPUTED FROM MEASURED FIELD DATA

Wetted Perimeter (ft)	Water Depth (ft)	Area (ft^2)	Discharge (cfs)	Percent Discharge
0	0	0	0	0
0	0	0	0	0
0.72	0.15	0.09	0	0
0.52	0	0	0	0
0.58	0.3	0.15	0.01	0.1
0.58	0	0	0	0
0	0	0	0	0
0.51	0.1	0.05	0.02	0.35
0.5	0.15	0.07	0.02	0.36
0.61	0.5	0.25	0.12	2.02
0.5	0.5	0.25	0.2	3.4
0.5	0.5	0.25	0.05	0.86
0.51	0.4	0.2	0.08	1.31
0.54	0.2	0.1	0.04	0.72
0.51	0.1	0.05	0.01	0.22
0.71	0.6	0.3	0.05	0.93
0.5	0.6	0.3	0.15	2.58
0.51	0.7	0.35	0.3	5.17
0.5	0.7	0.35	0.35	5.96
0.58	0.4	0.2	0.3	5.09
0.54	0.6	0.6	0.66	11.35
1.5	0.55	0.55	0.21	3.59
0.56	0.3	0.15	0.15	2.55
0.54	0.5	0.25	0.19	3.31
0.56	0.25	0.12	0	0
0.54	0.45	0.23	0	0
0.5	0.5	0.25	0.03	0.43
0.54	0.7	0.35	0.36	6.2
0.54	0.5	0.25	0.27	4.64
0.54	0.3	0.15	0.05	0.9

0.5	0.25	0.12	0.05	0.84
0.5	0.3	0.15	0.01	0.21
0.51	0.4	0.2	0.04	0.65
0.5	0.4	0.2	0.29	4.95
0.5	0.4	0.2	0.45	7.74
0.51	0.3	0.15	0.26	4.44
0.51	0.4	0.2	0.18	3.13
0.51	0.5	0.25	0.14	2.41
0.5	0.55	0.28	0.2	3.5
0.5	0.6	0.3	0.28	4.75
0.51	0.7	0.35	0.17	2.89
0.86	0	0	0	0
0	0	0	0	0
0.54	0.2	0.1	0	0
0.5	0.2	0.1	0.04	0.62
0.5	0.2	0.1	0.11	1.84
0.5	0.15	0.07	0	0
0.52	0	0	0	0
0	0	0	0	0
0.5	0.05	0.02	0	0
0.32	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

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R2Cross RESULTS

Stream Name: West Muddy Creek

Stream Locations: 1/4 mile upstream from BLM-private land boundary

Fieldwork Date: 05/11/2021

Cross-section:

Observers: R Smith, J Sondergard

Coordinate System: UTM Zone 13

X (easting): 294724

Y (northing): 4319739

Date Processed: 05/22/2023

Slope: 0.009

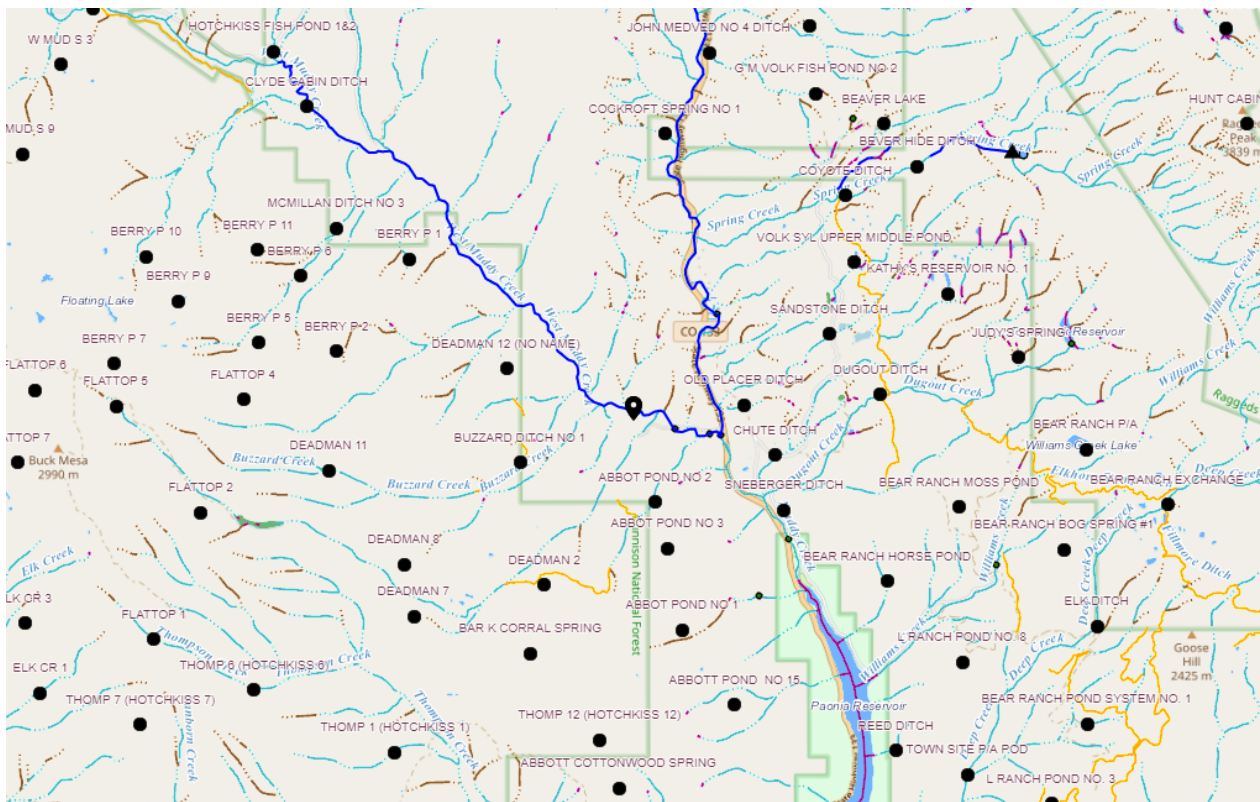
Discharge: R2Cross data file: 33.34 (cfs)

Computation method: Ferguson VPE

R2Cross data filename: West Muddy Creek 5-11-21 #1.xlsx

R2Cross version: 2.0.2

LOCATION



ANALYSIS RESULTS

Habitat Criteria Results

Bankfull top width (ft) = 47.04

	Habitat Criteria	Discharge (cfs) Meeting Criteria
Mean Depth (ft)	0.5	7.43
Percent Wetted Perimeter (%)	53.5	1.89
Mean Velocity (ft/s)	1.0	19.16

STAGING TABLE

Feature	Distance to Water (ft)	Top Width (ft)	Mean Depth (ft)	Maximum Depth (ft)	Area (sq ft)	Wetted Perimeter (ft)	Percent Wetted Perimeter	Hydraulic Radius (ft)	Manning's n	Mean Velocity (ft/s)	Discharge (cfs)
Bankfull	6.08	47.04	2.17	3.32	102.03	48.73	100.0	2.09	0.05	4.32	440.35
	6.1	46.9	2.16	3.3	101.17	48.59	99.71	2.08	0.05	4.29	433.96
	6.15	46.54	2.12	3.25	98.83	48.21	98.94	2.05	0.05	4.22	416.82
	6.2	46.18	2.09	3.2	96.51	47.83	98.16	2.02	0.05	4.14	400.04
	6.25	45.81	2.06	3.15	94.21	47.45	97.38	1.99	0.05	4.07	383.62
	6.3	45.45	2.02	3.1	91.93	47.07	96.6	1.95	0.06	4.0	367.55
	6.35	45.09	1.99	3.05	89.67	46.7	95.83	1.92	0.06	3.92	351.84
	6.4	44.72	1.95	3.0	87.42	46.32	95.05	1.89	0.06	3.85	336.49
	6.45	44.36	1.92	2.95	85.2	45.94	94.27	1.85	0.06	3.77	321.5
	6.5	44.0	1.89	2.9	82.99	45.56	93.5	1.82	0.06	3.7	306.86
	6.55	43.64	1.85	2.85	80.8	45.18	92.72	1.79	0.06	3.62	292.57
	6.6	43.27	1.82	2.8	78.62	44.8	91.94	1.75	0.06	3.54	278.64
	6.65	42.91	1.78	2.75	76.47	44.42	91.16	1.72	0.06	3.47	265.06
	6.7	42.55	1.75	2.7	74.33	44.04	90.39	1.69	0.06	3.39	251.83
	6.75	42.18	1.71	2.65	72.21	43.67	89.61	1.65	0.06	3.31	238.95
	6.8	41.82	1.68	2.6	70.11	43.29	88.83	1.62	0.06	3.23	226.43
	6.85	41.46	1.64	2.55	68.03	42.91	88.05	1.59	0.06	3.15	214.25
	6.9	41.09	1.61	2.5	65.97	42.53	87.28	1.55	0.06	3.07	202.43
	6.95	40.73	1.57	2.45	63.92	42.15	86.5	1.52	0.06	2.99	190.95
	7.0	40.37	1.53	2.4	61.9	41.77	85.72	1.48	0.06	2.91	179.82
	7.05	40.01	1.5	2.35	59.89	41.39	84.95	1.45	0.06	2.82	169.04
	7.1	39.64	1.46	2.3	57.89	41.01	84.17	1.41	0.06	2.74	158.61
	7.15	39.25	1.42	2.25	55.92	40.6	83.32	1.38	0.07	2.66	148.67
	7.2	38.83	1.39	2.2	53.97	40.17	82.43	1.34	0.07	2.58	139.19
	7.25	38.41	1.35	2.15	52.04	39.73	81.54	1.31	0.07	2.5	130.04

	7.3	37.99	1.32	2.1	50.13	39.3	80.64	1.28	0.07	2.42	121.22
	7.35	37.57	1.28	2.05	48.24	38.86	79.75	1.24	0.07	2.34	112.74
	7.4	37.14	1.25	2.0	46.37	38.43	78.85	1.21	0.07	2.26	104.59
	7.45	36.72	1.21	1.95	44.53	37.99	77.96	1.17	0.07	2.17	96.77
	7.5	36.3	1.18	1.9	42.7	37.55	77.07	1.14	0.07	2.09	89.28
	7.55	35.86	1.14	1.85	40.9	37.09	76.12	1.1	0.07	2.01	82.19
	7.6	35.36	1.11	1.8	39.12	36.59	75.09	1.07	0.08	1.93	75.54
	7.65	34.87	1.07	1.75	37.36	36.09	74.05	1.04	0.08	1.85	69.2
	7.7	34.38	1.04	1.7	35.63	35.58	73.02	1.0	0.08	1.77	63.17
	7.75	33.88	1.0	1.65	33.92	35.08	71.98	0.97	0.08	1.69	57.45
	7.8	33.39	0.97	1.6	32.24	34.57	70.95	0.93	0.08	1.61	52.03
	7.85	32.9	0.93	1.55	30.58	34.07	69.91	0.9	0.09	1.53	46.92
	7.9	32.4	0.89	1.5	28.95	33.56	68.88	0.86	0.09	1.45	42.09
	7.95	31.91	0.86	1.45	27.34	33.06	67.85	0.83	0.09	1.37	37.56
Waterline	8.0	31.42	0.82	1.4	25.76	32.56	66.81	0.79	0.09	1.29	33.32
	8.05	31.07	0.78	1.35	24.2	32.19	66.06	0.75	0.1	1.21	29.18
	8.1	30.72	0.74	1.3	22.65	31.83	65.32	0.71	0.1	1.12	25.33
	8.15	29.07	0.73	1.25	21.18	30.14	61.85	0.7	0.1	1.1	23.28
	8.2	28.4	0.7	1.2	19.75	29.44	60.41	0.67	0.1	1.03	20.34
	8.25	27.73	0.66	1.15	18.34	28.73	58.97	0.64	0.11	0.96	17.63
	8.3	27.07	0.63	1.1	16.97	28.03	57.52	0.61	0.11	0.89	15.15
	8.35	26.87	0.58	1.05	15.62	27.81	57.06	0.56	0.12	0.8	12.55
	8.4	26.69	0.54	1.0	14.28	27.6	56.63	0.52	0.13	0.71	10.21
	8.45	26.51	0.49	0.95	12.95	27.39	56.21	0.47	0.14	0.63	8.14
	8.5	26.37	0.44	0.9	11.63	27.22	55.85	0.43	0.15	0.54	6.31
	8.55	26.23	0.39	0.85	10.32	27.05	55.5	0.38	0.16	0.46	4.75
	8.6	26.09	0.35	0.8	9.01	26.88	55.15	0.34	0.18	0.38	3.44
	8.65	25.65	0.3	0.75	7.72	26.39	54.16	0.29	0.2	0.31	2.41
	8.7	25.2	0.26	0.7	6.45	25.89	53.14	0.25	0.23	0.25	1.59
	8.75	24.76	0.21	0.65	5.2	25.4	52.12	0.2	0.27	0.18	0.96
	8.8	20.73	0.2	0.6	4.08	21.31	43.73	0.19	0.28	0.17	0.68
	8.85	15.37	0.21	0.55	3.25	15.88	32.59	0.2	0.27	0.18	0.6
	8.9	13.03	0.19	0.5	2.54	13.48	27.66	0.19	0.28	0.16	0.41
	8.95	11.25	0.17	0.45	1.93	11.61	23.82	0.17	0.31	0.14	0.26

9.0	9.94	0.14	0.4	1.4	10.23	21.0	0.14	0.37	0.1	0.14
9.05	8.65	0.11	0.35	0.94	8.87	18.2	0.11	0.46	0.07	0.06
9.1	7.36	0.07	0.3	0.54	7.51	15.41	0.07	0.63	0.04	0.02
9.15	2.87	0.13	0.25	0.38	2.98	6.11	0.13	0.4	0.09	0.03
9.2	2.41	0.1	0.2	0.24	2.47	5.08	0.1	0.49	0.06	0.02
9.25	1.82	0.08	0.15	0.14	1.86	3.82	0.07	0.62	0.04	0.01
9.3	1.22	0.05	0.1	0.06	1.25	2.56	0.05	0.86	0.02	0.0
9.35	0.62	0.03	0.05	0.02	0.63	1.3	0.03	1.51	0.01	0.0
9.38	0.18	0.01	0.02	0.0	0.18	0.38	0.01	4.22	0.0	0.0

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

MODEL SUMMARY

Measured Flow (Qm) =	33.34	(cfs)
Calculated Flow (Qc) =	33.33	(cfs)
(Qm-Qc)/Qm * 100 =	0.03%	
Measured Waterline (WLm) =	8	(ft)
Calculated Waterline (WLc) =	8	(ft)
(WLm-WLc)/WLm * 100 =	0.02%	
Max Measured Depth (Dm) =	1.4	(ft)
Max Calculated Depth (Dc) =	1.4	(ft)
(Dm-Dc)/Dm * 100 =	-0.11%	
Mean Velocity =	1.29	(ft/s)
Manning's n =	0.093	
0.4 * Qm =	13.34	(cfs)
2.5 * Qm =	83.35	(cfs)

FIELD DATA

Feature	Station (ft)	Rod Height (ft)	Water depth (ft)	Velocity (ft/s)
	0	5.52	0	0
Bankfull	0.8	6.08	0	0
	6.1	7.12	0	0
Waterline	11.6	8	0	0
	13	8.3	0.3	0.38
	14	8.1	0.1	0.41
	15	8.1	0.1	0.43
	16	8.8	0.8	0.84
	17	8.75	0.75	0.64
	18	8.75	0.75	1.21
	19	8.9	0.9	0.84
	20	8.6	0.6	0.7
	21	8.95	0.95	1.28
	22	8.8	0.8	1.21
	23	8.8	0.8	1.24
	24	8.8	0.8	1.64
	25	8.8	0.8	1.24
	26	8.75	0.75	2.25
	27	8.9	0.9	2.05
	28	9.1	1.1	1.82
	29	9.1	1.1	1.43
	30	9.1	1.1	1.62
	31	9.1	1.15	1.23
	32	8.8	0.8	2.1
	33	8.9	0.9	1.56
	34	9.1	1.1	0
	35	9.1	1.1	0.63
	36	8.8	0.8	2.03
	37	9.2	1.2	1.97
	38	9.3	1.3	1.62

	39	9.4	1.4	1.51
	40	8.9	0.9	1.04
	41	9.2	1.2	0.68
	42	8.45	0.45	0.81
Waterline	43	8	0	0
	44.7	7.53	0	0
Bankfull	47.9	6.05	0	0
	52	4.9	0	0

COMPUTED FROM MEASURED FIELD DATA

Wetted Perimeter (ft)	Water Depth (ft)	Area (ft^2)	Discharge (cfs)	Percent Discharge
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
1.43	0.3	0.36	0.14	0.41
1.02	0.1	0.1	0.04	0.12
1	0.1	0.1	0.04	0.13
1.22	0.8	0.8	0.67	2.02
1	0.75	0.75	0.48	1.44
1	0.75	0.75	0.91	2.72
1.01	0.9	0.9	0.76	2.27
1.04	0.6	0.6	0.42	1.26
1.06	0.95	0.95	1.22	3.65
1.01	0.8	0.8	0.97	2.9
1	0.8	0.8	0.99	2.98
1	0.8	0.8	1.31	3.94
1	0.8	0.8	0.99	2.98
1	0.75	0.75	1.69	5.06
1.01	0.9	0.9	1.84	5.53
1.02	1.1	1.1	2	6
1	1.1	1.1	1.57	4.72
1	1.1	1.1	1.78	5.34
1	1.15	1.15	1.41	4.24
1.04	0.8	0.8	1.68	5.04
1	0.9	0.9	1.4	4.21
1.02	1.1	1.1	0	0
1	1.1	1.1	0.69	2.08
1.04	0.8	0.8	1.62	4.87
1.08	1.2	1.2	2.36	7.09
1	1.3	1.3	2.11	6.32

1	1.4	1.4	2.11	6.34
1.12	0.9	0.9	0.94	2.81
1.04	1.2	1.2	0.82	2.45
1.25	0.45	0.45	0.36	1.09
1.1	0	0	0	0
0	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: West Muddy Creek

Stream Locations: 1/4 mile upstream from confluence with Ault Creek

Fieldwork Date: 08/06/2021

Cross-section: 1

Observers: R Smith, J Sondergard, K Birch

Coordinate System: UTM Zone 13

X (easting): 289802

Y (northing): 4324286

Date Processed: 05/28/2023

Slope: 0.0041

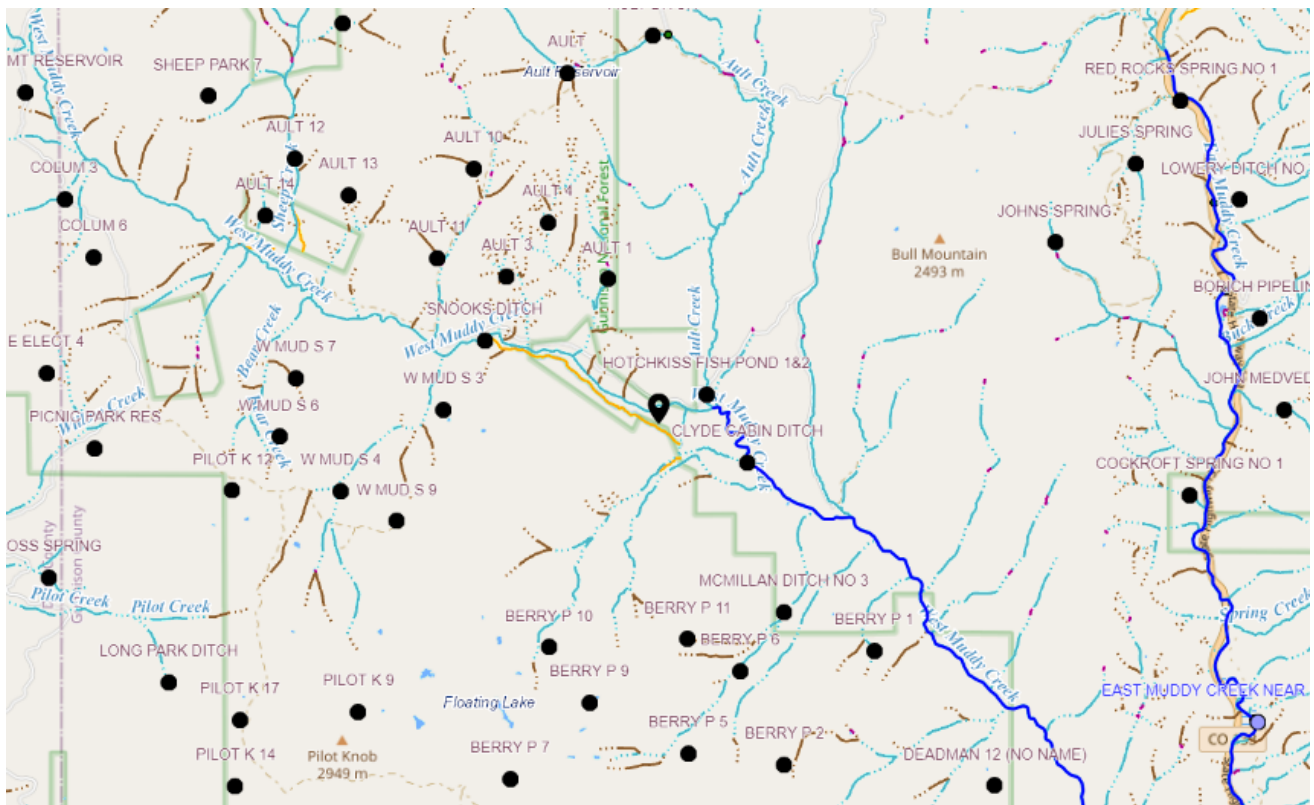
Discharge: Entered Value: 4.57 (cfs)

Computation method: Ferguson VPE

R2Cross data filename: West Muddy Creek 8-6-21 #1.xlsx

R2Cross version: 2.0.2

LOCATION



ANALYSIS RESULTS

Habitat Criteria Results

Bankfull top width (ft) = 30.13

	Habitat Criteria	Discharge (cfs) Meeting Criteria
Mean Depth (ft)	0.3	1.14
Percent Wetted Perimeter (%)	50.0	3.39
Mean Velocity (ft/s)	1.0	13.65

STAGING TABLE

Feature	Distance to Water (ft)	Top Width (ft)	Mean Depth (ft)	Maximum Depth (ft)	Area (sq ft)	Wetted Perimeter (ft)	Percent Wetted Perimeter	Hydraulic Radius (ft)	Manning's n	Mean Velocity (ft/s)	Discharge (cfs)
Bankfull	4.5	30.13	1.52	2.49	45.71	31.42	100.0	1.45	0.05	2.28	104.2
	4.55	29.73	1.49	2.44	44.21	30.99	98.63	1.43	0.05	2.23	98.6
	4.6	29.34	1.46	2.39	42.73	30.56	97.27	1.4	0.05	2.18	93.17
	4.65	28.95	1.43	2.34	41.28	30.13	95.9	1.37	0.06	2.13	87.91
	4.7	28.55	1.4	2.29	39.84	29.7	94.54	1.34	0.06	2.08	82.82
	4.75	28.16	1.36	2.24	38.42	29.27	93.17	1.31	0.06	2.03	77.9
	4.8	27.77	1.33	2.19	37.02	28.84	91.81	1.28	0.06	1.98	73.15
	4.85	27.38	1.3	2.14	35.64	28.41	90.44	1.25	0.06	1.92	68.56
	4.9	26.98	1.27	2.09	34.29	27.98	89.07	1.23	0.06	1.87	64.14
	4.95	26.59	1.24	2.04	32.95	27.55	87.71	1.2	0.06	1.82	59.88
	5.0	26.2	1.21	1.99	31.63	27.12	86.34	1.17	0.06	1.76	55.78
	5.05	25.8	1.18	1.94	30.33	26.7	84.98	1.14	0.06	1.71	51.84
	5.1	25.41	1.14	1.89	29.05	26.27	83.61	1.11	0.06	1.65	48.06
	5.15	25.02	1.11	1.84	27.79	25.84	82.24	1.08	0.06	1.6	44.44
	5.2	24.84	1.07	1.79	26.54	25.62	81.54	1.04	0.06	1.53	40.55
	5.25	24.66	1.03	1.74	25.3	25.4	80.84	1.0	0.07	1.46	36.83
	5.3	24.48	0.98	1.69	24.07	25.18	80.14	0.96	0.07	1.38	33.29
	5.35	24.3	0.94	1.64	22.85	24.95	79.43	0.92	0.07	1.31	29.93
	5.4	24.12	0.9	1.59	21.64	24.73	78.73	0.88	0.07	1.24	26.75
	5.45	23.89	0.86	1.54	20.44	24.48	77.91	0.84	0.07	1.16	23.79
	5.5	23.62	0.82	1.49	19.26	24.19	77.01	0.8	0.07	1.09	21.05
	5.55	23.36	0.77	1.44	18.08	23.91	76.11	0.76	0.08	1.02	18.48
	5.6	21.09	0.8	1.39	16.96	21.63	68.85	0.78	0.08	1.07	18.18
	5.65	18.32	0.87	1.34	15.97	18.85	59.99	0.85	0.07	1.19	18.95
	5.7	18.15	0.83	1.29	15.06	18.65	59.36	0.81	0.07	1.11	16.78

	5.75	17.98	0.79	1.24	14.16	18.45	58.73	0.77	0.08	1.04	14.76
	5.8	17.81	0.74	1.19	13.26	18.25	58.1	0.73	0.08	0.97	12.86
	5.85	17.64	0.7	1.14	12.38	18.06	57.47	0.69	0.08	0.9	11.11
	5.9	17.46	0.66	1.09	11.5	17.84	56.8	0.64	0.09	0.83	9.5
	5.95	17.27	0.62	1.04	10.63	17.63	56.12	0.6	0.09	0.75	8.02
	6.0	16.97	0.58	0.99	9.78	17.31	55.1	0.56	0.09	0.69	6.74
	6.05	16.63	0.54	0.94	8.94	16.96	53.98	0.53	0.1	0.63	5.6
Waterline	6.1	16.3	0.5	0.89	8.11	16.61	52.87	0.49	0.1	0.56	4.57
	6.15	15.89	0.46	0.84	7.31	16.19	51.53	0.45	0.11	0.5	3.68
	6.2	14.91	0.44	0.79	6.53	15.19	48.34	0.43	0.12	0.47	3.07
	6.25	14.18	0.41	0.74	5.81	14.44	45.96	0.4	0.12	0.43	2.49
	6.3	13.92	0.37	0.69	5.11	14.16	45.08	0.36	0.13	0.37	1.87
	6.35	13.67	0.32	0.64	4.42	13.89	44.21	0.32	0.15	0.31	1.35
	6.4	13.38	0.28	0.59	3.74	13.59	43.25	0.28	0.16	0.25	0.93
	6.45	12.98	0.24	0.54	3.08	13.17	41.92	0.23	0.19	0.2	0.6
	6.5	11.69	0.21	0.49	2.46	11.86	37.76	0.21	0.2	0.16	0.4
	6.55	9.9	0.19	0.44	1.93	10.05	31.99	0.19	0.22	0.15	0.28
	6.6	8.74	0.17	0.39	1.46	8.87	28.24	0.16	0.25	0.12	0.17
	6.65	7.12	0.15	0.34	1.07	7.25	23.07	0.15	0.27	0.1	0.11
	6.7	6.78	0.11	0.29	0.72	6.89	21.92	0.11	0.36	0.06	0.04
	6.75	4.57	0.1	0.24	0.44	4.66	14.84	0.09	0.39	0.05	0.02
	6.8	3.14	0.08	0.19	0.25	3.21	10.22	0.08	0.45	0.04	0.01
	6.85	2.02	0.07	0.14	0.14	2.07	6.58	0.07	0.52	0.03	0.0
	6.9	1.46	0.03	0.09	0.05	1.5	4.76	0.03	0.98	0.01	0.0
	6.95	0.36	0.02	0.04	0.01	0.37	1.19	0.02	1.45	0.0	0.0
	6.97	0.14	0.01	0.01	0.0	0.14	0.45	0.01	3.28	0.0	0.0

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

MODEL SUMMARY

Measured Flow (Qm) =	4.57	(cfs)
Calculated Flow (Qc) =	4.57	(cfs)
(Qm-Qc)/Qm * 100 =	-0.00%	
Measured Waterline (WLm) =	6.1	(ft)
Calculated Waterline (WLc) =	6.1	(ft)
(WLm-WLc)/WLm * 100 =	0.00%	
Max Measured Depth (Dm) =	0.89	(ft)
Max Calculated Depth (Dc) =	0.89	(ft)
(Dm-Dc)/Dm * 100 =	-0.00%	
Mean Velocity =	0.56	(ft/s)
Manning's n =	0.105	
0.4 * Qm =	1.83	(cfs)
2.5 * Qm =	11.43	(cfs)

FIELD DATA

Feature	Station (ft)	Rod Height (ft)	Water depth (ft)	Velocity (ft/s)
	0	4.06		
Bankfull	2.4	4.5		
	2.8	5.42		
	3.7	5.85		
Waterline	4.3	6.1	0	
	4.7	6.17	0.07	
	5.2	6.21	0.11	
	5.9	6.19	0.09	
	6.6	6.45	0.35	
	7.3	6.5	0.4	
	8	6.61	0.51	
	8.7	6.61	0.51	
	9.4	6.65	0.55	
	10.1	6.99	0.89	
	10.8	6.89	0.79	
	11.5	6.93	0.83	
	12.2	6.76	0.66	
	12.9	6.71	0.61	
	13.6	6.72	0.62	
	14.3	6.8	0.7	
	15	6.81	0.71	
	15.7	6.75	0.65	
	16.4	6.69	0.59	
	17.1	6.46	0.36	
	17.8	6.6	0.5	
	18.5	6.52	0.42	
	19.2	6.52	0.42	
	19.9	6.39	0.29	
Waterline	20.6	6.1	0	
	21.2	5.96		

	21.6	5.65
	26.4	5.56
	27.7	5.15
Bankfull	32.6	4.49
	36.4	3.71

COMPUTED FROM MEASURED FIELD DATA

Wetted Perimeter (ft)	Water Depth (ft)	Area (ft^2)	Discharge (cfs)	Percent Discharge
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0.41	0.07	0.03	0.02	0.39
0.5	0.11	0.07	0.04	0.81
0.7	0.09	0.06	0.04	0.78
0.75	0.35	0.24	0.14	3.02
0.7	0.4	0.28	0.16	3.45
0.71	0.51	0.36	0.2	4.4
0.7	0.51	0.36	0.2	4.4
0.7	0.55	0.39	0.22	4.75
0.78	0.89	0.62	0.35	7.68
0.71	0.79	0.55	0.31	6.82
0.7	0.83	0.58	0.33	7.16
0.72	0.66	0.46	0.26	5.7
0.7	0.61	0.43	0.24	5.26
0.7	0.62	0.43	0.24	5.35
0.7	0.7	0.49	0.28	6.04
0.7	0.71	0.5	0.28	6.13
0.7	0.65	0.46	0.26	5.61
0.7	0.59	0.41	0.23	5.09
0.74	0.36	0.25	0.14	3.11
0.71	0.5	0.35	0.2	4.31
0.7	0.42	0.29	0.17	3.62
0.7	0.42	0.29	0.17	3.62
0.71	0.29	0.2	0.11	2.5
0.76	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	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: West Muddy Creek

Stream Locations: 1/4 mile upstream from confluence with Ault Creek

Fieldwork Date: 08/06/2021

Cross-section:

Observers: R Smith, J Sondergard, K Birch

Coordinate System: UTM Zone 13

X (easting): 289946

Y (northing): 4324302

Date Processed: 05/28/2023

Slope: 0.0055

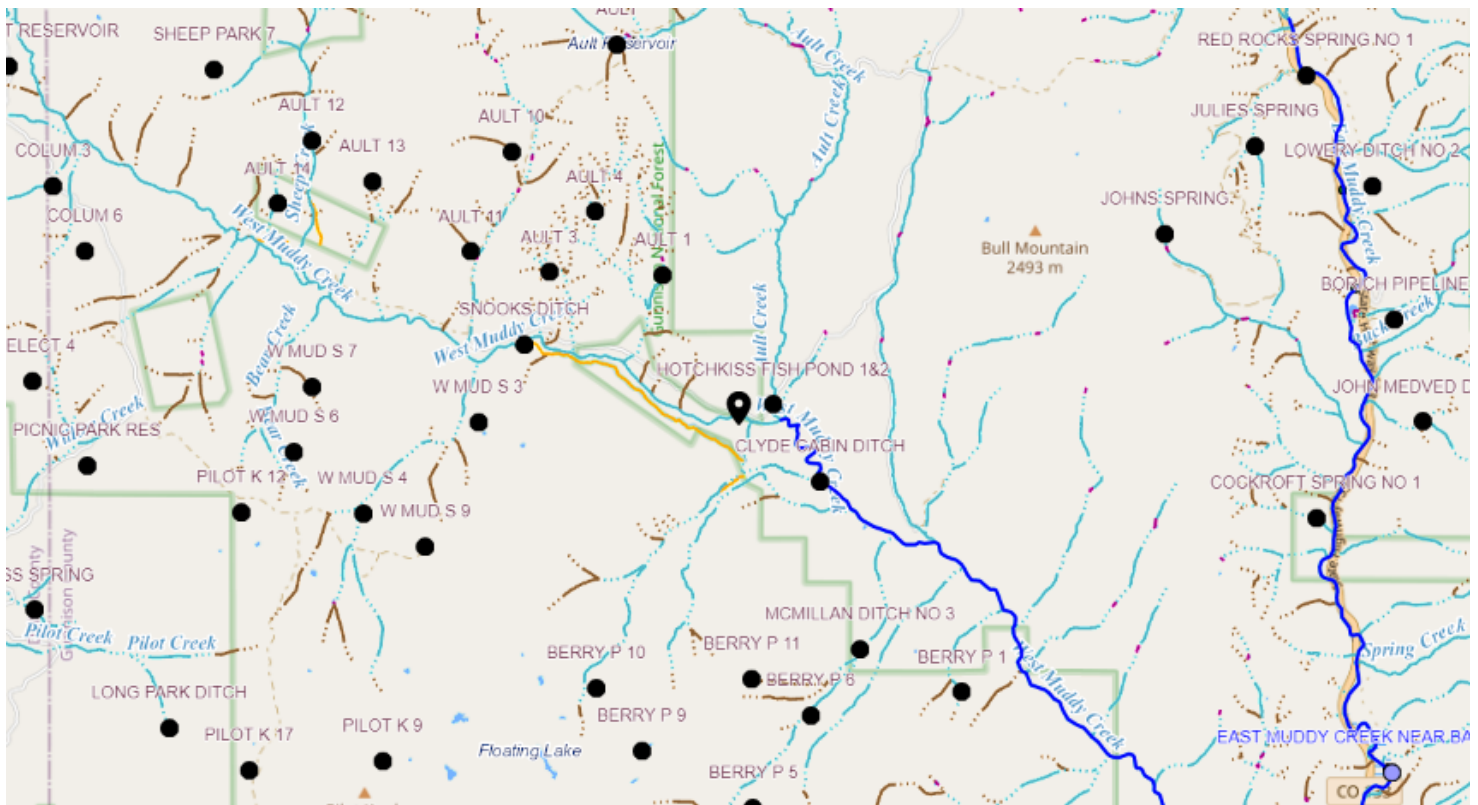
Discharge: Entered Value: 4.57 (cfs)

Computation method: Ferguson VPE

R2Cross data filename: West Muddy Creek 8-6-21 #2.xlsx

R2Cross version: 2.0.2

LOCATION



ANALYSIS RESULTS

Habitat Criteria Results

Bankfull top width (ft) = 36.16

	Habitat Criteria	Discharge (cfs) Meeting Criteria
Mean Depth (ft)	0.4	8.75
Percent Wetted Perimeter (%)	50.0	0.45
Mean Velocity (ft/s)	1.0	9.3

STAGING TABLE

Feature	Distance to Water (ft)	Top Width (ft)	Mean Depth (ft)	Maximum Depth (ft)	Area (sq ft)	Wetted Perimeter (ft)	Percent Wetted Perimeter	Hydraulic Radius (ft)	Manning's n	Mean Velocity (ft/s)	Discharge (cfs)
Bankfull	3.81	36.16	1.08	1.59	38.98	36.56	100.0	1.07	0.04	3.16	123.17
	3.85	35.64	1.05	1.55	37.54	36.03	98.56	1.04	0.04	3.09	116.17
	3.9	34.99	1.02	1.5	35.78	35.38	96.76	1.01	0.04	3.01	107.73
	3.95	34.34	0.99	1.45	34.04	34.72	94.96	0.98	0.04	2.93	99.62
	4.0	33.69	0.96	1.4	32.34	34.06	93.15	0.95	0.04	2.84	91.85
	4.05	33.03	0.93	1.35	30.68	33.4	91.35	0.92	0.04	2.75	84.41
	4.1	32.38	0.9	1.3	29.04	32.74	89.55	0.89	0.04	2.66	77.29
	4.15	31.73	0.86	1.25	27.44	32.08	87.75	0.86	0.04	2.57	70.49
	4.2	31.08	0.83	1.2	25.87	31.42	85.95	0.82	0.04	2.47	64.02
	4.25	30.52	0.8	1.15	24.33	30.85	84.39	0.79	0.04	2.37	57.68
	4.3	29.96	0.76	1.1	22.81	30.29	82.84	0.75	0.04	2.26	51.67
	4.35	29.47	0.72	1.05	21.33	29.78	81.45	0.72	0.04	2.15	45.87
	4.4	28.99	0.69	1.0	19.87	29.29	80.11	0.68	0.04	2.03	40.38
	4.45	28.51	0.65	0.95	18.43	28.8	78.77	0.64	0.04	1.91	35.21
	4.5	28.03	0.61	0.9	17.02	28.31	77.43	0.6	0.04	1.79	30.38
	4.55	27.55	0.57	0.85	15.63	27.82	76.09	0.56	0.05	1.66	25.89
	4.6	27.07	0.53	0.8	14.26	27.33	74.75	0.52	0.05	1.52	21.75
	4.65	26.59	0.49	0.75	12.92	26.84	73.41	0.48	0.05	1.39	17.95
	4.7	26.07	0.45	0.7	11.6	26.31	71.98	0.44	0.05	1.25	14.53
	4.75	25.5	0.4	0.65	10.31	25.74	70.4	0.4	0.05	1.11	11.5
	4.8	24.94	0.36	0.6	9.05	25.16	68.82	0.36	0.06	0.98	8.83
	4.85	24.37	0.32	0.55	7.82	24.58	67.24	0.32	0.06	0.83	6.52
Waterline	4.9	23.8	0.28	0.5	6.62	24.01	65.66	0.28	0.07	0.69	4.57
	4.95	22.8	0.24	0.45	5.45	22.99	62.89	0.24	0.07	0.56	3.07
	5.0	21.64	0.2	0.4	4.34	21.81	59.66	0.2	0.08	0.44	1.92

5.05	20.48	0.16	0.35	3.29	20.63	56.44	0.16	0.1	0.32	1.06
5.1	19.0	0.12	0.3	2.3	19.12	52.3	0.12	0.12	0.22	0.5
5.15	14.24	0.1	0.25	1.47	14.33	39.2	0.1	0.14	0.17	0.25
5.2	10.37	0.08	0.2	0.85	10.42	28.5	0.08	0.17	0.12	0.1
5.25	6.25	0.07	0.15	0.44	6.28	17.18	0.07	0.19	0.1	0.04
5.3	4.13	0.04	0.1	0.18	4.14	11.33	0.04	0.28	0.05	0.01
5.35	1.33	0.02	0.05	0.03	1.34	3.66	0.02	0.45	0.02	0.0
5.38	0.4	0.01	0.01	0.0	0.4	1.1	0.01	1.22	0.0	0.0

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

MODEL SUMMARY

Measured Flow (Qm) =	4.57	(cfs)
Calculated Flow (Qc) =	4.57	(cfs)
$(Qm-Qc)/Qm * 100 =$	0.01%	
Measured Waterline (WLm) =	4.9	(ft)
Calculated Waterline (WLc) =	4.9	(ft)
$(WLm-WLc)/WLm * 100 =$	-0.00%	
Max Measured Depth (Dm) =	0.5	(ft)
Max Calculated Depth (Dc) =	0.5	(ft)
$(Dm-Dc)/Dm * 100 =$	0.00%	
Mean Velocity =	0.69	(ft/s)
Manning's n =	0.068	
$0.4 * Qm =$	1.83	(cfs)
$2.5 * Qm =$	11.43	(cfs)

FIELD DATA

Feature	Station (ft)	Rod Height (ft)	Water depth (ft)	Velocity (ft/s)
	0	2.99		
Bankfull	4	3.76		
	7	4.2		
Waterline	10.5	4.9	0	
	12	5.13	0.23	
	13	5.1	0.2	
	14	5.26	0.36	
	15	5.22	0.32	
	16	5.23	0.33	
	17	5.11	0.21	
	18	5.17	0.27	
	18.5	5.28	0.38	
	19	5.33	0.43	
	19.5	5.3	0.4	
	20	5.29	0.39	
	20.5	5.19	0.29	
	21	5.06	0.16	
	22	5.19	0.29	
	23	5.21	0.31	
	24	5.11	0.21	
	25	5.18	0.28	
	26	4.92	0.02	
	27	5.16	0.26	
	28	5.3	0.4	
	29	5.4	0.5	
	30	5.34	0.44	
	31	5.34	0.44	
	32	5.22	0.32	
	33	5.05	0.15	
Waterline	34.3	4.9	0	

	35.7	4.68
	37.4	4.31
Bankfull	40.5	3.81
	43.3	2.56

COMPUTED FROM MEASURED FIELD DATA

Wetted Perimeter (ft)	Water Depth (ft)	Area (ft^2)	Discharge (cfs)	Percent Discharge
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
1.52	0.23	0.29	0.2	4.34
1	0.2	0.2	0.14	3.02
1.01	0.36	0.36	0.25	5.44
1	0.32	0.32	0.22	4.84
1	0.33	0.33	0.23	4.99
1.01	0.21	0.21	0.15	3.17
1	0.27	0.2	0.14	3.06
0.51	0.38	0.19	0.13	2.87
0.5	0.43	0.21	0.15	3.25
0.5	0.4	0.2	0.14	3.02
0.5	0.39	0.2	0.13	2.95
0.51	0.29	0.14	0.1	2.19
0.52	0.16	0.12	0.08	1.81
1.01	0.29	0.29	0.2	4.38
1	0.31	0.31	0.21	4.68
1	0.21	0.21	0.15	3.17
1	0.28	0.28	0.19	4.23
1.03	0.02	0.02	0.01	0.3
1.03	0.26	0.26	0.18	3.93
1.01	0.4	0.4	0.28	6.04
1	0.5	0.5	0.35	7.56
1	0.44	0.44	0.3	6.65
1	0.44	0.44	0.3	6.65
1.01	0.32	0.32	0.22	4.84
1.01	0.15	0.17	0.12	2.61
1.31	0	0	0	0

0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

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General Site Field Visit Data Report (Filters: Type = stream; Name begins with West Muddy Creek; Division = 4;)

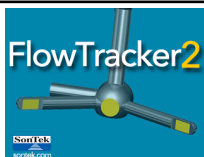
Type		Div	Name	CWCB Case Number	Segment ID	Visit Date	Location Description	Watershed Name
Stream		4	West Muddy Creek		21/4/A-011	4/7/2021	West Muddy Creek near confluence with East Muddy, publically accessible.	North Fork Gunnison
	Remarks	Date	Remark					
		07/04/21 00:00	Investiating tribs, confluence with East Muddy, USGS and DWR gages on Muddy above Paonia Res., potential CWCB gage locations.					
	GPS Log	No GPS Log records for this visit.						
	Photo Log	No Photo Log records for this visit.						
		4	West Muddy Creek		21/4/A-011	4/8/2021	At confluence with East Muddy and just above, investigating potential CWCB temp gage locations with DWR, Josh Casper.	North Fork Gunnison
	Remarks	Date	Remark					
		08/04/21 00:00	Determined a good location would require private access. Install on hold while pursuing access permission.					
	GPS Log	No GPS Log records for this visit.						
	Photo Log	No Photo Log records for this visit.						
	4	West Muddy Creek		21/4/A-011	5/11/2021	At Hotchkiss Gage above co133 bridge, near confluence with E. Muddy.	North Fork Gunnison	
Remarks	Date	Remark						
	11/05/21 00:00	Photos of DWR gage and intended location for new gage. Appears to be wadable but rain, snow hail mix. Roy visted later in day.						
GPS Log	No GPS Log records for this visit.							
Photo Log	No Photo Log records for this visit.							
	4	West Muddy Creek		21/4/A-011	7/21/2021	West Muddy Creek near Paoinia Reservoir	North Fork Gunnison	
Remarks	Date	Remark						
	21/07/21 14:33	No flow						
GPS Log	No GPS Log records for this visit.							
Photo Log	No Photo Log records for this visit.							
	4	West Muddy Creek		21/4/A-011	2/22/2022	West Muddy Creek near Paonia Reservior	North Fork Gunnison	
Remarks	Date	Remark						
	22/02/22 00:00	Heavy snow and deep previous accumulation. Mostly frozen stream. Visual estimate 0.5cfs seen 5ft from confluence with East Muddy.						
GPS Log	No GPS Log records for this visit.							
Photo Log	No Photo Log records for this visit.							

Stream		4	West Muddy Creek		21/4/A-011	5/3/2022	West Muddy Creek near Paonia Reservoir	North Fork Gunnison
	Remarks	Date	Remark					
		03/05/22 00:00	Too high to wade. Issue with pt and unable to access due to depth. Installed backup pt and set to staff gage.					
	GPS Log	No GPS Log records for this visit.						
	Photo Log	No Photo Log records for this visit.						
		4	West Muddy Creek		21/4/A-011	4/13/2023	West Muddy Creek near Paonia Reservoir	North Fork Gunnison
	Remarks	Date	Remark					
		13/04/23 00:00	Higher flow than wadeable					
	GPS Log	No GPS Log records for this visit.						
	Photo Log	No Photo Log records for this visit.						
		4	West Muddy Creek		21/4/A-011	12/19/2024	West Muddy Creek near Paonia Reservoir	North Fork Gunnison
	Remarks	Date	Remark					
		19/12/24 12:24	Very thick ice over entire channel. Can hear flow across channel near the bridge.					
	GPS Log	No GPS Log records for this visit.						
	Photo Log	No Photo Log records for this visit.						

Discharge Measurment Field Visit Data Report (Filters: Name begins with West Muddy Creek; Division = 4;)

Div	Name	CWCB Case Number	Segment ID	Meas. Date	UTM	Location	Flow Amount (cfs)	Meas #	Standard Erro	Station ID
4	West Muddy Creek		21/4/A-011	05/19/2021	UTMx: 295780 UTMy: 4319463	West Muddy Creek near Paonia Reservoir	33.39	1	>8%	WMUDDYD4
4	West Muddy Creek		21/4/A-011	06/17/2021	UTMx: 295780 UTMy: 4319463	West Muddy Creek near Paonia Reservoir	0.35	2	5%	WMUDDYD4
4	West Muddy Creek		21/4/A-011	07/17/2021	UTMx: 295780 UTMy: 4319463	West Muddy Creek near Paonia Reservoir	0	3		WMUDDYD4
4	West Muddy Creek		21/4/A-011	07/21/2021	UTMx: 295780 UTMy: 4319463	West Muddy Creek near Paonia Reservoir	0	4		WMUDDYD4
4	West Muddy Creek		21/4/A-011	08/18/2021	UTMx: 295780 UTMy: 4319463	West Muddy Creek near Paonia Reservoir	0.62	5	>8%	WMUDDYD4
4	West Muddy Creek		21/4/A-011	09/14/2021	UTMx: 295780 UTMy: 4319463	West Muddy Creek near Paonia Reservoir	0.54	6	>8%	WMUDDYD4
4	West Muddy Creek		21/4/A-011	11/02/2021	UTMx: 295780 UTMy: 4319463	West Muddy Creek near Paonia Reservoir	2.63	7	5%	WMUDDYD4
4	West Muddy Creek		21/4/A-011	02/22/2022	UTMx: 295780 UTMy: 4319463	West Muddy Creek near Paonia Reservoir	0.5	8	>8%	WMUDDYD4
4	West Muddy Creek		21/4/A-011	05/05/2022	UTMx: 295780 UTMy: 4319463	West Muddy Creek near Paonia Reservoir	125.39	9	3%	WMUDDYD4
4	West Muddy Creek		21/4/A-011	05/23/2022	UTMx: 295780 UTMy: 4318463	West Muddy Creek near Paonia Reservoir	57.57	10	5%	WMUDDYD4
4	West Muddy Creek		21/4/A-011	06/23/2022	UTMx: 295780 UTMy: 4319463	West Muddy Creek near Paonia Reservoir	8.36	11	>8%	WMUDDYD4
4	West Muddy Creek		21/4/A-011	08/19/2022	UTMx: 295780 UTMy: 4319463	West Muddy Creek near Paonia Reservoir	3.03	12	>8%	WMUDDYD4
4	West Muddy Creek		21/4/A-011	09/29/2022	UTMx: 295780 UTMy: 4318463	West Muddy Creek near Paonia Reservoir	0.93	13	5%	WMUDDYD4
4	West Muddy Creek		21/4/A-011	04/20/2023	UTMx: 295780 UTMy: 4318463	West Muddy Creek near Paonia Reservoir	163.44	14	5%	
4	West Muddy Creek		21/4/A-011	04/20/2023	UTMx: 295780 UTMy: 4319463	West Muddy Creek near Paonia Reservoir	163	14	3%	WMUDDYD4
4	West Muddy Creek		21/4/A-011	06/06/2023	UTMx: 295780 UTMy: 4319463	West Muddy Creek near Paonia Reservoir	250	15		WMUDDYD4
4	West Muddy Creek		21/4/A-011	07/27/2023	UTMx: 295780 UTMy: 4318463	West Muddy Creek near Paonia Reservoir	5.19	16	5%	WMUDDYD4
4	West Muddy Creek		21/4/A-011	08/15/2023	UTMx: 295780 UTMy: 4318463	West Muddy Creek near Paonia Reservoir	0.98	17	5%	WMUDDYD4
4	West Muddy Creek		21/4/A-011	11/06/2023	UTMx: 295780 UTMy: 4318463	West Muddy Creek near Paonia Reservoir	4.48	18		WMUDDYD4
4	West Muddy Creek		21/4/A-011	03/28/2024	UTMx: 295780 UTMy: 4319463	West Muddy Creek near Paonia Reservoir	5.29	19		WMUDDYD4
4	West Muddy Creek		21/4/A-011	06/12/2024	UTMx: 295780 UTMy: 4319463	West Muddy Creek near Paonia Reservoir	11	20		WMUDDYD4
4	West Muddy Creek		21/4/A-011	06/25/2024	UTMx: 295780 UTMy: 4319463	West Muddy Creek near Paonia Reservoir	7.41	21		WMuddyD4

4	West Muddy Creek		21/4/A-011	08/12/2024	UTMx: 295780 UTMy: 4319463	West Muddy Creek near Paonia Reservoir	1.56	22		WMUDDYD 4
4	West Muddy Creek		21/4/A-011	09/12/2024	UTMx: 295780 UTMy: 4319463	West Muddy Creek near Paonia Reservior	1.67	23	3%	WMUDDYD 4
4	West Muddy Creek		21/4/A-011	10/08/2024	UTMx: 295780 UTMy: 4319463	West Muddy Creek near Paonia Reservior	1.49	24		WMUDDYD 4



Discharge Measurement Summary

Site name Wmuddy
Site number 5192021
Operator(s) Lfs
File name Wmuddy_20210519-182007.ft
Comment

Start time	5/19/2021 5:36 PM	Sensor type	Top Setting
End time	5/19/2021 6:05 PM	Handheld serial number	FT2H2104006
Start location latitude	39.000	Probe serial number	FT2P2103011
Start location longitude	-107.358	Probe firmware	1.30
Calculations engine	FlowTracker2	Handheld software	1.6.4

# Stations	Avg interval (s)	Total discharge (ft³/s)
17	40	33.3893

Total width (ft)	Total area (ft²)	Wetted Perimeter (ft)
20.700	24.9200	21.900

Mean SNR (dB)	Mean depth (ft)	Mean velocity (ft/s)
49	1.204	1.3399

Mean temp (°F)	Max depth (ft)	Max velocity (ft/s)
58.819	2.100	2.1898

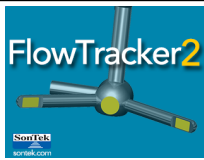
Discharge Uncertainty		
Category	ISO	IVE
Accuracy	1.0%	1.0%
Depth	0.2%	6.1%
Velocity	0.7%	5.5%
Width	0.1%	0.1%
Method	1.7%	
# Stations	3.0%	
Overall	3.6%	8.2%

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 Wmuddy
Site number 5192021
Operator(s) Lfs
File name Wmuddy_20210519-182007.ft
Comment

Station Warning Settings

Station discharge OK

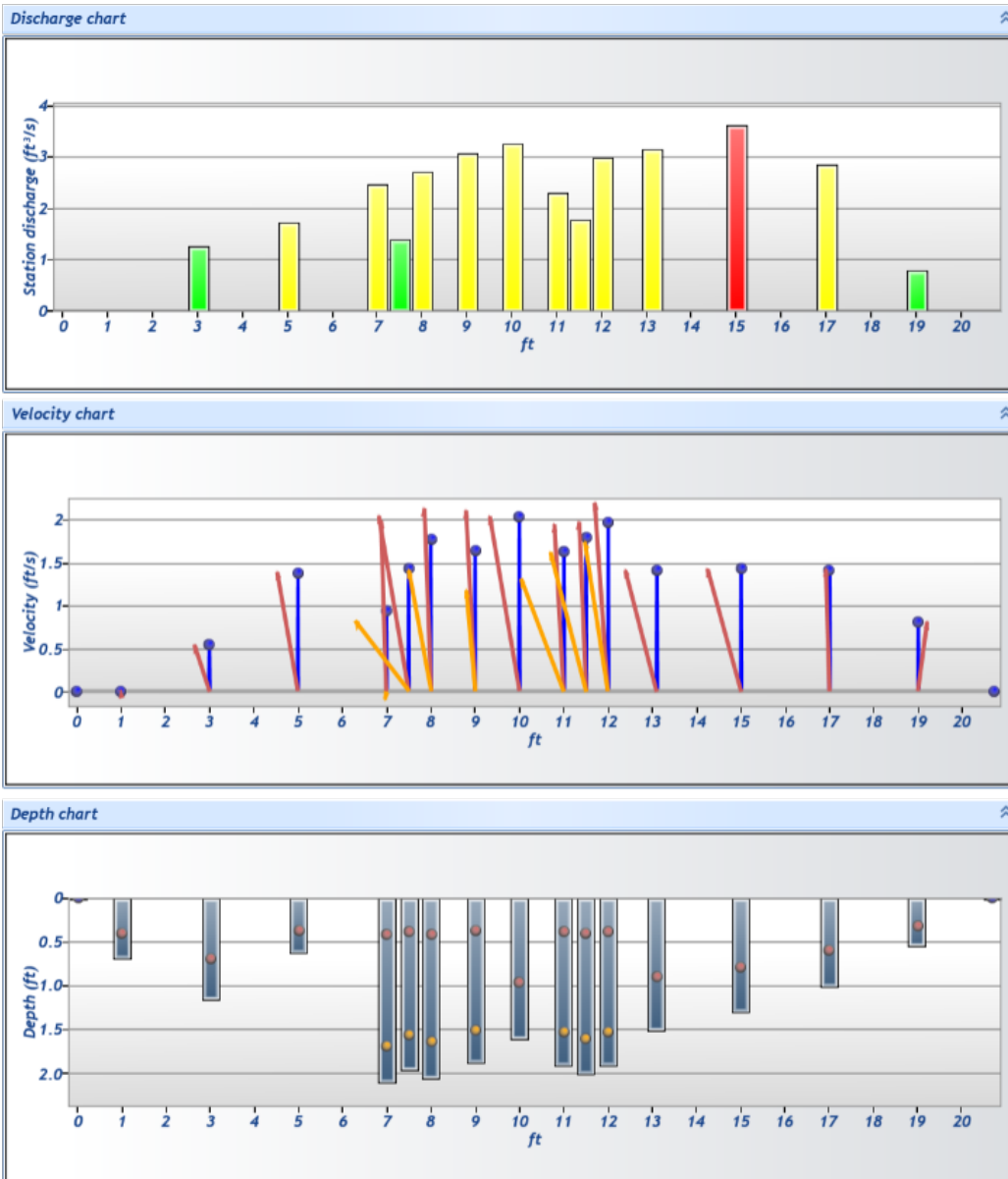
Station discharge < 5.00%

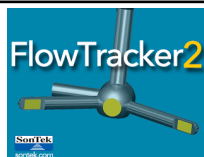
Station discharge caution

5.00% >= Station discharge < 10.00%

Station discharge warning

Station discharge >= 10.00%

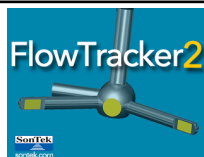




Discharge Measurement Summary

Site name Wmuddy
Site number 5192021
Operator(s) Lfs
File name Wmuddy_20210519-182007.ft
Comment

St#	Time	Location (ft)	Method	Depth (ft)	%Depth	Measured Depth (ft)	Samples	Velocity (ft/s)	Correction	Mean Velocity (ft/s)	Area (ft ²)	Flow (ft ³ /s)	%Q	
16	5:55 PM	0.000	None	0.010	0.0000	0.000	0	0.0000	1.0000	0.0108	0.0050	0.0001	0.00	✓
15	5:53 PM	1.000	0.6	0.680	0.6000	0.408	80	0.0108	1.0000	0.0108	1.0200	0.0110	0.03	✓
14	5:52 PM	3.000	0.6	1.150	0.6000	0.690	80	0.5459	1.0000	0.5459	2.3000	1.2555	3.76	✓
13	5:50 PM	5.000	0.6	0.620	0.6000	0.372	80	1.3840	1.0000	1.3840	1.2400	1.7161	5.14	✓
12	5:47 PM	7.000	0.2/0.8	2.100	0.2000	0.420	80	1.9783	1.0000	0.9415	2.6250	2.4715	7.40	✓
12	5:47 PM	7.000	0.2/0.8	2.100	0.8000	1.680	80	-0.0953	1.0000	0.9415	2.6250	2.4715	7.40	✓
11	6:05 PM	7.500	0.2/0.8	1.950	0.2000	0.390	80	2.0377	1.0000	1.4280	0.9750	1.3923	4.17	✓
11	6:05 PM	7.500	0.2/0.8	1.950	0.8000	1.560	80	0.8183	1.0000	1.4280	0.9750	1.3923	4.17	✓
10	5:56 PM	8.000	0.2/0.8	2.050	0.2000	0.410	80	2.1246	1.0000	1.7653	1.5375	2.7142	8.13	✓
10	5:56 PM	8.000	0.2/0.8	2.050	0.8000	1.640	80	1.4060	1.0000	1.7653	1.5375	2.7142	8.13	✓
9	5:45 PM	9.000	0.2/0.8	1.880	0.2000	0.376	80	2.0998	1.0000	1.6369	1.8800	3.0773	9.22	✓
9	5:45 PM	9.000	0.2/0.8	1.880	0.8000	1.504	80	1.1740	1.0000	1.6369	1.8800	3.0773	9.22	✓
8	5:58 PM	10.000	0.6	1.600	0.6000	0.960	80	2.0326	1.0000	2.0326	1.6000	3.2522	9.74	✓
7	5:43 PM	11.000	0.2/0.8	1.900	0.2000	0.380	80	1.9393	1.0000	1.6236	1.4250	2.3137	6.93	✓
7	5:43 PM	11.000	0.2/0.8	1.900	0.8000	1.520	80	1.3080	1.0000	1.6236	1.4250	2.3137	6.93	✓
6	6:02 PM	11.500	0.2/0.8	2.000	0.2000	0.400	80	1.9673	1.0000	1.7914	1.0000	1.7914	5.37	✓
6	6:02 PM	11.500	0.2/0.8	2.000	0.8000	1.600	80	1.6155	1.0000	1.7914	1.0000	1.7914	5.37	✓
5	6:00 PM	12.000	0.2/0.8	1.900	0.2000	0.380	80	2.1898	1.0000	1.9620	1.5200	2.9822	8.93	✓
5	6:00 PM	12.000	0.2/0.8	1.900	0.8000	1.520	80	1.7341	1.0000	1.9620	1.5200	2.9822	8.93	✓
4	5:41 PM	13.100	0.6	1.500	0.6000	0.900	80	1.4041	1.0000	1.4041	2.2500	3.1592	9.46	✓
3	5:40 PM	15.000	0.6	1.300	0.6000	0.780	80	1.4222	1.0000	1.4222	2.5350	3.6052	10.80	✓
2	5:38 PM	17.000	0.6	1.000	0.6000	0.600	80	1.4175	1.0000	1.4175	2.0000	2.8350	8.49	✓
1	5:37 PM	19.000	0.6	0.540	0.6000	0.324	80	0.8063	1.0000	0.8063	0.9990	0.8055	2.41	✓
0	5:36 PM	20.700	None	0.010	0.0000	0.000	0	0.0000	1.0000	0.8063	0.0085	0.0069	0.02	✓



Discharge Measurement Summary

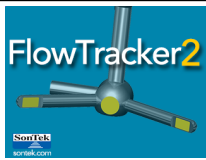
Site name Wmuddy
Site number 5192021
Operator(s) Lfs
File name Wmuddy_20210519-182007.ft
Comment

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
15	5:53 PM	1.000	0.6	0.680	0.6000	0.408	Large SNR Variation,SNR Threshold Variation
14	5:52 PM	3.000	0.6	1.150	0.6000	0.690	Velocity Angle > QC
13	5:50 PM	5.000	0.6	0.620	0.6000	0.372	Water Depth > QC
12	5:47 PM	7.000	0.2/0.8	2.100	0.2000	0.420	Boundary Interference,SNR Threshold Variation,Standard Error > QC,Velocity Angle > QC
12	5:47 PM	7.000	0.2/0.8	2.100	0.8000	1.680	Boundary Interference,SNR Threshold Variation,Standard Error > QC,Velocity Angle > QC
11	6:05 PM	7.500	0.2/0.8	1.950	0.2000	0.390	Standard Error > QC,Velocity Angle > QC
11	6:05 PM	7.500	0.2/0.8	1.950	0.8000	1.560	Standard Error > QC,Velocity Angle > QC
10	5:56 PM	8.000	0.2/0.8	2.050	0.2000	0.410	Stn Spacing > QC,Standard Error > QC
10	5:56 PM	8.000	0.2/0.8	2.050	0.8000	1.640	Stn Spacing > QC,Standard Error > QC
9	5:45 PM	9.000	0.2/0.8	1.880	0.2000	0.376	Standard Error > QC
9	5:45 PM	9.000	0.2/0.8	1.880	0.8000	1.504	Standard Error > QC
8	5:58 PM	10.000	0.6	1.600	0.6000	0.960	Standard Error > QC
7	5:43 PM	11.000	0.2/0.8	1.900	0.2000	0.380	Standard Error > QC,Velocity Angle > QC
7	5:43 PM	11.000	0.2/0.8	1.900	0.8000	1.520	Standard Error > QC,Velocity Angle > QC
6	6:02 PM	11.500	0.2/0.8	2.000	0.2000	0.400	Standard Error > QC,Velocity Angle > QC
6	6:02 PM	11.500	0.2/0.8	2.000	0.8000	1.600	Standard Error > QC,Velocity Angle > QC
5	6:00 PM	12.000	0.2/0.8	1.900	0.2000	0.380	Standard Error > QC
5	6:00 PM	12.000	0.2/0.8	1.900	0.8000	1.520	Standard Error > QC
4	5:41 PM	13.100	0.6	1.500	0.6000	0.900	Standard Error > QC,Velocity Angle > QC
3	5:40 PM	15.000	0.6	1.300	0.6000	0.780	Velocity Angle > QC,High Stn % Discharge
2	5:38 PM	17.000	0.6	1.000	0.6000	0.600	Standard Error > QC
1	5:37 PM	19.000	0.6	0.540	0.6000	0.324	Standard Error > QC



Discharge Measurement Summary

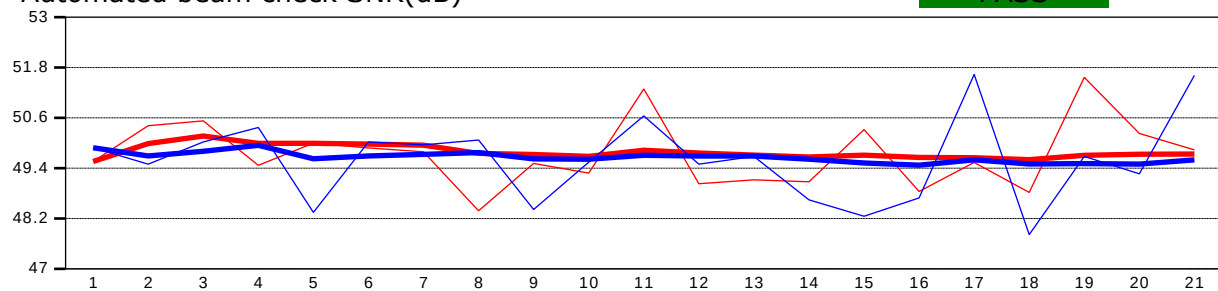
Site name Wmuddy
Site number 5192021
Operator(s) Lfs
File name Wmuddy_20210519-182007.ft
Comment

Beam 1	
Beam 2	

Automated beam check Start time 5/19/2021 5:36:31 PM

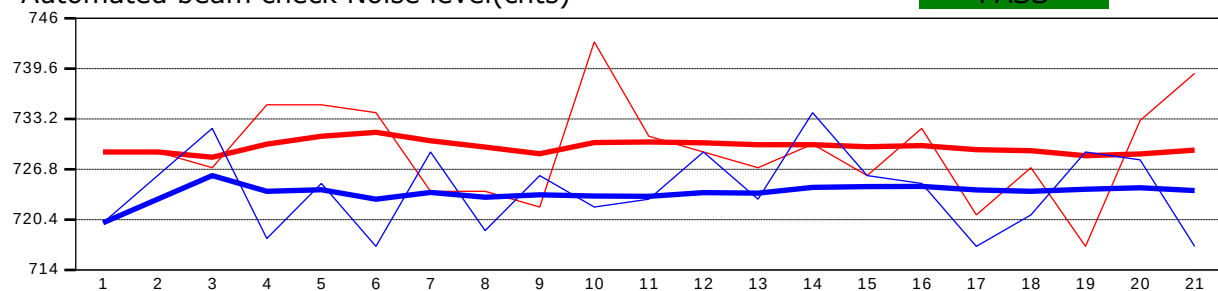
Automated beam check SNR(dB)

PASS



Automated beam check Noise level(cnts)

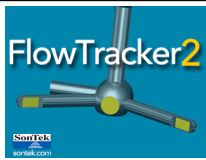
PASS



Automated beam check Quality control warnings

No quality control warnings

5/27/2021 3:50:38 PM



Discharge Measurement Summary

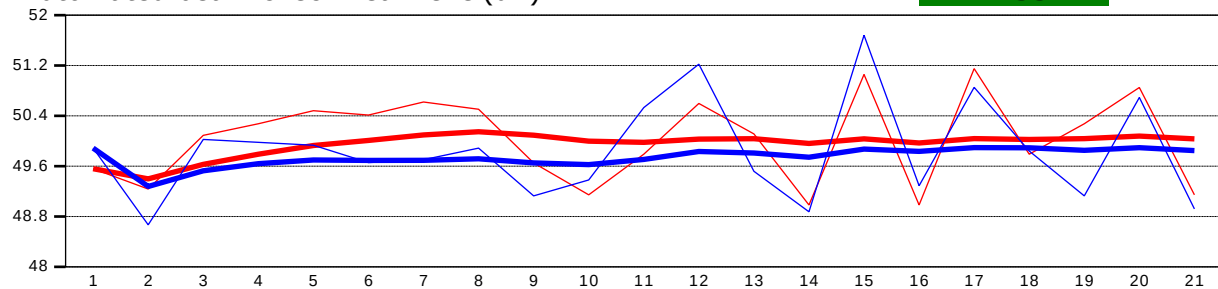
Site name Wmuddy
Site number 5192021
Operator(s) Lfs
File name Wmuddy_20210519-182007.ft
Comment

Beam 1	
Beam 2	

Automated beam check Start time 5/19/2021 5:36:31 PM

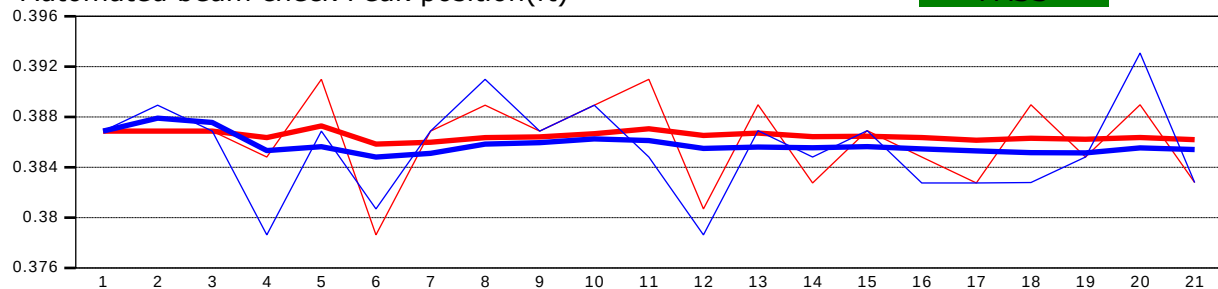
Automated beam check Peak level(dB)

PASS



Automated beam check Peak position(ft)

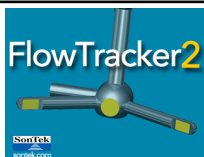
PASS



Automated beam check Quality control warnings

No quality control warnings

5/27/2021 3:50:38 PM



Discharge Measurement Summary

Site name Wmuddy
Site number 6172021
Operator(s) Lfs
File name Wmuddy_20210617-180129.ft
Comment

Start time	6/17/2021 4:16 PM	Sensor type	Top Setting
End time	6/17/2021 4:35 PM	Handheld serial number	FT2H2104006
Start location latitude	39.000	Probe serial number	FT2P2103011
Start location longitude	-107.358	Probe firmware	1.30
Calculations engine	FlowTracker2	Handheld software	1.6.4

# Stations	Avg interval (s)	Total discharge (ft³/s)
15	40	0.3461

Total width (ft)	Total area (ft²)	Wetted Perimeter (ft)
10.900	5.9173	11.173

Mean SNR (dB)	Mean depth (ft)	Mean velocity (ft/s)
27	0.543	0.0585

Mean temp (°F)	Max depth (ft)	Max velocity (ft/s)
77.536	1.000	0.1272

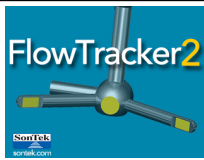
Discharge Uncertainty		
Category	ISO	IVE
Accuracy	1.0%	1.0%
Depth	0.4%	6.9%
Velocity	1.3%	8.3%
Width	0.2%	0.1%
Method	2.3%	
# Stations	3.3%	
Overall	4.4%	10.8%

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 Wmuddy
Site number 6172021
Operator(s) Lfs
File name Wmuddy_20210617-180129.ft
Comment

Station Warning Settings

Station discharge OK

Station discharge < 5.00%

Station discharge caution

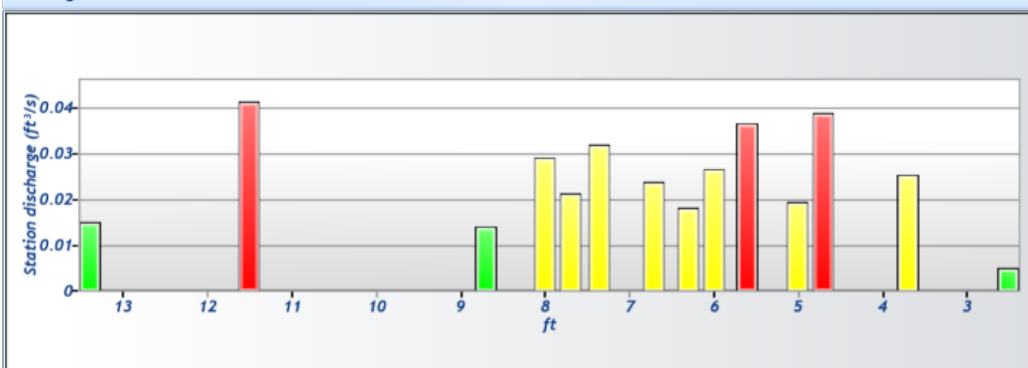
5.00% >= Station discharge < 10.00%

Station discharge warning

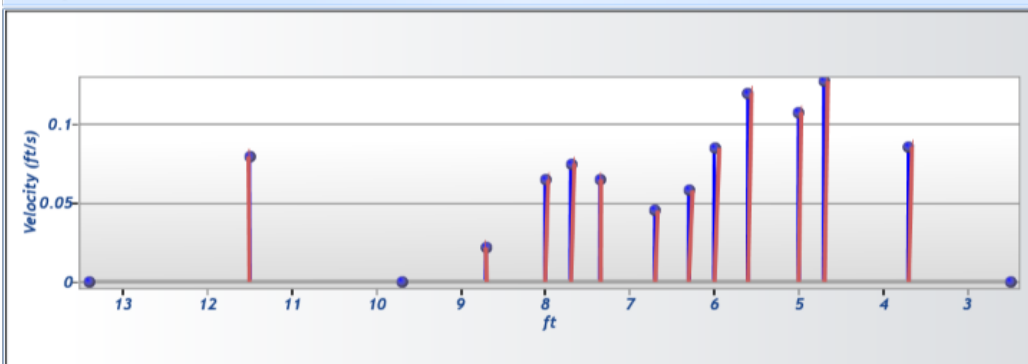
Station discharge >= 10.00%



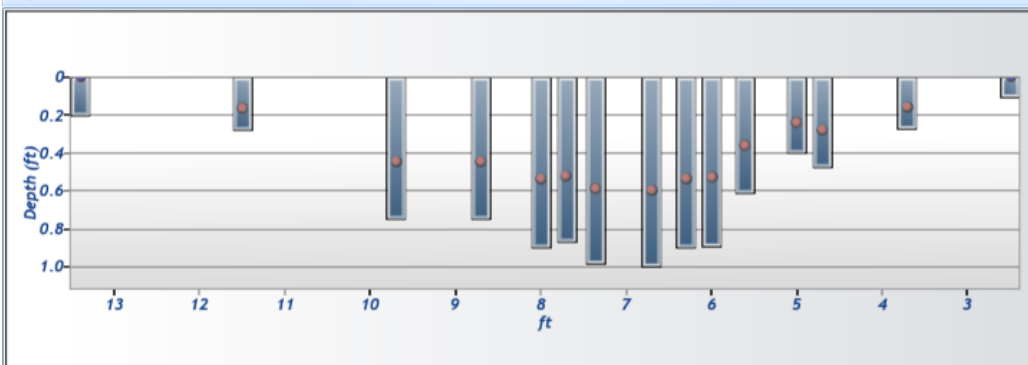
Discharge chart

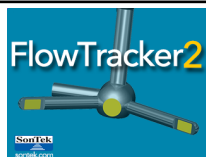


Velocity chart



Depth chart



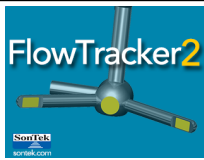


Discharge Measurement Summary

Site name Wmuddy
Site number 6172021
Operator(s) Lfs
File name Wmuddy_20210617-180129.ft
Comment

Measurement results

St#	Time	Location (ft)	Method	Depth (ft)	%Depth	Measured Depth (ft)	Samples	Velocity (ft/s)	Correcti on	Mean Velocity (ft/s)	Area (ft ²)	Flow (ft ³ /s)	%Q	
0	4:16 PM	2.500	None	0.100	0.0000	0.000	0	0.0000	1.0000	0.0855	0.0600	0.0051	1.48	✓
1	4:16 PM	3.700	0.6	0.270	0.6000	0.162	80	0.0855	1.0000	0.0855	0.2970	0.0254	7.34	✓
2	4:17 PM	4.700	0.6	0.470	0.6000	0.282	80	0.1272	1.0000	0.1272	0.3055	0.0389	11.23	✓
3	4:35 PM	5.000	0.6	0.400	0.6000	0.240	80	0.1074	1.0000	0.1074	0.1800	0.0193	5.59	✓
4	4:18 PM	5.600	0.6	0.610	0.6000	0.366	80	0.1196	1.0000	0.1196	0.3050	0.0365	10.54	✓
5	4:32 PM	6.000	0.6	0.890	0.6000	0.534	80	0.0849	1.0000	0.0849	0.3115	0.0264	7.64	✓
6	4:33 PM	6.300	0.6	0.900	0.6000	0.540	80	0.0580	1.0000	0.0580	0.3150	0.0183	5.28	✓
7	4:20 PM	6.700	0.6	1.000	0.6000	0.600	80	0.0452	1.0000	0.0452	0.5250	0.0237	6.86	✓
8	4:28 PM	7.350	0.6	0.980	0.6000	0.588	80	0.0650	1.0000	0.0650	0.4900	0.0318	9.20	✓
9	4:21 PM	7.700	0.6	0.870	0.6000	0.522	80	0.0749	1.0000	0.0749	0.2828	0.0212	6.12	✓
10	4:30 PM	8.000	0.6	0.900	0.6000	0.540	80	0.0648	1.0000	0.0648	0.4500	0.0292	8.43	✓
11	4:23 PM	8.700	0.6	0.750	0.6000	0.450	80	0.0219	1.0000	0.0219	0.6375	0.0140	4.03	✓
12	4:24 PM	9.700	0.6	0.750	0.6000	0.450	80	0.0000	1.0000	0.0000	1.0500	0.0000	0.00	✓
13	4:26 PM	11.500	0.6	0.280	0.6000	0.168	80	0.0795	1.0000	0.0795	0.5180	0.0412	11.90	✓
14	4:27 PM	13.400	None	0.200	0.0000	0.000	0	0.0000	1.0000	0.0795	0.1900	0.0151	4.36	✓

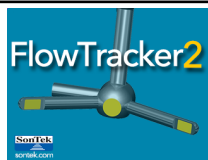


Discharge Measurement Summary

Site name Wmuddy
Site number 6172021
Operator(s) Lfs
File name Wmuddy_20210617-180129.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	4:16 PM	3.700	0.6	0.270	0.6000	0.162	Velocity Angle > QC
2	4:17 PM	4.700	0.6	0.470	0.6000	0.282	High Stn % Discharge
4	4:18 PM	5.600	0.6	0.610	0.6000	0.366	High Stn % Discharge
5	4:32 PM	6.000	0.6	0.890	0.6000	0.534	Velocity Angle > QC
9	4:21 PM	7.700	0.6	0.870	0.6000	0.522	Velocity Angle > QC
12	4:24 PM	9.700	0.6	0.750	0.6000	0.450	Boundary Interference
13	4:26 PM	11.500	0.6	0.280	0.6000	0.168	High Stn % Discharge



Discharge Measurement Summary

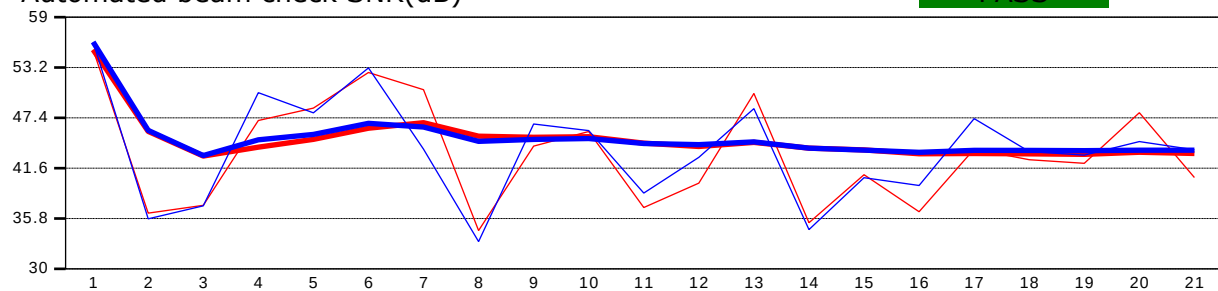
Site name Wmuddy
Site number 6172021
Operator(s) Lfs
File name Wmuddy_20210617-180129.ft
Comment

Beam 1	
Beam 2	

Automated beam check Start time 6/17/2021 4:15:43 PM

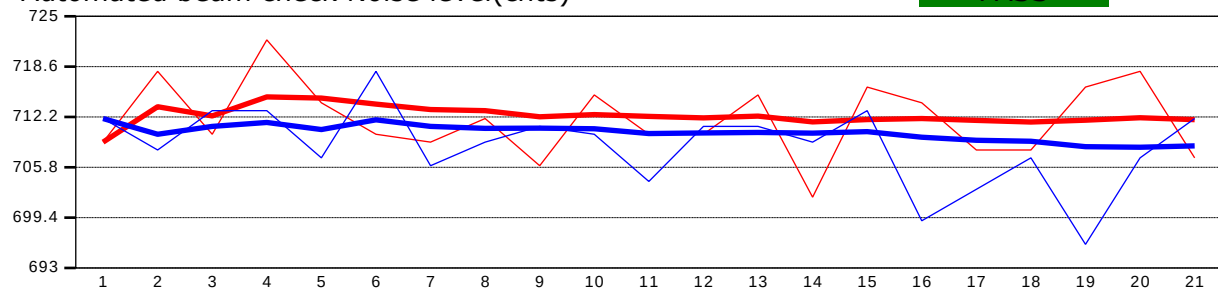
Automated beam check SNR(dB)

PASS



Automated beam check Noise level(cnts)

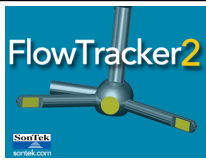
PASS



Automated beam check Quality control warnings

No quality control warnings

6/18/2021 7:04:44 AM



Discharge Measurement Summary

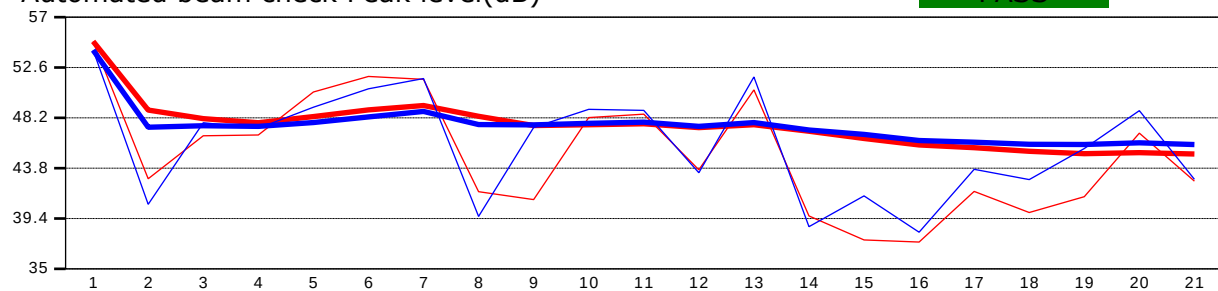
Site name Wmuddy
Site number 6172021
Operator(s) Lfs
File name Wmuddy_20210617-180129.ft
Comment

Beam 1	
Beam 2	

Automated beam check Start time 6/17/2021 4:15:43 PM

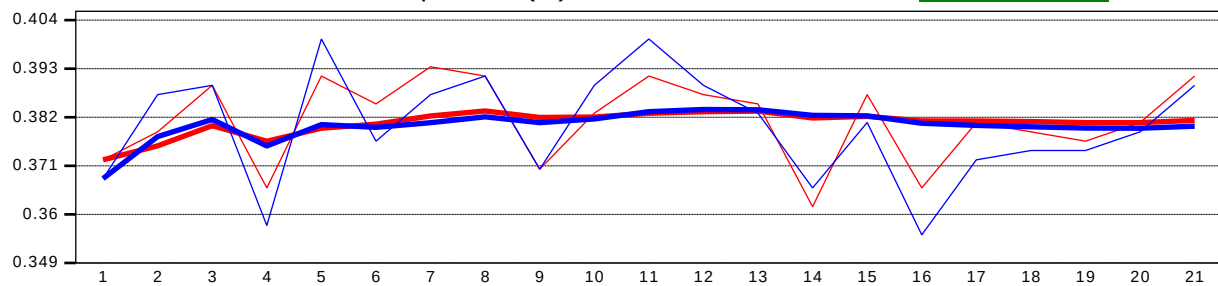
Automated beam check Peak level(dB)

PASS



Automated beam check Peak position(ft)

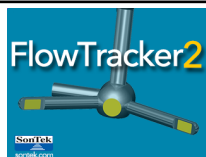
PASS



Automated beam check Quality control warnings

No quality control warnings

6/18/2021 7:04:44 AM



Discharge Measurement Summary

Site name WMuddy
Site number 91420210725
Operator(s) Lfs
File name WMuddy_20210914-080244.ft
Comment

Start time	9/14/2021 7:26 AM	Sensor type	Top Setting
End time	9/14/2021 7:55 AM	Handheld serial number	FT2H2104006
Start location latitude	39.000	Probe serial number	FT2P2103011
Start location longitude	-107.358	Probe firmware	1.30
Calculations engine	FlowTracker2	Handheld software	1.6.4

# Stations	Avg interval (s)	Total discharge (ft³/s)
19	40	0.5420

Total width (ft)	Total area (ft²)	Wetted Perimeter (ft)
9.500	2.6270	9.884

Mean SNR (dB)	Mean depth (ft)	Mean velocity (ft/s)
16	0.277	0.2063

Mean temp (°F)	Max depth (ft)	Max velocity (ft/s)
49.659	0.600	0.5294

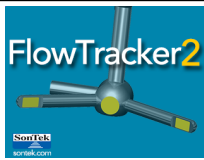
Discharge Uncertainty		
Category	ISO	IVE
Accuracy	1.0%	1.0%
Depth	0.4%	8.8%
Velocity	1.1%	22.1%
Width	0.1%	0.1%
Method	2.0%	
# Stations	2.6%	
Overall	3.7%	23.9%

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 WMuddy
Site number 91420210725
Operator(s) Lfs
File name WMuddy_20210914-080244.ft
Comment

Station Warning Settings

Station discharge OK

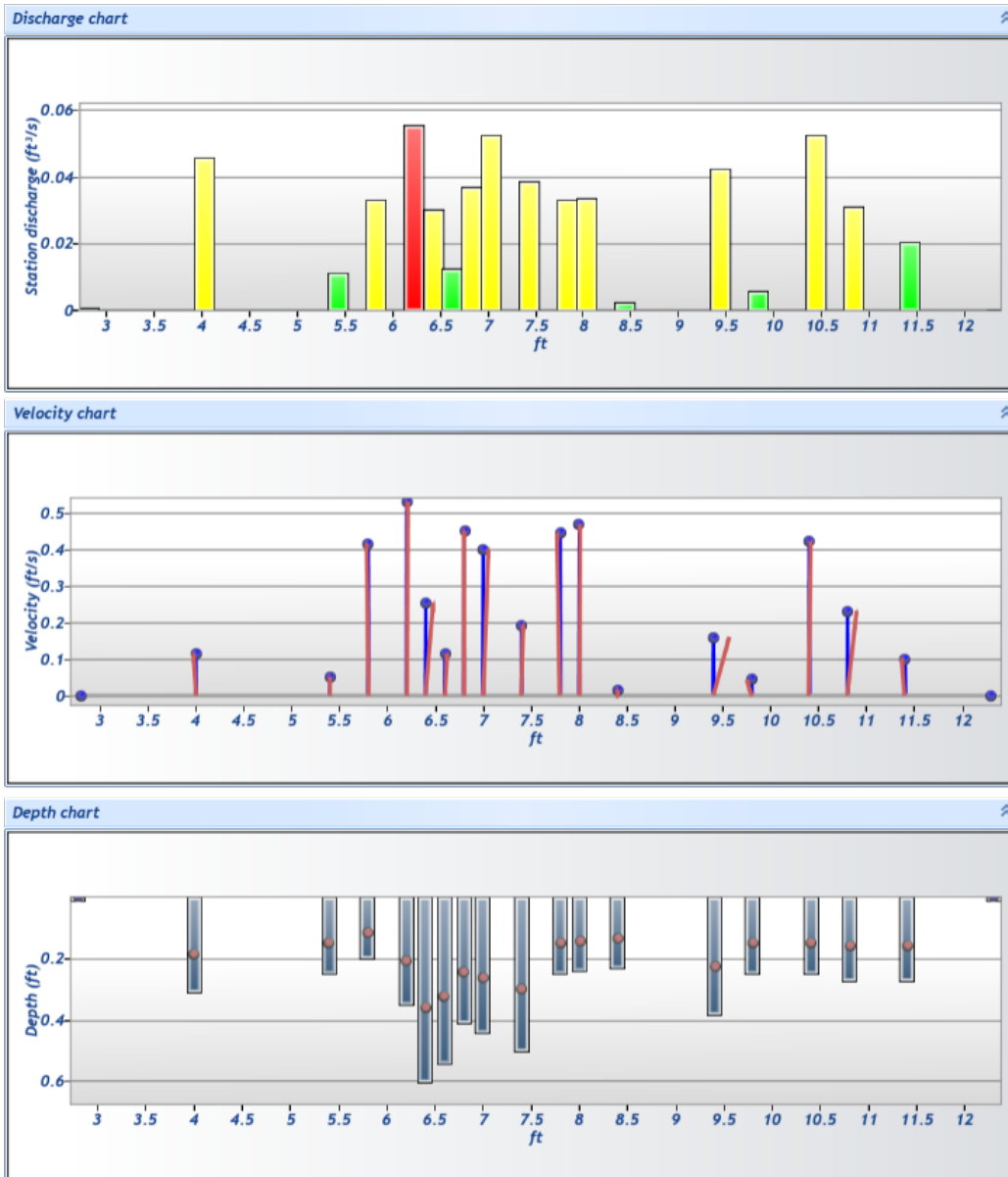
Station discharge < 5.00%

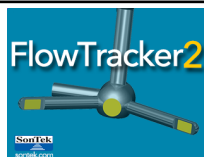
Station discharge caution

5.00% >= Station discharge < 10.00%

Station discharge warning

Station discharge >= 10.00%

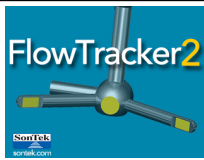




Discharge Measurement Summary

Site name WMuddy
Site number 91420210725
Operator(s) Lfs
File name WMuddy_20210914-080244.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 (ft ²)	Flow (ft ³ /s)	%Q	
18	7:48 AM	2.800	None	0.010	0.0000	0.000	0	0.0000	1.0000	0.1144	0.0060	0.0007	0.13	✓
17	7:47 AM	4.000	0.6	0.310	0.6000	0.186	80	0.1144	1.0000	0.1144	0.4030	0.0461	8.51	✓
16	7:45 AM	5.400	0.6	0.250	0.6000	0.150	80	0.0514	1.0000	0.0514	0.2250	0.0116	2.13	✓
15	7:44 AM	5.800	0.6	0.200	0.6000	0.120	80	0.4156	1.0000	0.4156	0.0800	0.0333	6.14	✓
14	7:43 AM	6.200	0.6	0.350	0.6000	0.210	80	0.5294	1.0000	0.5294	0.1050	0.0556	10.26	✓
13	7:41 AM	6.400	0.6	0.600	0.6000	0.360	80	0.2544	1.0000	0.2544	0.1200	0.0305	5.63	✓
12	7:38 AM	6.600	0.6	0.540	0.6000	0.324	80	0.1158	1.0000	0.1158	0.1080	0.0125	2.31	✓
11	7:37 AM	6.800	0.6	0.410	0.6000	0.246	80	0.4511	1.0000	0.4511	0.0820	0.0370	6.82	✓
10	7:35 AM	7.000	0.6	0.440	0.6000	0.264	80	0.4002	1.0000	0.4002	0.1320	0.0528	9.75	✓
9	7:34 AM	7.400	0.6	0.500	0.6000	0.300	80	0.1945	1.0000	0.1945	0.2000	0.0389	7.18	✓
8	7:33 AM	7.800	0.6	0.250	0.6000	0.150	80	0.4443	1.0000	0.4443	0.0750	0.0333	6.15	✓
7	7:55 AM	8.000	0.6	0.240	0.6000	0.144	80	0.4673	1.0000	0.4673	0.0720	0.0336	6.21	✓
6	7:31 AM	8.400	0.6	0.230	0.6000	0.138	80	0.0168	1.0000	0.0168	0.1610	0.0027	0.50	✓
5	7:30 AM	9.400	0.6	0.380	0.6000	0.228	80	0.1599	1.0000	0.1599	0.2660	0.0425	7.85	✓
4	7:49 AM	9.800	0.6	0.250	0.6000	0.150	80	0.0455	1.0000	0.0455	0.1250	0.0057	1.05	✓
3	7:29 AM	10.400	0.6	0.250	0.6000	0.150	80	0.4217	1.0000	0.4217	0.1250	0.0527	9.73	✓
2	7:52 AM	10.800	0.6	0.270	0.6000	0.162	80	0.2315	1.0000	0.2315	0.1350	0.0313	5.77	✓
1	7:27 AM	11.400	0.6	0.270	0.6000	0.162	80	0.1023	1.0000	0.1023	0.2025	0.0207	3.82	✓
0	7:26 AM	12.300	None	0.010	0.0000	0.000	0	0.0000	1.0000	0.1023	0.0045	0.0005	0.08	✓



Discharge Measurement Summary

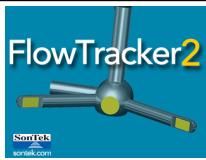
Site name WMuddy
Site number 91420210725
Operator(s) Lfs
File name WMuddy_20210914-080244.ft
Comment

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
14	7:43 AM	6.200	0.6	0.350	0.6000	0.210	High Stn % Discharge
13	7:41 AM	6.400	0.6	0.600	0.6000	0.360	Boundary Interference
12	7:38 AM	6.600	0.6	0.540	0.6000	0.324	Boundary Interference
6	7:31 AM	8.400	0.6	0.230	0.6000	0.138	Boundary Interference,High % Spikes
5	7:30 AM	9.400	0.6	0.380	0.6000	0.228	Velocity Angle > QC
3	7:29 AM	10.400	0.6	0.250	0.6000	0.150	Boundary Interference
2	7:52 AM	10.800	0.6	0.270	0.6000	0.162	Velocity Angle > QC



Discharge Measurement Summary

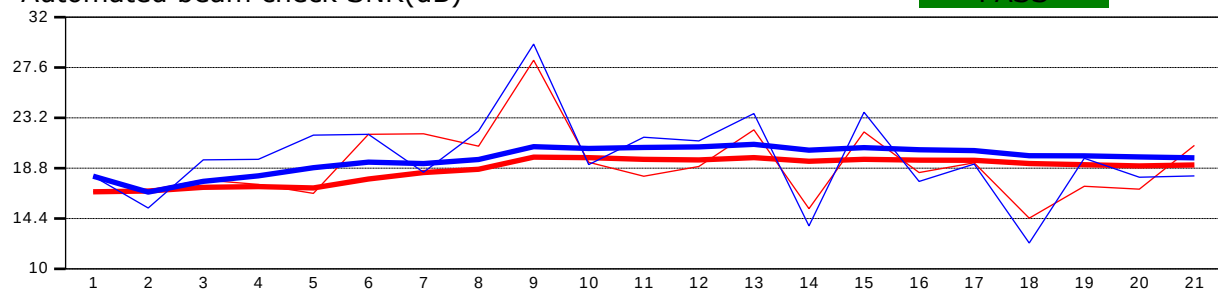
Site name WMuddy
Site number 91420210725
Operator(s) Lfs
File name WMuddy_20210914-080244.ft
Comment

Beam 1	
Beam 2	

Automated beam check Start time 9/14/2021 7:26:05 AM

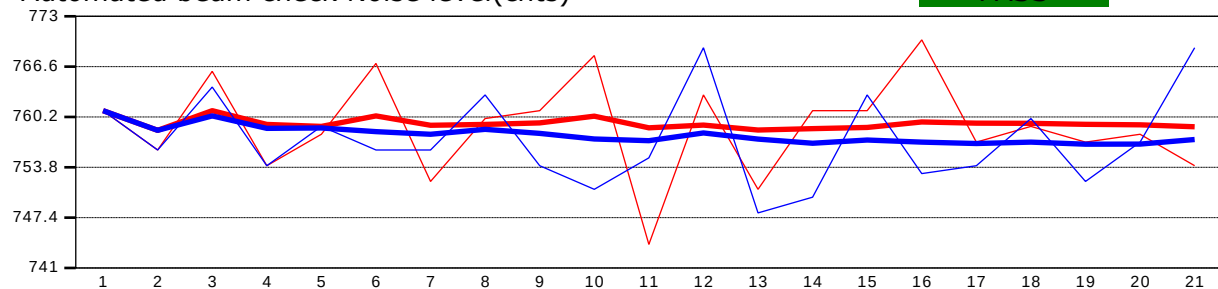
Automated beam check SNR(dB)

PASS



Automated beam check Noise level(cnts)

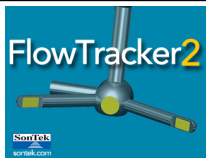
PASS



Automated beam check Quality control warnings

No quality control warnings

9/16/2021 11:27:33 AM



Discharge Measurement Summary

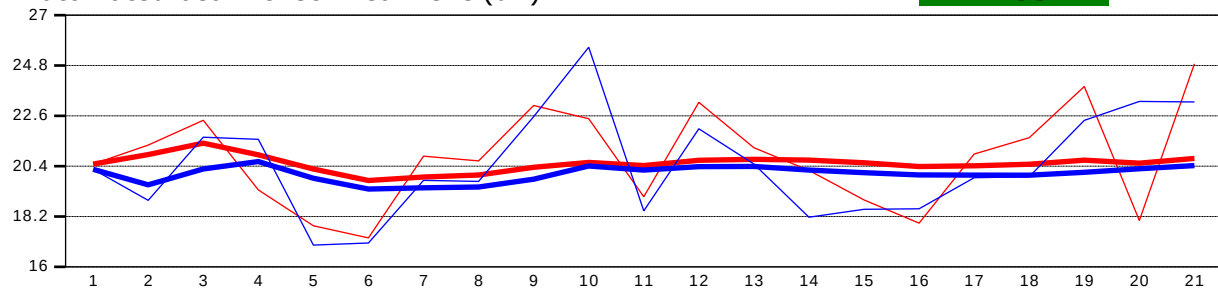
Site name WMuddy
Site number 91420210725
Operator(s) Lfs
File name WMuddy_20210914-080244.ft
Comment

Beam 1	
Beam 2	

Automated beam check Start time 9/14/2021 7:26:05 AM

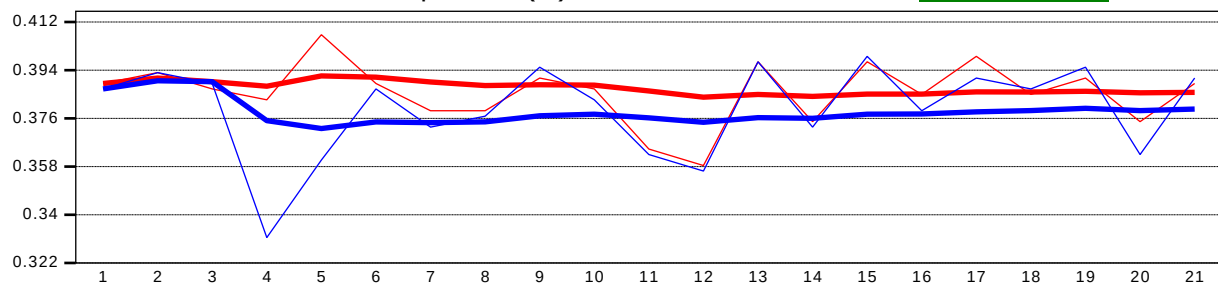
Automated beam check Peak level(dB)

PASS



Automated beam check Peak position(ft)

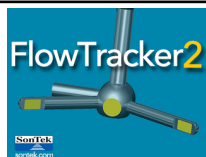
PASS



Automated beam check Quality control warnings

No quality control warnings

9/16/2021 11:27:33 AM



Discharge Measurement Summary

Site name WMuddy
Site number 110A021
Operator(s) Lfs
File name WMuddy_20211102-172047.ft
Comment

Start time	11/2/2021 4:45 PM	Sensor type	Top Setting
End time	11/2/2021 5:15 PM	Handheld serial number	FT2H2104006
Start location latitude	39.000	Probe serial number	FT2P2103011
Start location longitude	-107.358	Probe firmware	1.30
Calculations engine	FlowTracker2	Handheld software	1.6.4

# Stations	Avg interval (s)	Total discharge (ft³/s)
23	40	2.6331

Total width (ft)	Total area (ft²)	Wetted Perimeter (ft)
13.400	9.4025	13.813

Mean SNR (dB)	Mean depth (ft)	Mean velocity (ft/s)
28	0.702	0.2800

Mean temp (°F)	Max depth (ft)	Max velocity (ft/s)
44.660	1.220	0.4838

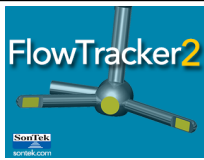
Discharge Uncertainty		
Category	ISO	IVE
Accuracy	1.0%	1.0%
Depth	0.2%	2.9%
Velocity	0.8%	8.0%
Width	0.1%	0.1%
Method	1.8%	
# Stations	2.2%	
Overall	3.1%	8.6%

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 WMuddy
Site number 110A021
Operator(s) Lfs
File name WMuddy_20211102-172047.ft
Comment

Station Warning Settings

Station discharge OK

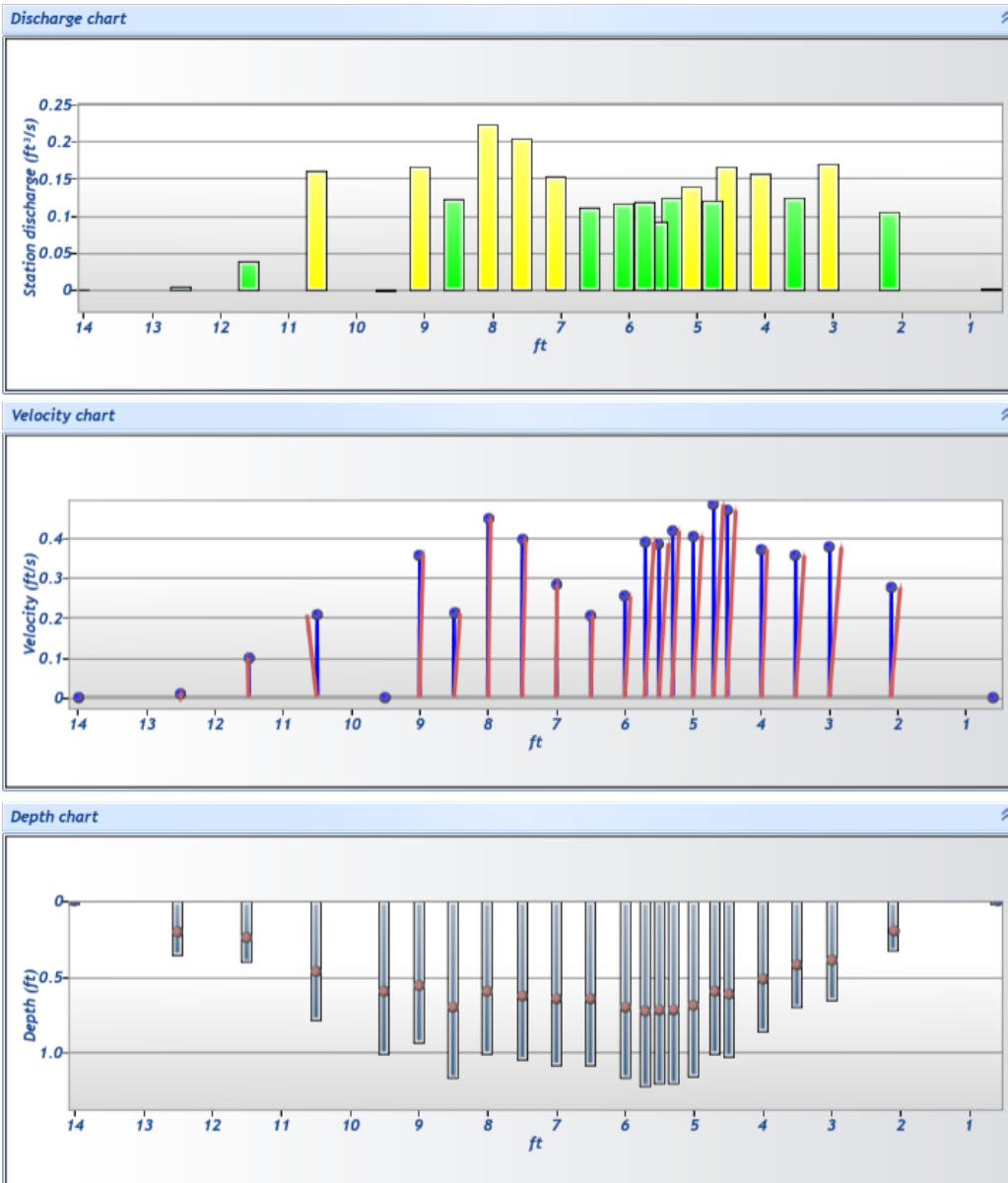
Station discharge < 5.00%

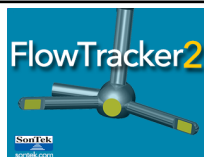
Station discharge caution

5.00% >= Station discharge < 10.00%

Station discharge warning

Station discharge >= 10.00%

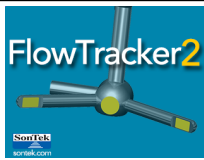




Discharge Measurement Summary

Site name WMuddy
Site number 110A021
Operator(s) Lfs
File name WMuddy_20211102-172047.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 (ft ²)	Flow (ft ³ /s)	%Q
22	5:06 PM	0.600	None	0.010	0.0000	0.000	0	0.0000	1.0000	0.2756	0.0075	0.0021	0.08 ✓
21	5:07 PM	2.100	0.6	0.320	0.6000	0.192	80	0.2756	1.0000	0.2756	0.3840	0.1058	4.02 ✓
20	5:05 PM	3.000	0.6	0.650	0.6000	0.390	80	0.3770	1.0000	0.3770	0.4550	0.1715	6.51 ✓
19	5:12 PM	3.500	0.6	0.700	0.6000	0.420	80	0.3563	1.0000	0.3563	0.3500	0.1247	4.74 ✓
18	5:04 PM	4.000	0.6	0.850	0.6000	0.510	80	0.3709	1.0000	0.3709	0.4250	0.1576	5.99 ✓
17	5:02 PM	4.500	0.6	1.020	0.6000	0.612	80	0.4691	1.0000	0.4691	0.3570	0.1675	6.36 ✓
16	5:15 PM	4.700	0.6	1.000	0.6000	0.600	80	0.4838	1.0000	0.4838	0.2500	0.1209	4.59 ✓
15	5:01 PM	5.000	0.6	1.150	0.6000	0.690	80	0.4050	1.0000	0.4050	0.3450	0.1397	5.31 ✓
14	5:11 PM	5.300	0.6	1.200	0.6000	0.720	80	0.4176	1.0000	0.4176	0.3000	0.1253	4.76 ✓
13	5:00 PM	5.500	0.6	1.200	0.6000	0.720	80	0.3859	1.0000	0.3859	0.2400	0.0926	3.52 ✓
12	5:09 PM	5.700	0.6	1.220	0.6000	0.732	80	0.3896	1.0000	0.3896	0.3050	0.1188	4.51 ✓
11	4:59 PM	6.000	0.6	1.160	0.6000	0.696	80	0.2532	1.0000	0.2532	0.4640	0.1175	4.46 ✓
10	4:58 PM	6.500	0.6	1.080	0.6000	0.648	80	0.2050	1.0000	0.2050	0.5400	0.1107	4.20 ✓
9	4:56 PM	7.000	0.6	1.080	0.6000	0.648	80	0.2829	1.0000	0.2829	0.5400	0.1528	5.80 ✓
8	4:55 PM	7.500	0.6	1.040	0.6000	0.624	80	0.3959	1.0000	0.3959	0.5200	0.2059	7.82 ✓
7	4:54 PM	8.000	0.6	1.000	0.6000	0.600	80	0.4497	1.0000	0.4497	0.5000	0.2249	8.54 ✓
6	4:53 PM	8.500	0.6	1.160	0.6000	0.696	80	0.2117	1.0000	0.2117	0.5800	0.1228	4.66 ✓
5	4:51 PM	9.000	0.6	0.930	0.6000	0.558	80	0.3577	1.0000	0.3577	0.4650	0.1663	6.32 ✓
4	4:50 PM	9.500	0.6	1.000	0.6000	0.600	80	-0.0007	1.0000	-0.0007	0.7500	-0.0005	-0.02 ✓
3	4:49 PM	10.500	0.6	0.780	0.6000	0.468	80	0.2071	1.0000	0.2071	0.7800	0.1615	6.13 ✓
2	4:47 PM	11.500	0.6	0.400	0.6000	0.240	80	0.0988	1.0000	0.0988	0.4000	0.0395	1.50 ✓
1	4:45 PM	12.500	0.6	0.350	0.6000	0.210	80	0.0116	1.0000	0.0116	0.4375	0.0051	0.19 ✓
0	4:45 PM	14.000	None	0.010	0.0000	0.000	0	0.0000	1.0000	0.0116	0.0075	0.0001	0.00 ✓



Discharge Measurement Summary

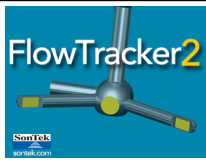
Site name WMuddy
Site number 110A021
Operator(s) Lfs
File name WMuddy_20211102-172047.ft
Comment

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
21	5:07 PM	2.100	0.6	0.320	0.6000	0.192	Velocity Angle > QC
20	5:05 PM	3.000	0.6	0.650	0.6000	0.390	Velocity Angle > QC
19	5:12 PM	3.500	0.6	0.700	0.6000	0.420	Velocity Angle > QC
15	5:01 PM	5.000	0.6	1.150	0.6000	0.690	Stn Spacing > QC
13	5:00 PM	5.500	0.6	1.200	0.6000	0.720	Velocity Angle > QC
6	4:53 PM	8.500	0.6	1.160	0.6000	0.696	Velocity Angle > QC
4	4:50 PM	9.500	0.6	1.000	0.6000	0.600	Boundary Interference, Low SNR, Approaching Low SNR, SNR Threshold Variation
3	4:49 PM	10.500	0.6	0.780	0.6000	0.468	Velocity Angle > QC
1	4:45 PM	12.500	0.6	0.350	0.6000	0.210	SNR Threshold Variation



Discharge Measurement Summary

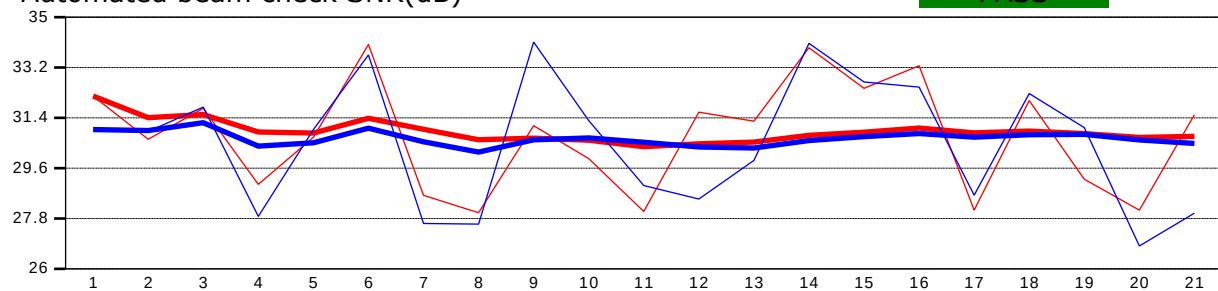
Site name WMuddy
Site number 110A021
Operator(s) Lfs
File name WMuddy_20211102-172047.ft
Comment

Beam 1	
Beam 2	

Automated beam check Start time 11/2/2021 4:45:09 PM

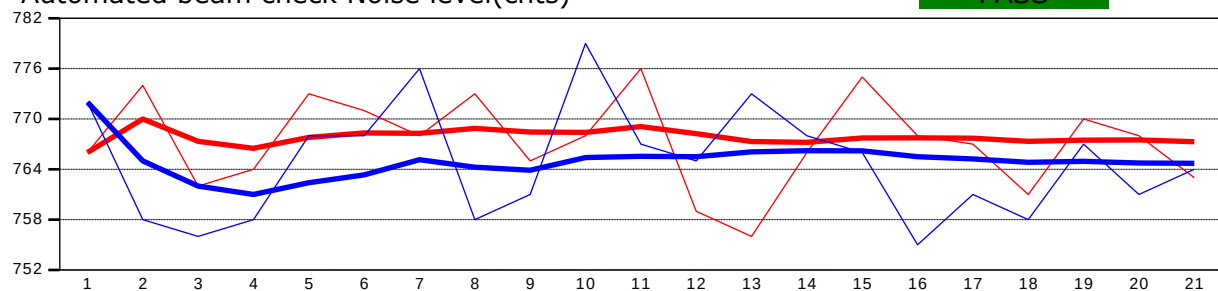
Automated beam check SNR(dB)

PASS



Automated beam check Noise level(cnts)

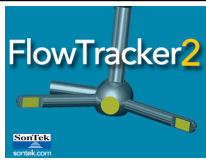
PASS



Automated beam check Quality control warnings

No quality control warnings

11/5/2021 11:45:07 AM



Discharge Measurement Summary

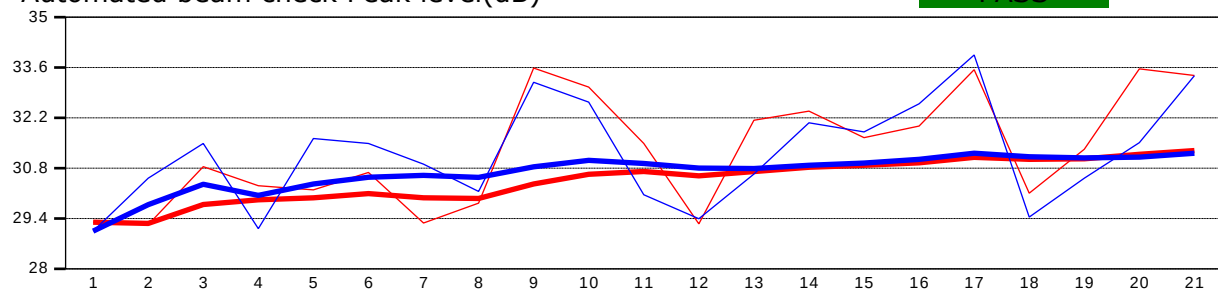
Site name WMuddy
Site number 110A021
Operator(s) Lfs
File name WMuddy_20211102-172047.ft
Comment

Beam 1	
Beam 2	

Automated beam check Start time 11/2/2021 4:45:09 PM

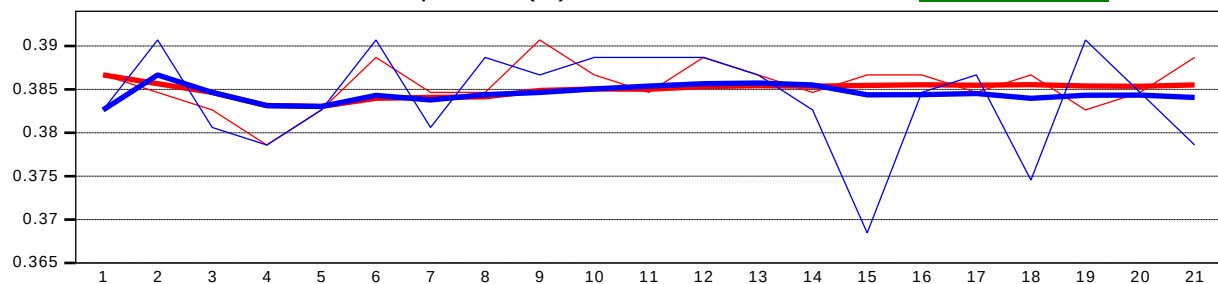
Automated beam check Peak level(dB)

PASS



Automated beam check Peak position(ft)

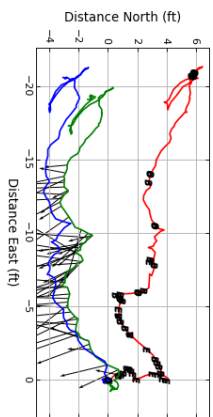
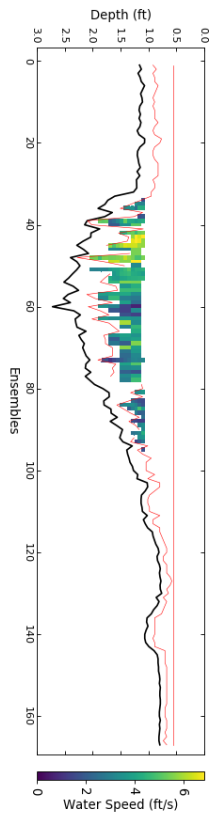
PASS



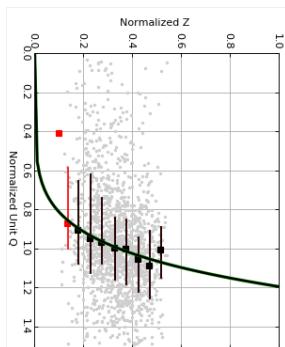
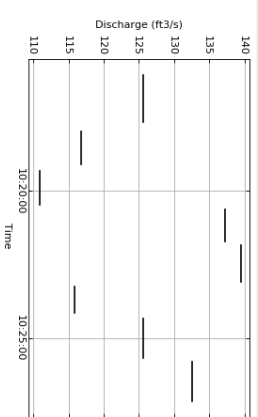
Automated beam check Quality control warnings

No quality control warnings

Transect		Start	Bank	End	Duration(sec)	Total Q (ft ³ /s)	Top Q (ft ³ /s)	Meas Q (ft ³ /s)	Bottom Q (ft ³ /s)	Left Q (ft ³ /s)	Right Q (ft ³ /s)
Measurement		10:16:03		10:27:08	586.9	125.390	62.046	28.117	20.903	6.556	7.767
WESTMUDDY_1_000		10:16:03	L	10:17:38	95.2	125.508	56.750	31.779	19.826	10.041	7.113
WESTMUDDY_1_001		10:17:57	R	10:19:05	67.7	116.600	52.236	28.241	20.454	7.095	8.574
WESTMUDDY_1_002		10:19:18	L	10:20:28	70.3	110.799	56.885	21.546	20.189	3.795	8.285
WESTMUDDY_1_003		10:20:37	R	10:21:42	65.4	137.149	68.935	28.493	23.321	8.836	7.563
WESTMUDDY_1_004		10:21:50	L	10:23:05	75.2	139.343	71.125	31.671	22.815	5.708	8.025
WESTMUDDY_1_005		10:23:14	R	10:24:00	42.0	116.770	60.423	21.737	21.004	6.773	8.274

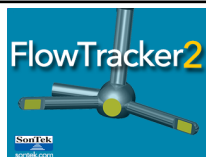


Messages		Comments
Status	Message	
!	BT-All: Int. Q for consecutive invalid ensembles exceeds 5.0%.	
!	BT-All: Int. Q for invalid ensembles in a transect exceeds 25.0%.	
!	BT-3Beams: Int. Q for consecutive invalid ensembles exceeds 5.0%.	
!	BT-3Beams: Int. Q for invalid ensembles in a transect exceeds 25.0%.	
!	Edges: Left edge Q is greater than 5%.	



COV %		% Q
Q:	8.34	L/R Edge: 5.23 / 6.19
Width:	6.25	Invalid Cells: 2.16
Area:	6.42	Invalid Ens: 5.90

Uncertainty	Auto	User
Random 95%	7.0	
Invalid Data 95%	1.6	
Edge Q 95%	3.4	
Extrapolation 95%	1.7	
Moving Bed 95%	0.0	
Systematic 68%	1.5	
Estimated 95%	8.6	8.6



Discharge Measurement Summary

Site name W Muddy abv confl with E Muddy
Site number 22062022
Operator(s) Lfs
File name W Muddy abv confl with E Muddy_20220623-160328.ft
Comment

Start time	6/23/2022 3:44 PM	Sensor type	Top Setting
End time	6/23/2022 4:01 PM	Handheld serial number	FT2H1747037
Start location latitude	39.000	Probe serial number	FT2P1747048
Start location longitude	-107.358	Probe firmware	1.30
Calculations engine	FlowTracker2	Handheld software	1.7

# Stations	Avg interval (s)	Total discharge (ft³/s)
15	40	8.3554

Total width (ft)	Total area (ft²)	Wetted Perimeter (ft)
16.900	14.6060	17.861

Mean SNR (dB)	Mean depth (ft)	Mean velocity (ft/s)
42	0.864	0.5720

Mean temp (°F)	Max depth (ft)	Max velocity (ft/s)
72.024	1.650	0.9913

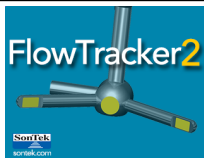
Discharge Uncertainty		
Category	ISO	IVE
Accuracy	1.0%	1.0%
Depth	0.2%	6.9%
Velocity	1.1%	9.9%
Width	0.2%	0.2%
Method	2.1%	
# Stations	3.3%	
Overall	4.2%	12.1%

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



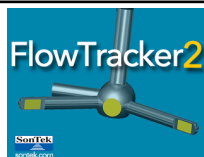
Discharge Measurement Summary

Site name W Muddy abv confl with E Muddy
Site number 22062022
Operator(s) Lfs
File name W Muddy abv confl with E Muddy _20220623-160328.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%	

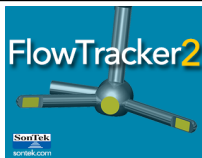




Discharge Measurement Summary

Site name	W Muddy abv confl with E Muddy
Site number	22062022
Operator(s)	Lfs
File name	W Muddy abv confl with E Muddy _20220623-160328.ft
Comment	

Measurement results														
St#	Time	Location (ft)	Method	Depth (ft)	%Depth	Measured Depth (ft)	Samples	Velocity (ft/s)	Correcti on	Mean Velocity (ft/s)	Area (ft ²)	Flow (ft ³ /s)	%Q	
14	4:01 PM	0.500	None	0.010	0.0000	0.000	0	0.0000	1.0000	0.0849	0.0125	0.0011	0.01	✓
13	4:00 PM	3.000	0.6	0.400	0.6000	0.240	80	0.0849	1.0000	0.0849	0.9000	0.0764	0.91	✓
12	3:59 PM	5.000	0.6	1.200	0.6000	0.720	80	0.2347	1.0000	0.2347	1.8000	0.4224	5.06	✓
11	3:58 PM	6.000	0.6	0.900	0.6000	0.540	80	0.3872	1.0000	0.3872	0.9000	0.3484	4.17	✓
10	3:56 PM	7.000	0.6	0.470	0.6000	0.282	80	0.8439	1.0000	0.8439	0.4700	0.3966	4.75	✓
9	3:55 PM	8.000	0.6	1.480	0.6000	0.888	80	0.5179	1.0000	0.5179	1.4800	0.7666	9.17	✓
8	3:53 PM	9.000	0.2/0.8	1.650	0.2000	0.330	80	0.9315	1.0000	0.6656	1.6500	1.0982	13.14	✓
8	3:53 PM	9.000	0.2/0.8	1.650	0.8000	1.320	80	0.3996	1.0000	0.6656	1.6500	1.0982	13.14	✓
7	3:51 PM	10.000	0.2/0.8	1.650	0.2000	0.330	80	0.7194	1.0000	0.6499	1.6500	1.0724	12.83	✓
7	3:51 PM	10.000	0.2/0.8	1.650	0.8000	1.320	68	0.5805	1.0000	0.6499	1.6500	1.0724	12.83	✓
6	3:50 PM	11.000	0.6	1.580	0.6000	0.948	80	0.8815	1.0000	0.8815	1.5800	1.3928	16.67	✓
5	3:49 PM	12.000	0.6	1.350	0.6000	0.810	80	0.6072	1.0000	0.6072	1.3500	0.8197	9.81	✓
4	3:48 PM	13.000	0.6	1.000	0.6000	0.600	80	0.8604	1.0000	0.8604	1.0000	0.8604	10.30	✓
3	3:46 PM	14.000	0.6	0.850	0.6000	0.510	80	0.9913	1.0000	0.9913	0.8500	0.8426	10.08	✓
2	3:45 PM	15.000	0.6	0.520	0.6000	0.312	80	0.4241	1.0000	0.4241	0.5980	0.2536	3.04	✓
1	3:44 PM	16.300	0.6	0.300	0.6000	0.180	80	0.0111	1.0000	0.0111	0.3600	0.0040	0.05	✓
0	3:44 PM	17.400	None	0.010	0.0000	0.000	0	0.0000	1.0000	0.0111	0.0055	0.0001	0.00	✓

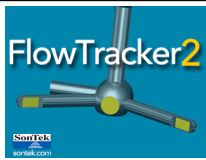


Discharge Measurement Summary

Site name	W Muddy abv confl with E Muddy
Site number	22062022
Operator(s)	Lfs
File name	W Muddy abv confl with E Muddy _20220623-160328.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
13	4:00 PM	3.000	0.6	0.400	0.6000	0.240	Velocity Angle > QC
10	3:56 PM	7.000	0.6	0.470	0.6000	0.282	Water Depth > QC, Velocity Angle > QC
9	3:55 PM	8.000	0.6	1.480	0.6000	0.888	Velocity Angle > QC
8	3:53 PM	9.000	0.2/0.8	1.650	0.2000	0.330	Velocity Angle > QC, High Stn % Discharge
8	3:53 PM	9.000	0.2/0.8	1.650	0.8000	1.320	Velocity Angle > QC, High Stn % Discharge
7	3:51 PM	10.000	0.2/0.8	1.650	0.2000	0.330	High Stn % Discharge
7	3:51 PM	10.000	0.2/0.8	1.650	0.8000	1.320	High Stn % Discharge
6	3:50 PM	11.000	0.6	1.580	0.6000	0.948	High Stn % Discharge
4	3:48 PM	13.000	0.6	1.000	0.6000	0.600	High Stn % Discharge
3	3:46 PM	14.000	0.6	0.850	0.6000	0.510	High Stn % Discharge



Discharge Measurement Summary

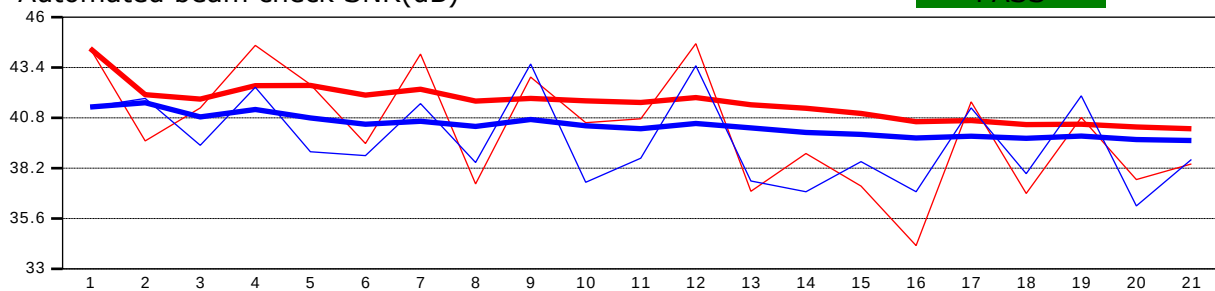
Site name W Muddy abv confl with E Muddy
Site number 22062022
Operator(s) Lfs
File name W Muddy abv confl with E Muddy _20220623-160328.ft
Comment

Beam 1	
Beam 2	

Automated beam check Start time 6/23/2022 3:43:31 PM

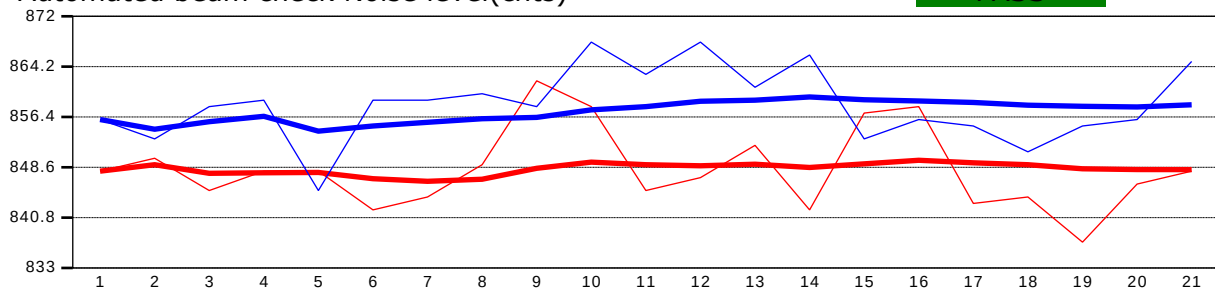
Automated beam check SNR(dB)

PASS



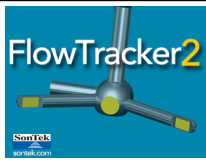
Automated beam check Noise level(cnts)

PASS



Automated beam check Quality control warnings

No quality control warnings



Discharge Measurement Summary

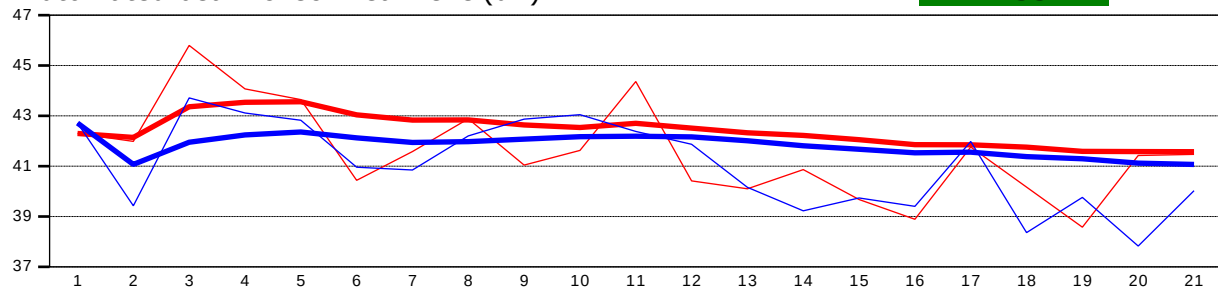
Site name W Muddy abv confl with E Muddy
Site number 22062022
Operator(s) Lfs
File name W Muddy abv confl with E Muddy_20220623-160328.ft
Comment

Beam 1	
Beam 2	

Automated beam check Start time 6/23/2022 3:43:31 PM

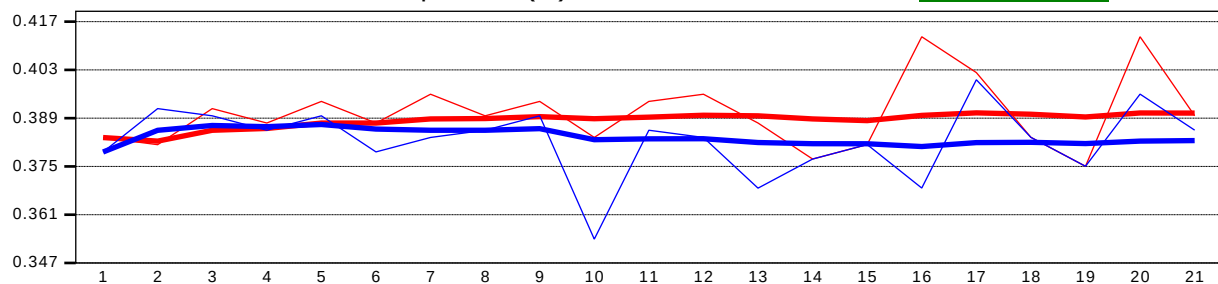
Automated beam check Peak level(dB)

PASS



Automated beam check Peak position(ft)

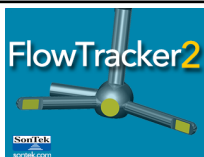
PASS



Automated beam check Quality control warnings

No quality control warnings

6/24/2022 6:50:17 PM



Discharge Measurement Summary

Site name WMuddy abv confl with Muddy Creek
Site number 19082022
Operator(s) Lfs
File name Milk Creek near confl with Yampa River_20220819-114348.ft
Comment

Start time	8/19/2022 11:08 AM	Sensor type	Top Setting
End time	8/19/2022 11:41 AM	Handheld serial number	FT2H1747037
Start location latitude	39.000	Probe serial number	FT2P1747048
Start location longitude	-107.358	Probe firmware	1.30
Calculations engine	FlowTracker2	Handheld software	1.7

# Stations	Avg interval (s)	Total discharge (ft³/s)
26	40	3.0340

Total width (ft)	Total area (ft²)	Wetted Perimeter (ft)
14.000	8.4280	14.564

Mean SNR (dB)	Mean depth (ft)	Mean velocity (ft/s)
37	0.602	0.3600

Mean temp (°F)	Max depth (ft)	Max velocity (ft/s)
65.154	1.050	0.8753

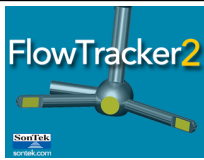
Discharge Uncertainty		
Category	ISO	IVE
Accuracy	1.0%	1.0%
Depth	0.3%	3.9%
Velocity	0.9%	15.1%
Width	0.1%	0.1%
Method	1.8%	
# Stations	2.0%	
Overall	3.0%	15.7%

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 WMuddy abv confl with Muddy Creek
Site number 19082022
Operator(s) Lfs
File name Milk Creek near confl with Yampa River_20220819-114348.ft
Comment

Station Warning Settings

Station discharge OK

Station discharge < 5.00%

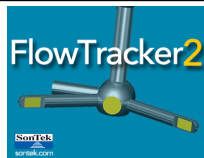
Station discharge caution

5.00% >= Station discharge < 10.00%

Station discharge warning

Station discharge >= 10.00%

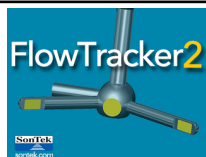




Discharge Measurement Summary

Site name	WMuddy abv confl with Muddy Creek
Site number	19082022
Operator(s)	Lfs
File name	Milk Creek near confl with Yampa River_20220819-114348.ft
Comment	

Measurement results													
St#	Time	Location (ft)	Method	Depth (ft)	%Depth	Measured Depth (ft)	Samples	Velocity (ft/s)	Correcti on	Mean Velocity (ft/s)	Area (ft ²)	Flow (ft ³ /s)	%Q
25	11:38 AM	1.000	None	0.010	0.0000	0.000	0	0.0000	1.0000	0.0082	0.0025	0.0000	0.00
24	11:36 AM	1.500	0.6	0.300	0.6000	0.180	80	0.0082	1.0000	0.0082	0.3450	0.0028	0.09
23	11:35 AM	3.300	0.6	0.770	0.6000	0.462	80	0.0409	1.0000	0.0409	1.0780	0.0441	1.45
22	11:34 AM	4.300	0.6	0.570	0.6000	0.342	80	0.3494	1.0000	0.3494	0.5700	0.1992	6.56
21	11:32 AM	5.300	0.6	0.800	0.6000	0.480	80	0.0015	1.0000	0.0015	0.5600	0.0008	0.03
20	11:31 AM	5.700	0.6	0.820	0.6000	0.492	80	0.1265	1.0000	0.1265	0.2460	0.0311	1.03
19	11:30 AM	5.900	0.6	0.770	0.6000	0.462	80	0.6944	1.0000	0.6944	0.1540	0.1069	3.52
18	11:29 AM	6.100	0.6	0.830	0.6000	0.498	80	0.6210	1.0000	0.6210	0.1660	0.1031	3.40
17	11:27 AM	6.300	0.6	0.810	0.6000	0.486	80	0.4638	1.0000	0.4638	0.1620	0.0751	2.48
16	11:26 AM	6.500	0.6	0.820	0.6000	0.492	80	0.8753	1.0000	0.8753	0.1640	0.1435	4.73
15	11:24 AM	6.700	0.6	1.000	0.6000	0.600	80	0.4069	1.0000	0.4069	0.2000	0.0814	2.68
14	11:23 AM	6.900	0.6	1.000	0.6000	0.600	80	0.4501	1.0000	0.4501	0.2000	0.0900	2.97
13	11:22 AM	7.100	0.6	1.000	0.6000	0.600	80	0.8258	1.0000	0.8258	0.2000	0.1652	5.44
12	11:21 AM	7.300	0.6	1.050	0.6000	0.630	80	0.7936	1.0000	0.7936	0.2100	0.1666	5.49
11	11:20 AM	7.500	0.6	1.050	0.6000	0.630	80	0.5988	1.0000	0.5988	0.2100	0.1257	4.14
10	11:18 AM	7.700	0.6	1.000	0.6000	0.600	80	0.5363	1.0000	0.5363	0.2000	0.1073	3.54
9	11:17 AM	7.900	0.6	1.000	0.6000	0.600	80	0.6562	1.0000	0.6562	0.4000	0.2625	8.65
8	11:16 AM	8.500	0.6	0.740	0.6000	0.444	80	0.2314	1.0000	0.2314	0.4440	0.1028	3.39
7	11:14 AM	9.100	0.6	0.480	0.6000	0.288	80	0.7747	1.0000	0.7747	0.3840	0.2975	9.81
6	11:13 AM	10.100	0.6	0.600	0.6000	0.360	80	0.3571	1.0000	0.3571	0.4200	0.1500	4.94
5	11:39 AM	10.500	0.6	0.430	0.6000	0.258	80	0.7704	1.0000	0.7704	0.2365	0.1822	6.01
4	11:11 AM	11.200	0.6	0.620	0.6000	0.372	80	0.5492	1.0000	0.5492	0.4650	0.2554	8.42
3	11:41 AM	12.000	0.6	0.580	0.6000	0.348	80	0.3207	1.0000	0.3207	0.6090	0.1953	6.44
2	11:10 AM	13.300	0.6	0.590	0.6000	0.354	80	0.2539	1.0000	0.2539	0.5900	0.1498	4.94
1	11:08 AM	14.000	0.6	0.220	0.6000	0.132	80	-0.0210	1.0000	-0.0210	0.1870	-0.0039	-0.13
0	11:08 AM	15.000	None	0.050	0.0000	0.000	0	0.0000	1.0000	-0.0210	0.0250	-0.0005	-0.02



Discharge Measurement Summary

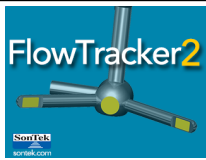
Site name WMuddy abv confl with Muddy Creek
Site number 19082022
Operator(s) Lfs
File name Milk Creek near confl with Yampa River_20220819-114348.ft
Comment

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	11:36 AM	1.500	0.6	0.300	0.6000	0.180	Boundary Interference,SNR Threshold Variation
21	11:32 AM	5.300	0.6	0.800	0.6000	0.480	Low SNR,Large SNR Variation,SNR Threshold Variation,High % Spikes
20	11:31 AM	5.700	0.6	0.820	0.6000	0.492	Velocity Angle > QC
15	11:24 AM	6.700	0.6	1.000	0.6000	0.600	Velocity Angle > QC
14	11:23 AM	6.900	0.6	1.000	0.6000	0.600	Velocity Angle > QC
4	11:11 AM	11.200	0.6	0.620	0.6000	0.372	Stn Spading > QC
1	11:08 AM	14.000	0.6	0.220	0.6000	0.132	Boundary Interference



Discharge Measurement Summary

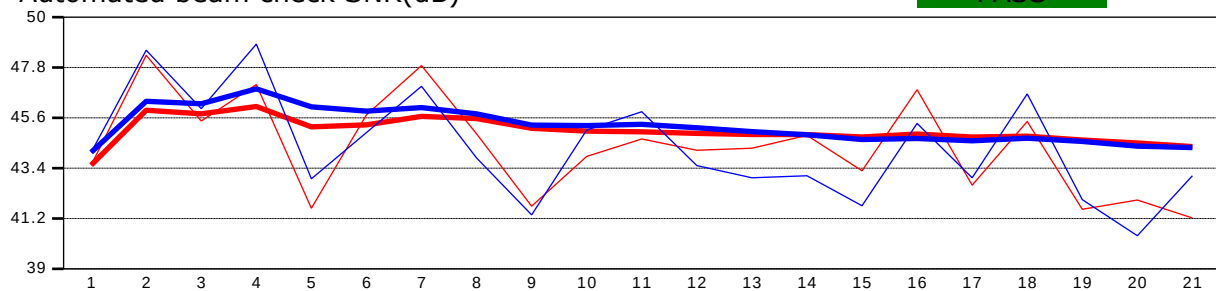
Site name WMuddy abv confl with Muddy Creek
Site number 19082022
Operator(s) Lfs
File name Milk Creek near confl with Yampa River_20220819-114348.ft
Comment

Beam 1	
Beam 2	

Automated beam check Start time 8/19/2022 11:07:53 AM

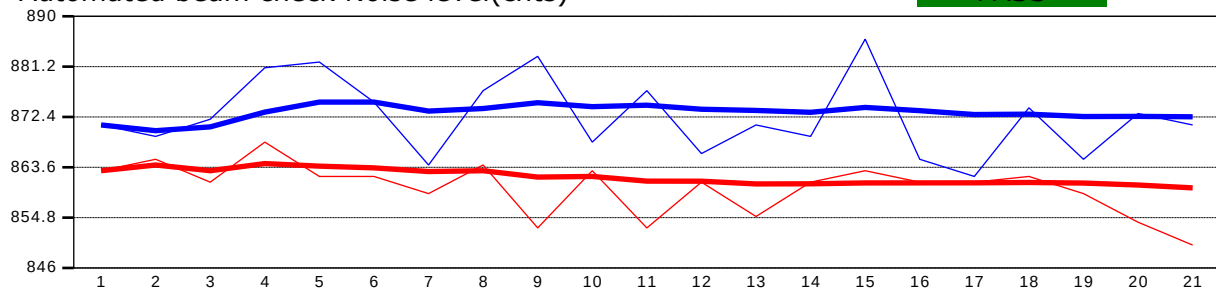
Automated beam check SNR(dB)

PASS



Automated beam check Noise level(cnts)

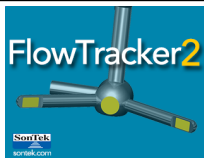
PASS



Automated beam check Quality control warnings

No quality control warnings

8/22/2022 10:18:20 AM



Discharge Measurement Summary

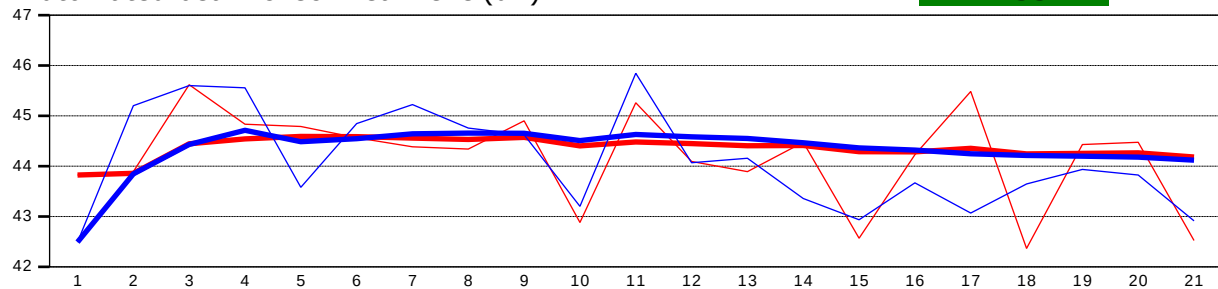
Site name WMuddy abv confl with Muddy Creek
Site number 19082022
Operator(s) Lfs
File name Milk Creek near confl with Yampa River_20220819-114348.ft
Comment

Beam 1	
Beam 2	

Automated beam check Start time 8/19/2022 11:07:53 AM

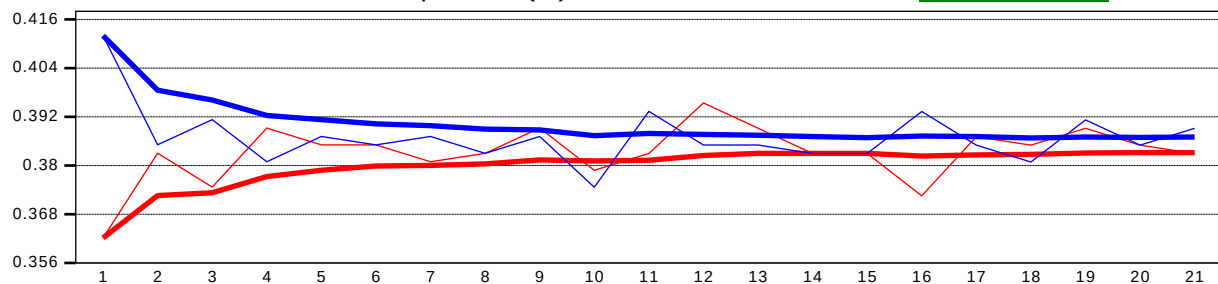
Automated beam check Peak level(dB)

PASS



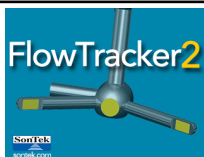
Automated beam check Peak position(ft)

PASS



Automated beam check Quality control warnings

No quality control warnings



Discharge Measurement Summary

Site name w muddy cr abv muddy cr
Site number 9292022
Operator(s) Lfs
File name West Muddy Creek nr Paonia Res_20220929-130651.ft
Comment

Start time	9/29/2022 12:35 PM	Sensor type	Top Setting
End time	9/29/2022 1:01 PM	Handheld serial number	FT2H1747037
Start location latitude	39.000	Probe serial number	FT2P1747048
Start location longitude	-107.358	Probe firmware	1.30
Calculations engine	FlowTracker2	Handheld software	1.7

# Stations	Avg interval (s)	Total discharge (ft³/s)
18	40	0.9292

Total width (ft)	Total area (ft²)	Wetted Perimeter (ft)
8.650	5.9188	9.437

Mean SNR (dB)	Mean depth (ft)	Mean velocity (ft/s)
29	0.684	0.1570

Mean temp (°F)	Max depth (ft)	Max velocity (ft/s)
58.020	0.940	0.2985

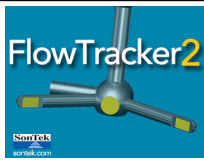
Discharge Uncertainty		
Category	ISO	IVE
Accuracy	1.0%	1.0%
Depth	0.4%	4.6%
Velocity	0.8%	8.3%
Width	0.1%	0.1%
Method	2.1%	
# Stations	2.8%	
Overall	3.7%	9.6%

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 w muddy cr abv muddy cr
Site number 9292022
Operator(s) Lfs
File name West Muddy Creek nr Paonia Res_20220929-130651.ft
Comment

Station Warning Settings

Station discharge OK

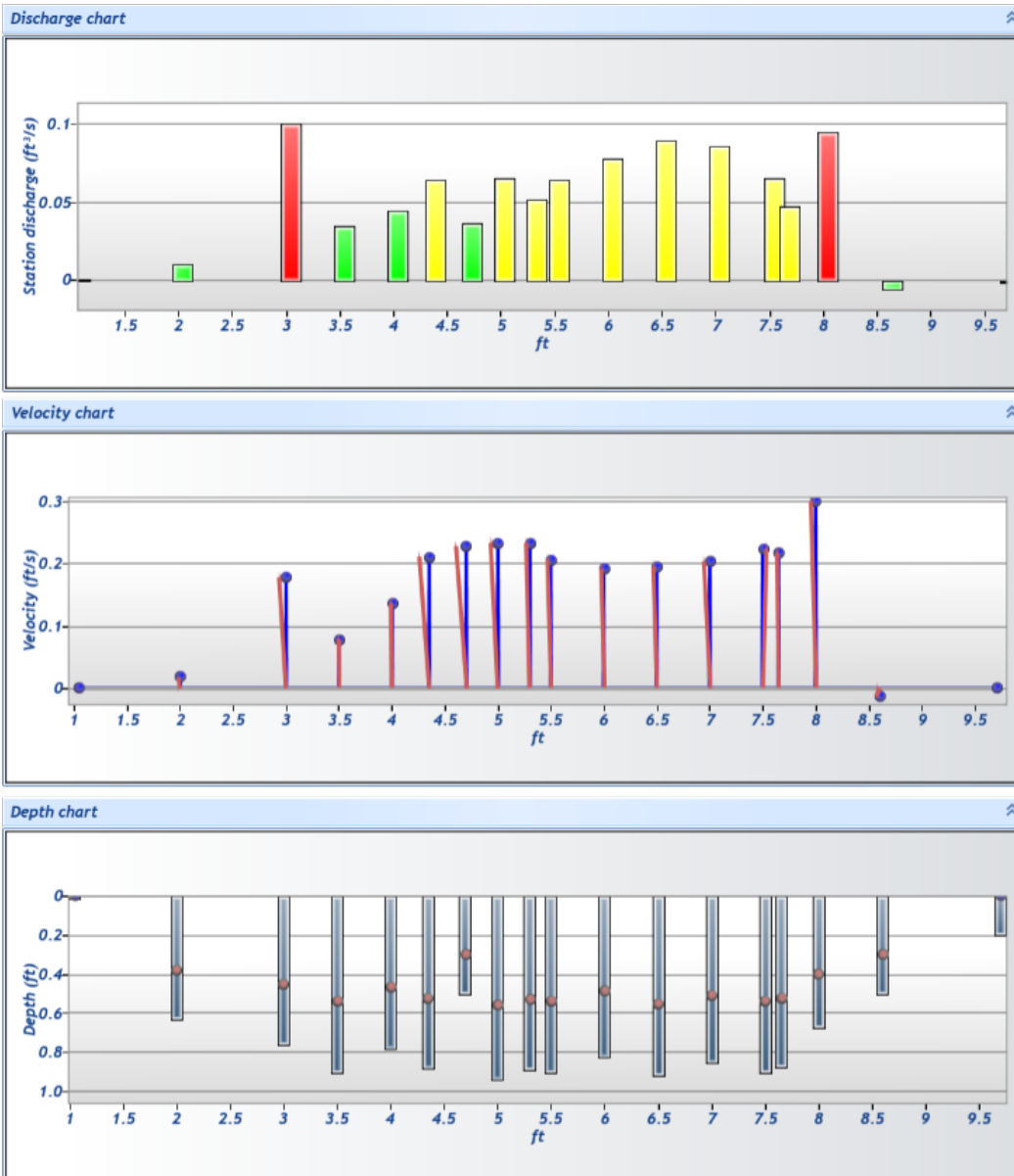
Station discharge < 5.00%

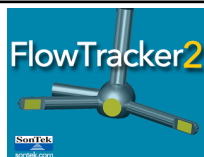
Station discharge caution

5.00% >= Station discharge < 10.00%

Station discharge warning

Station discharge >= 10.00%

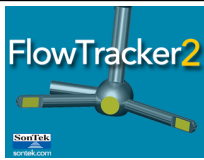




Discharge Measurement Summary

Site name w muddy cr abv muddy cr
Site number 9292022
Operator(s) Lfs
File name West Muddy Creek nr Paonia Res_20220929-130651.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 (ft ²)	Flow (ft ³ /s)	%Q	
0	12:35 PM	1.050	None	0.010	0.0000	0.000	0	0.0000	1.0000	0.0177	0.0048	0.0001	0.01	✓
1	12:35 PM	2.000	0.6	0.630	0.6000	0.378	80	0.0177	1.0000	0.0177	0.6143	0.0109	1.17	✓
2	12:38 PM	3.000	0.6	0.760	0.6000	0.456	80	0.1770	1.0000	0.1770	0.5700	0.1009	10.86	✓
3	12:45 PM	3.500	0.6	0.900	0.6000	0.540	80	0.0776	1.0000	0.0776	0.4500	0.0349	3.76	✓
4	12:41 PM	4.000	0.6	0.780	0.6000	0.468	80	0.1354	1.0000	0.1354	0.3315	0.0449	4.83	✓
5	12:43 PM	4.350	0.6	0.880	0.6000	0.528	80	0.2102	1.0000	0.2102	0.3080	0.0647	6.97	✓
6	1:01 PM	4.700	0.6	0.500	0.6000	0.300	80	0.2270	1.0000	0.2270	0.1625	0.0369	3.97	✓
7	12:42 PM	5.000	0.6	0.940	0.6000	0.564	80	0.2323	1.0000	0.2323	0.2820	0.0655	7.05	✓
8	12:59 PM	5.300	0.6	0.890	0.6000	0.534	80	0.2319	1.0000	0.2319	0.2225	0.0516	5.55	✓
9	12:46 PM	5.500	0.6	0.900	0.6000	0.540	80	0.2053	1.0000	0.2053	0.3150	0.0647	6.96	✓
10	12:48 PM	6.000	0.6	0.820	0.6000	0.492	80	0.1907	1.0000	0.1907	0.4100	0.0782	8.42	✓
11	12:49 PM	6.500	0.6	0.920	0.6000	0.552	80	0.1946	1.0000	0.1946	0.4600	0.0895	9.63	✓
12	12:50 PM	7.000	0.6	0.850	0.6000	0.510	80	0.2029	1.0000	0.2029	0.4250	0.0862	9.28	✓
13	12:51 PM	7.500	0.6	0.900	0.6000	0.540	80	0.2227	1.0000	0.2227	0.2925	0.0651	7.01	✓
14	12:55 PM	7.650	0.6	0.870	0.6000	0.522	80	0.2164	1.0000	0.2164	0.2175	0.0471	5.06	✓
15	12:58 PM	8.000	0.6	0.670	0.6000	0.402	80	0.2985	1.0000	0.2985	0.3183	0.0950	10.22	✓
16	12:53 PM	8.600	0.6	0.500	0.6000	0.300	80	-0.0131	1.0000	-0.0131	0.4250	-0.0056	-0.60	✓
17	12:55 PM	9.700	None	0.200	0.0000	0.000	0	0.0000	1.0000	-0.0131	0.1100	-0.0014	-0.15	✓



Discharge Measurement Summary

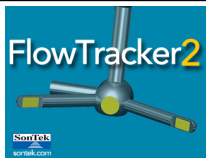
Site name w muddy cr abv muddy cr
Site number 9292022
Operator(s) Lfs
File name West Muddy Creek nr Paonia Res_20220929-130651.ft
Comment

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	12:35 PM	2.000	0.6	0.630	0.6000	0.378	Boundary Interference, Large SNR Variation
2	12:38 PM	3.000	0.6	0.760	0.6000	0.456	Velocity Angle > QC, High Stn % Discharge
3	12:45 PM	3.500	0.6	0.900	0.6000	0.540	Large SNR Variation
5	12:43 PM	4.350	0.6	0.880	0.6000	0.528	Velocity Angle > QC
6	1:01 PM	4.700	0.6	0.500	0.6000	0.300	Velocity Angle > QC
15	12:58 PM	8.000	0.6	0.670	0.6000	0.402	Stn Spacing > QC, High Stn % Discharge



Discharge Measurement Summary

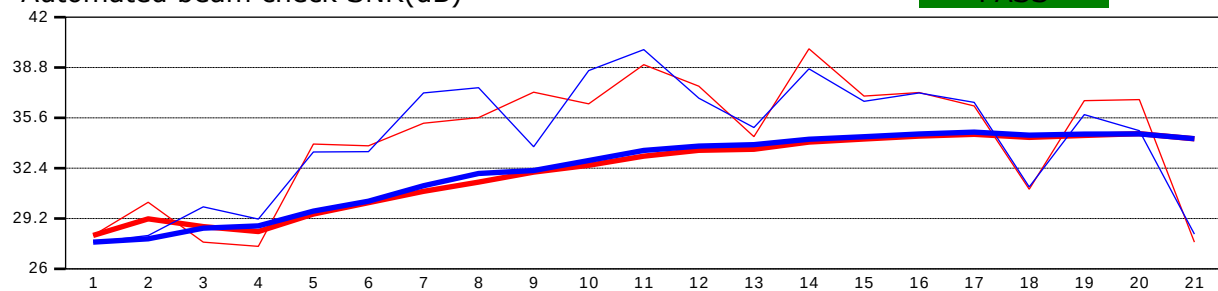
Site name w muddy cr abv muddy cr
Site number 9292022
Operator(s) Lfs
File name West Muddy Creek nr Paonia Res_20220929-130651.ft
Comment

Beam 1	
Beam 2	

Automated beam check Start time 9/29/2022 12:34:41 PM

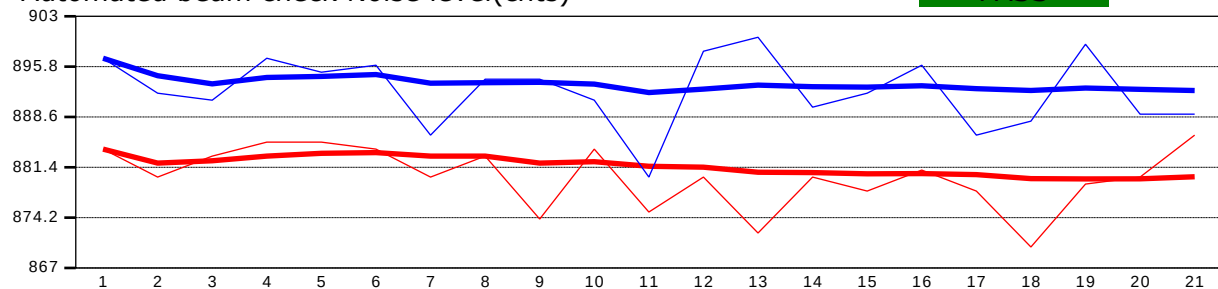
Automated beam check SNR(dB)

PASS



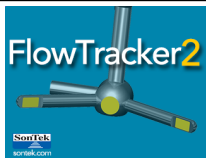
Automated beam check Noise level(cnts)

PASS



Automated beam check Quality control warnings

No quality control warnings



Discharge Measurement Summary

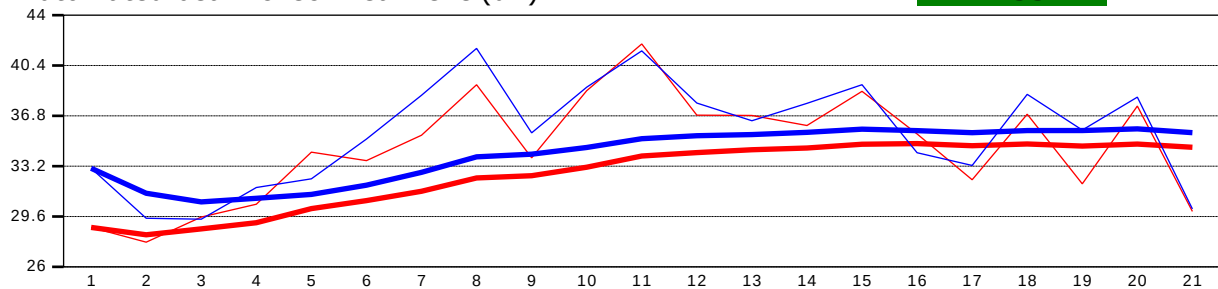
Site name w muddy cr abv muddy cr
Site number 9292022
Operator(s) Lfs
File name West Muddy Creek nr Paonia Res_20220929-130651.ft
Comment

Beam 1	
Beam 2	

Automated beam check Start time 9/29/2022 12:34:41 PM

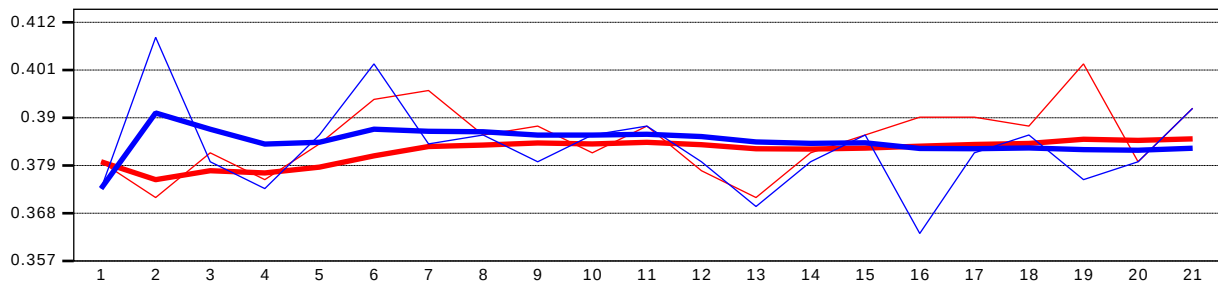
Automated beam check Peak level(dB)

PASS



Automated beam check Peak position(ft)

PASS

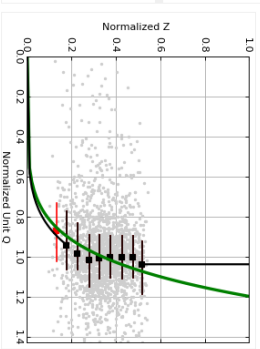
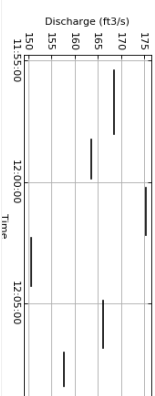
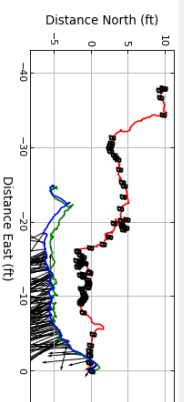


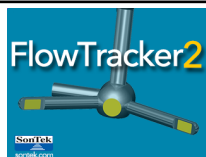
Automated beam check Quality control warnings

No quality control warnings

	COV %		% Q
Q:	5.30	L/R Edge:	5.50 / 3.09
Width:	0.64	Invalid Cells:	3.14
Area:	1.20	Invalid Ens:	6.59

Uncertainty	Auto	User
Random 95%	5.6	
Invalid Data 95%	1.9	
Edge Q 95%	2.6	





Discharge Measurement Summary

Site name WmuddyD4
Site number 07262023
Operator(s) Lfsc
File name WmuddyD4_20230727-152918.ft
Comment

Start time	7/27/2023 3:11 PM	Sensor type	Top Setting
End time	7/27/2023 3:28 PM	Handheld serial number	FT2H1747037
Start location latitude	39.000	Probe serial number	FT2P1747048
Start location longitude	-107.358	Probe firmware	1.30
Calculations engine	FlowTracker2	Handheld software	1.7

# Stations	Avg interval (s)	Total discharge (ft³/s)
21	40	5.1883

Total width (ft)	Total area (ft²)	Wetted Perimeter (ft)
16.100	10.5418	16.750

Mean SNR (dB)	Mean depth (ft)	Mean velocity (ft/s)
29	0.655	0.4922

Mean temp (°F)	Max depth (ft)	Max velocity (ft/s)
77.586	1.220	0.9772

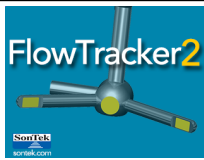
Discharge Uncertainty		
Category	ISO	IVE
Accuracy	1.0%	1.0%
Depth	0.3%	4.8%
Velocity	1.6%	12.1%
Width	0.1%	0.1%
Method	1.9%	
# Stations	2.4%	
Overall	3.6%	13.1%

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 WmuddyD4
Site number 07262023
Operator(s) Lfsc
File name WmuddyD4_20230727-152918.ft
Comment

Station Warning Settings

Station discharge OK

Station discharge < 5.00%

Station discharge caution

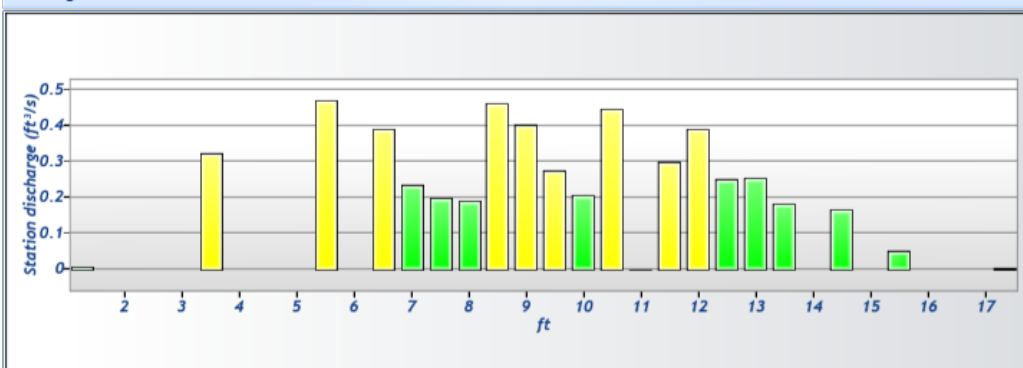
5.00% >= Station discharge < 10.00%

Station discharge warning

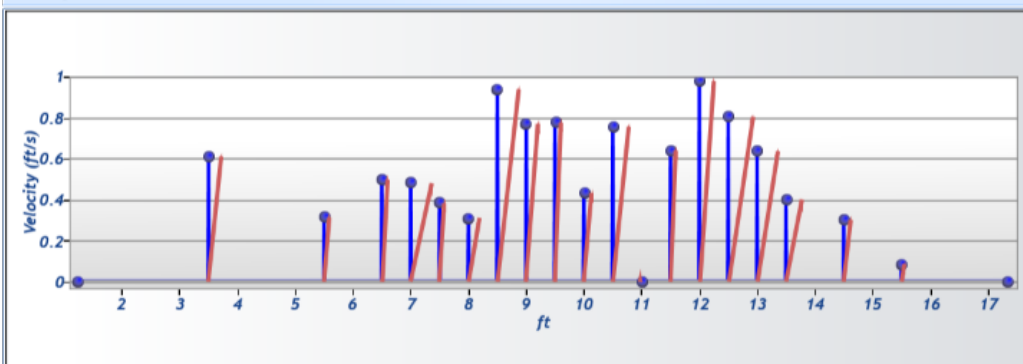
Station discharge >= 10.00%



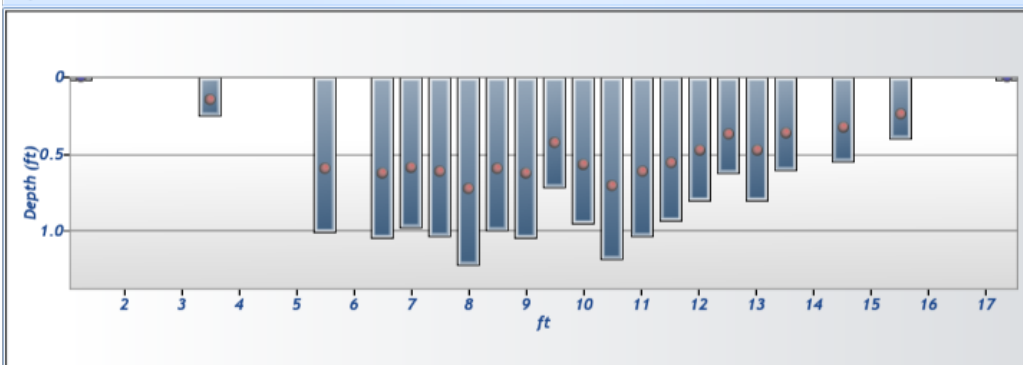
Discharge chart

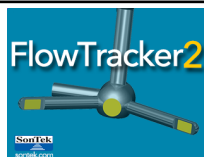


Velocity chart



Depth chart

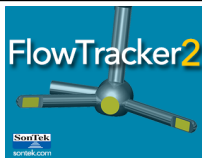




Discharge Measurement Summary

Site name WmuddyD4
Site number 07262023
Operator(s) Lfsc
File name WmuddyD4_20230727-152918.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 (ft ²)	Flow (ft ³ /s)	%Q
20	3:27 PM	1.250	None	0.010	0.0000	0.000	0	0.0000	1.0000	0.6095	0.0113	0.0069	0.13 ✓
19	3:26 PM	3.500	0.6	0.250	0.6000	0.150	24	0.6095	1.0000	0.6095	0.5313	0.3238	6.24 ✓
18	3:25 PM	5.500	0.6	1.000	0.6000	0.600	31	0.3138	1.0000	0.3138	1.5000	0.4707	9.07 ✓
17	3:24 PM	6.500	0.6	1.040	0.6000	0.624	17	0.4988	1.0000	0.4988	0.7800	0.3891	7.50 ✓
16	3:28 PM	7.000	0.6	0.980	0.6000	0.588	24	0.4793	1.0000	0.4793	0.4900	0.2348	4.53 ✓
15	3:24 PM	7.500	0.6	1.030	0.6000	0.618	27	0.3831	1.0000	0.3831	0.5150	0.1973	3.80 ✓
14	3:23 PM	8.000	0.6	1.220	0.6000	0.732	20	0.3108	1.0000	0.3108	0.6100	0.1896	3.65 ✓
13	3:22 PM	8.500	0.6	0.990	0.6000	0.594	18	0.9366	1.0000	0.9366	0.4950	0.4636	8.94 ✓
12	3:21 PM	9.000	0.6	1.040	0.6000	0.624	31	0.7688	1.0000	0.7688	0.5200	0.3998	7.71 ✓
11	3:20 PM	9.500	0.6	0.710	0.6000	0.426	24	0.7744	1.0000	0.7744	0.3550	0.2749	5.30 ✓
10	3:19 PM	10.000	0.6	0.950	0.6000	0.570	21	0.4332	1.0000	0.4332	0.4750	0.2058	3.97 ✓
9	3:18 PM	10.500	0.6	1.180	0.6000	0.708	20	0.7547	1.0000	0.7547	0.5900	0.4453	8.58 ✓
8	3:18 PM	11.000	0.6	1.030	0.6000	0.618	16	-0.0015	1.0000	-0.0015	0.5150	-0.0008	-0.01 ✓
7	3:17 PM	11.500	0.6	0.930	0.6000	0.558	18	0.6397	1.0000	0.6397	0.4650	0.2975	5.73 ✓
6	3:16 PM	12.000	0.6	0.800	0.6000	0.480	34	0.9772	1.0000	0.9772	0.4000	0.3909	7.53 ✓
5	3:15 PM	12.500	0.6	0.620	0.6000	0.372	15	0.8033	1.0000	0.8033	0.3100	0.2490	4.80 ✓
4	3:14 PM	13.000	0.6	0.800	0.6000	0.480	19	0.6355	1.0000	0.6355	0.4000	0.2542	4.90 ✓
3	3:14 PM	13.500	0.6	0.600	0.6000	0.360	21	0.4007	1.0000	0.4007	0.4500	0.1803	3.48 ✓
2	3:13 PM	14.500	0.6	0.550	0.6000	0.330	16	0.3018	1.0000	0.3018	0.5500	0.1660	3.20 ✓
1	3:12 PM	15.500	0.6	0.400	0.6000	0.240	18	0.0858	1.0000	0.0858	0.5700	0.0489	0.94 ✓
0	3:11 PM	17.350	None	0.010	0.0000	0.000	0	0.0000	1.0000	0.0858	0.0093	0.0008	0.02 ✓



Discharge Measurement Summary

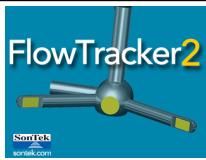
Site name WmuddyD4
Site number 07262023
Operator(s) Lfsc
File name WmuddyD4_20230727-152918.ft
Comment

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	3:26 PM	3.500	0.6	0.250	0.6000	0.150	Standard Error > QC, Velocity Angle > QC
16	3:28 PM	7.000	0.6	0.980	0.6000	0.588	Standard Error > QC, Velocity Angle > QC
15	3:24 PM	7.500	0.6	1.030	0.6000	0.618	Standard Error > QC
14	3:23 PM	8.000	0.6	1.220	0.6000	0.732	Standard Error > QC, Velocity Angle > QC
13	3:22 PM	8.500	0.6	0.990	0.6000	0.594	Standard Error > QC, Velocity Angle > QC
12	3:21 PM	9.000	0.6	1.040	0.6000	0.624	Standard Error > QC
11	3:20 PM	9.500	0.6	0.710	0.6000	0.426	Standard Error > QC
10	3:19 PM	10.000	0.6	0.950	0.6000	0.570	Standard Error > QC
9	3:18 PM	10.500	0.6	1.180	0.6000	0.708	Standard Error > QC
8	3:18 PM	11.000	0.6	1.030	0.6000	0.618	Beam SNRs Not Similar, Large SNR Variation, SNR Threshold Variation
7	3:17 PM	11.500	0.6	0.930	0.6000	0.558	Standard Error > QC
6	3:16 PM	12.000	0.6	0.800	0.6000	0.480	Standard Error > QC
5	3:15 PM	12.500	0.6	0.620	0.6000	0.372	Standard Error > QC, Velocity Angle > QC
4	3:14 PM	13.000	0.6	0.800	0.6000	0.480	Standard Error > QC, Velocity Angle > QC
3	3:14 PM	13.500	0.6	0.600	0.6000	0.360	Velocity Angle > QC
2	3:13 PM	14.500	0.6	0.550	0.6000	0.330	Velocity Angle > QC
1	3:12 PM	15.500	0.6	0.400	0.6000	0.240	Velocity Angle > QC



Discharge Measurement Summary

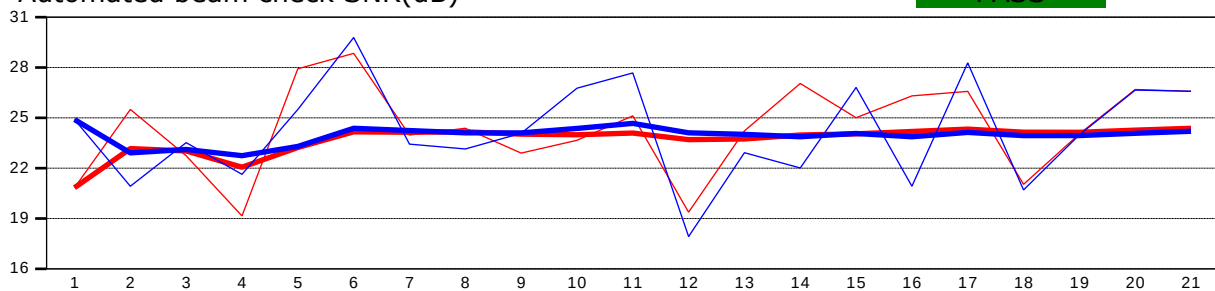
Site name WmuddyD4
Site number 07262023
Operator(s) Lfsc
File name WmuddyD4_20230727-152918.ft
Comment

Beam 1	
Beam 2	

Automated beam check Start time 7/27/2023 3:11:31 PM

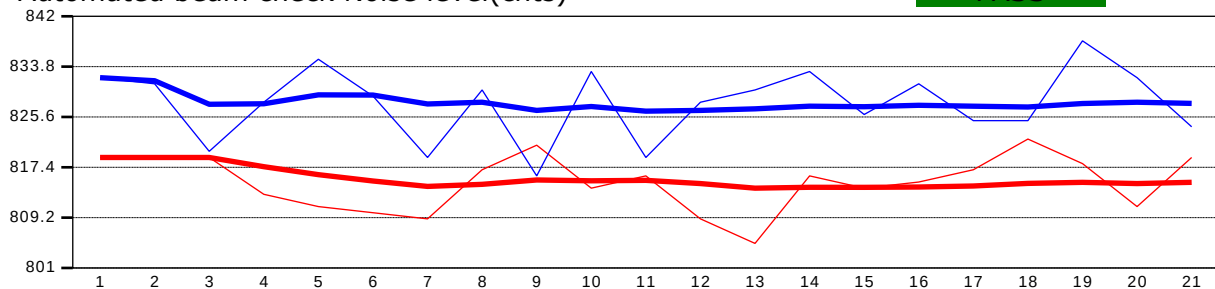
Automated beam check SNR(dB)

PASS



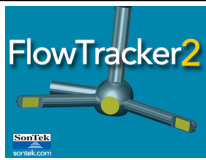
Automated beam check Noise level(cnts)

PASS



Automated beam check Quality control warnings

No quality control warnings



Discharge Measurement Summary

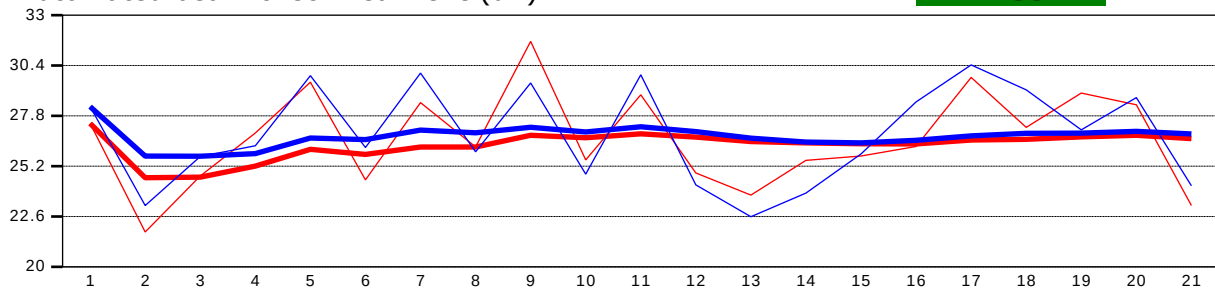
Site name WmuddyD4
Site number 07262023
Operator(s) Lfsc
File name WmuddyD4_20230727-152918.ft
Comment

Beam 1	
Beam 2	

Automated beam check Start time 7/27/2023 3:11:31 PM

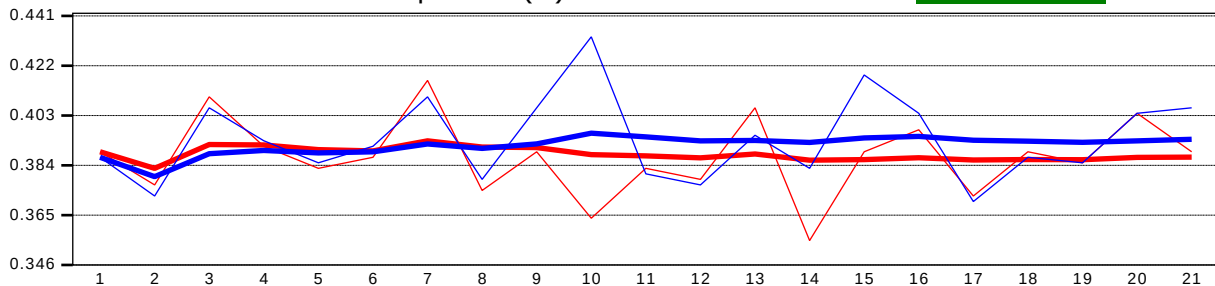
Automated beam check Peak level(dB)

PASS



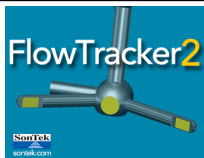
Automated beam check Peak position(ft)

PASS



Automated beam check Quality control warnings

No quality control warnings



Discharge Measurement Summary

Site name	West Muddy Creek abv confl with East Muddy Creek
Site number	WMUDDYD4
Operator(s)	LFSC
File name	West Muddy Creek abv confl with East Muddy Creek_20230815-181507.ft
Comment	

Start time	8/15/2023 4:13 PM	Sensor type	Top Setting
End time	8/15/2023 4:32 PM	Handheld serial number	FT2H2322005
Start location latitude	38.988	Probe serial number	FT2P2317010
Start location longitude	-107.348	Probe firmware	1.30
Calculations engine	FlowTracker2	Handheld software	1.7

# Stations	Avg interval (s)	Total discharge (ft³/s)
21	40	0.9805

Total width (ft)	Total area (ft²)	Wetted Perimeter (ft)
12.200	6.1235	13.042

Mean SNR (dB)	Mean depth (ft)	Mean velocity (ft/s)
31	0.502	0.1601

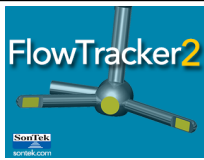
Mean temp (°F)	Max depth (ft)	Max velocity (ft/s)
77.280	0.910	0.5242

Discharge Uncertainty		
Category	ISO	IVE
Accuracy	1.0%	1.0%
Depth	0.4%	6.2%
Velocity	2.8%	17.7%
Width	0.1%	0.1%
Method	2.1%	
# Stations	2.4%	
Overall	4.4%	18.8%

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 West Muddy Creek abv confl with East Muddy Creek
Site number WMUDDYD4
Operator(s) LFSC
File name West Muddy Creek abv confl with East Muddy Creek_20230815-181507.ft
Comment

Station Warning Settings

Station discharge OK

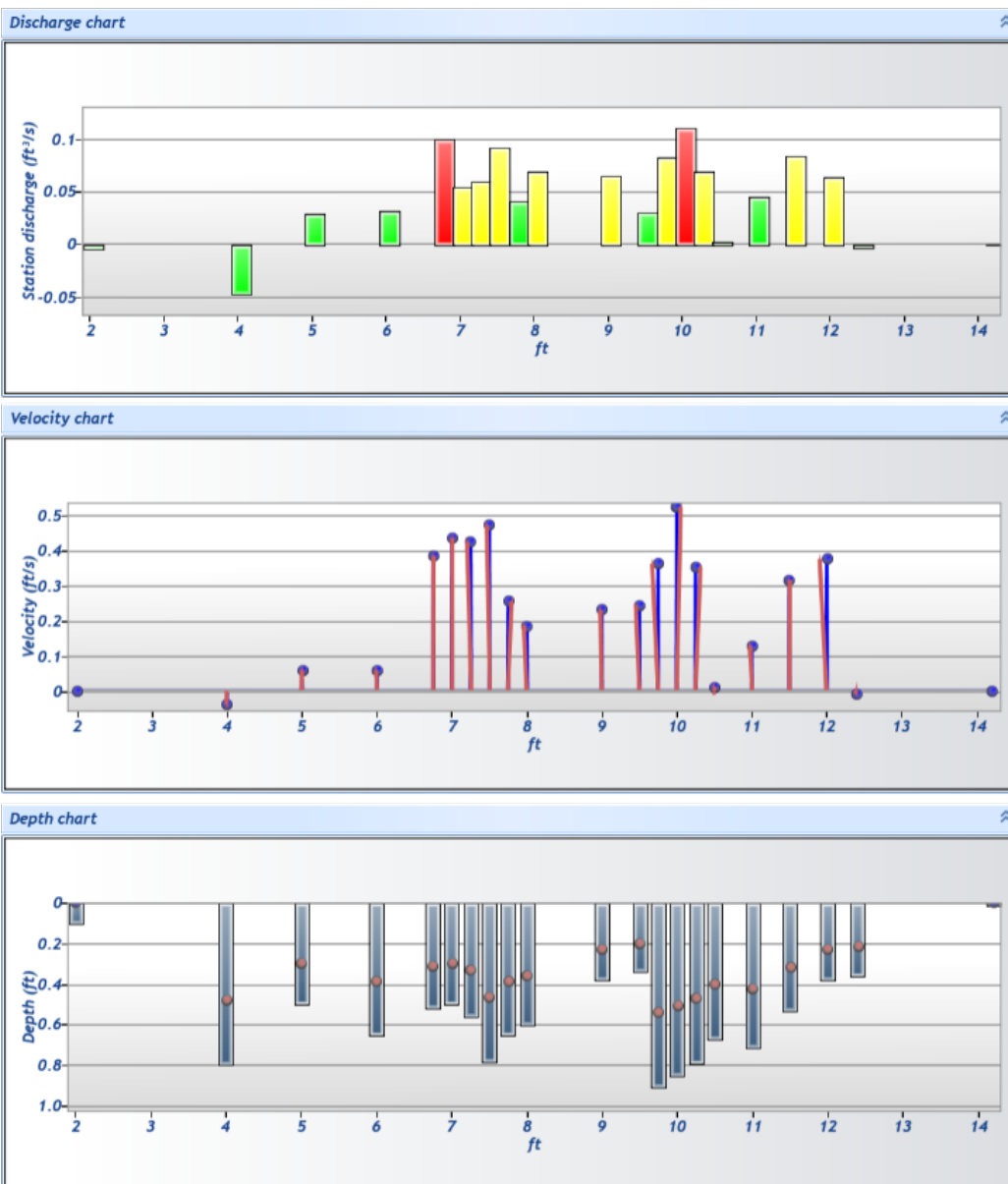
Station discharge < 5.00%

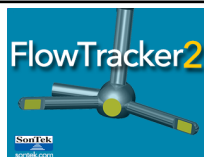
Station discharge caution

5.00% >= Station discharge < 10.00%

Station discharge warning

Station discharge >= 10.00%

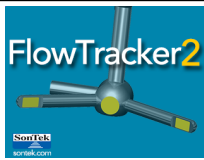




Discharge Measurement Summary

Site name	West Muddy Creek abv confl with East Muddy Creek
Site number	WMUDDYD4
Operator(s)	LFSC
File name	West Muddy Creek abv confl with East Muddy Creek_20230815-181507.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 (ft ²)	Flow (ft ³ /s)	%Q	
20	4:23 PM	2.000	None	0.100	0.0000	0.000	0	0.0000	1.0000	-0.0391	0.1000	-0.0039	-0.40	✓
19	4:22 PM	4.000	0.6	0.800	0.6000	0.480	23	-0.0391	1.0000	-0.0391	1.2000	-0.0469	-4.78	✓
18	4:21 PM	5.000	0.6	0.500	0.6000	0.300	27	0.0582	1.0000	0.0582	0.5000	0.0291	2.97	✓
17	4:21 PM	6.000	0.6	0.650	0.6000	0.390	16	0.0569	1.0000	0.0569	0.5688	0.0324	3.30	✓
16	4:26 PM	6.750	0.6	0.520	0.6000	0.312	15	0.3852	1.0000	0.3852	0.2600	0.1002	10.21	✓
15	4:19 PM	7.000	0.6	0.500	0.6000	0.300	13	0.4351	1.0000	0.4351	0.1250	0.0544	5.55	✓
14	4:25 PM	7.250	0.6	0.560	0.6000	0.336	16	0.4253	1.0000	0.4253	0.1400	0.0595	6.07	✓
13	4:24 PM	7.500	0.6	0.780	0.6000	0.468	33	0.4721	1.0000	0.4721	0.1950	0.0921	9.39	✓
12	4:27 PM	7.750	0.6	0.650	0.6000	0.390	22	0.2559	1.0000	0.2559	0.1625	0.0416	4.24	✓
11	4:18 PM	8.000	0.6	0.600	0.6000	0.360	27	0.1849	1.0000	0.1849	0.3750	0.0694	7.07	✓
10	4:17 PM	9.000	0.6	0.380	0.6000	0.228	29	0.2295	1.0000	0.2295	0.2850	0.0654	6.67	✓
9	4:29 PM	9.500	0.6	0.340	0.6000	0.204	20	0.2429	1.0000	0.2429	0.1275	0.0310	3.16	✓
8	4:31 PM	9.750	0.6	0.910	0.6000	0.546	26	0.3627	1.0000	0.3627	0.2275	0.0825	8.41	✓
7	4:16 PM	10.000	0.6	0.850	0.6000	0.510	30	0.5242	1.0000	0.5242	0.2125	0.1114	11.36	✓
6	4:30 PM	10.250	0.6	0.790	0.6000	0.474	37	0.3527	1.0000	0.3527	0.1975	0.0697	7.10	✓
5	4:28 PM	10.500	0.6	0.670	0.6000	0.402	18	0.0116	1.0000	0.0116	0.2513	0.0029	0.30	✓
4	4:15 PM	11.000	0.6	0.710	0.6000	0.426	42	0.1281	1.0000	0.1281	0.3550	0.0455	4.64	✓
3	4:32 PM	11.500	0.6	0.530	0.6000	0.318	25	0.3161	1.0000	0.3161	0.2650	0.0838	8.54	✓
2	4:14 PM	12.000	0.6	0.380	0.6000	0.228	38	0.3765	1.0000	0.3765	0.1710	0.0644	6.57	✓
1	4:13 PM	12.400	0.6	0.360	0.6000	0.216	27	-0.0090	1.0000	-0.0090	0.3960	-0.0036	-0.36	✓
0	4:13 PM	14.200	None	0.010	0.0000	0.000	0	0.0000	1.0000	-0.0090	0.0090	-0.0001	-0.01	✓

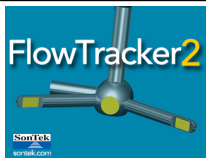


Discharge Measurement Summary

Site name	West Muddy Creek abv confl with East Muddy Creek
Site number	WMUDDYD4
Operator(s)	LFSC
File name	West Muddy Creek abv confl with East Muddy Creek_20230815-181507.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	4:22 PM	4.000	0.6	0.800	0.6000	0.480	Boundary Interference
16	4:26 PM	6.750	0.6	0.520	0.6000	0.312	High Stn % Discharge
7	4:16 PM	10.000	0.6	0.850	0.6000	0.510	Boundary Interference,High Stn % Discharge
5	4:28 PM	10.500	0.6	0.670	0.6000	0.402	SNR Threshold Variation
0	4:13 PM	14.200	None	0.010	0.0000	0.000	Stn Spacing > QC



Discharge Measurement Summary

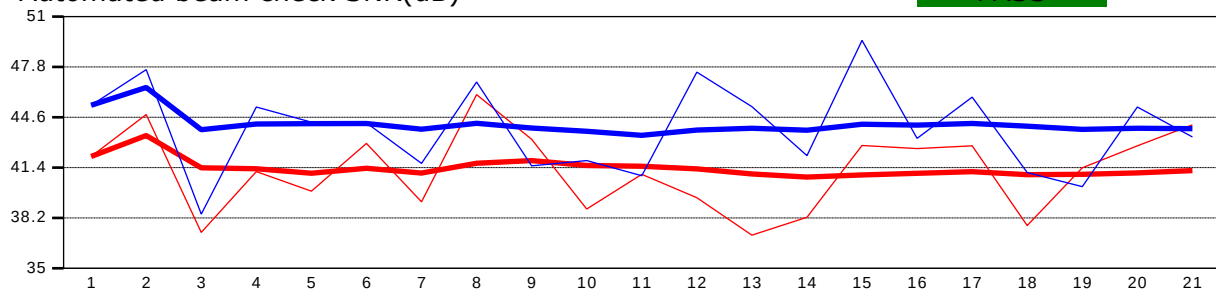
Site name West Muddy Creek abv confl with East Muddy Creek
Site number WMUDDYD4
Operator(s) LFSC
File name West Muddy Creek abv confl with East Muddy Creek_20230815-181507.ft
Comment

Beam 1	
Beam 2	

Automated beam check Start time 8/15/2023 4:12:28 PM

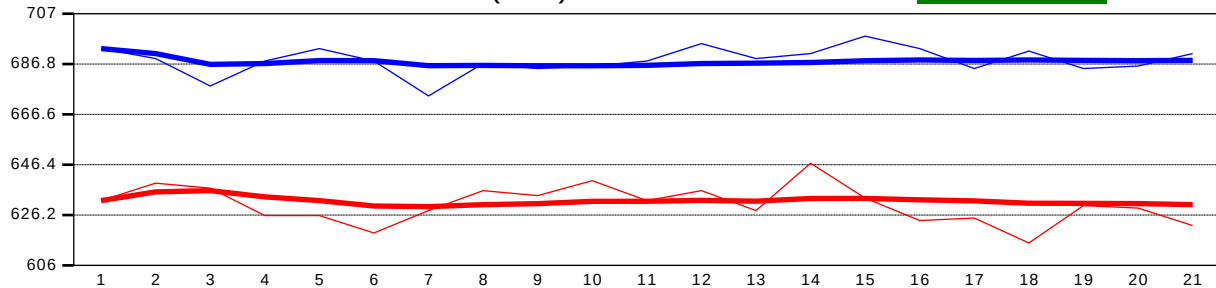
Automated beam check SNR(dB)

PASS



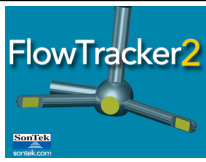
Automated beam check Noise level(cnts)

PASS



Automated beam check Quality control warnings

No quality control warnings



Discharge Measurement Summary

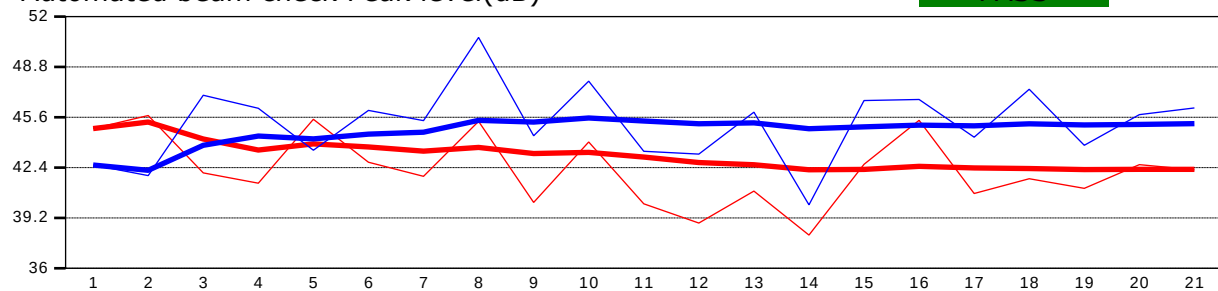
Site name West Muddy Creek abv confl with East Muddy Creek
Site number WMUDDYD4
Operator(s) LFSC
File name West Muddy Creek abv confl with East Muddy Creek_20230815-181507.ft
Comment

Beam 1	
Beam 2	

Automated beam check Start time 8/15/2023 4:12:28 PM

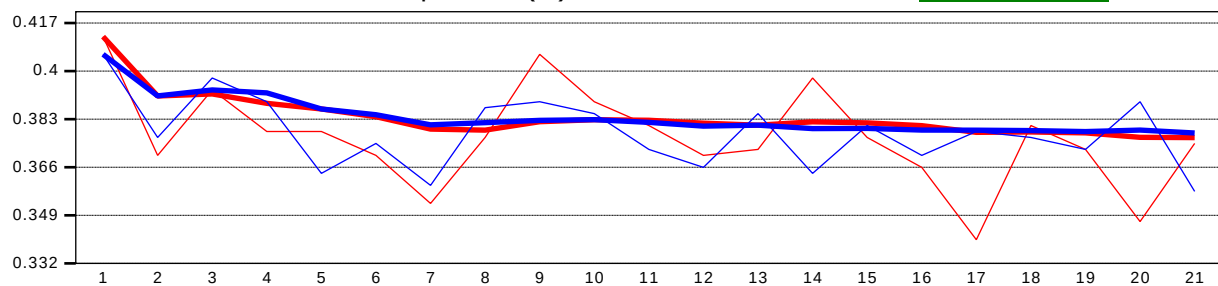
Automated beam check Peak level(dB)

PASS



Automated beam check Peak position(ft)

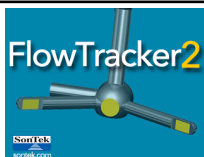
PASS



Automated beam check Quality control warnings

No quality control warnings

8/15/2023 6:19:22 PM



Discharge Measurement Summary

Site name WMuddy
Site number 11062023
Operator(s) SC
File name WMuddy_20231106-142058.ft
Comment

Start time	11/6/2023 1:34 PM	Sensor type	Top Setting
End time	11/6/2023 2:19 PM	Handheld serial number	FT2H2322005
Start location latitude	39.000	Probe serial number	FT2P2317010
Start location longitude	-107.358	Probe firmware	1.30
Calculations engine	FlowTracker2	Handheld software	1.7

# Stations	Avg interval (s)	Total discharge (ft³/s)
27	40	4.4788

Total width (ft)	Total area (ft²)	Wetted Perimeter (ft)
15.500	9.0925	15.950

Mean SNR (dB)	Mean depth (ft)	Mean velocity (ft/s)
21	0.587	0.4926

Mean temp (°F)	Max depth (ft)	Max velocity (ft/s)
41.285	1.050	0.9641

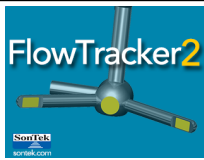
Discharge Uncertainty		
Category	ISO	IVE
Accuracy	1.0%	1.0%
Depth	0.3%	3.1%
Velocity	1.0%	5.6%
Width	0.1%	0.1%
Method	1.9%	
# Stations	1.9%	
Overall	3.0%	6.5%

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 WMuddy
Site number 11062023
Operator(s) SC
File name WMuddy_20231106-142058.ft
Comment

Station Warning Settings

Station discharge OK

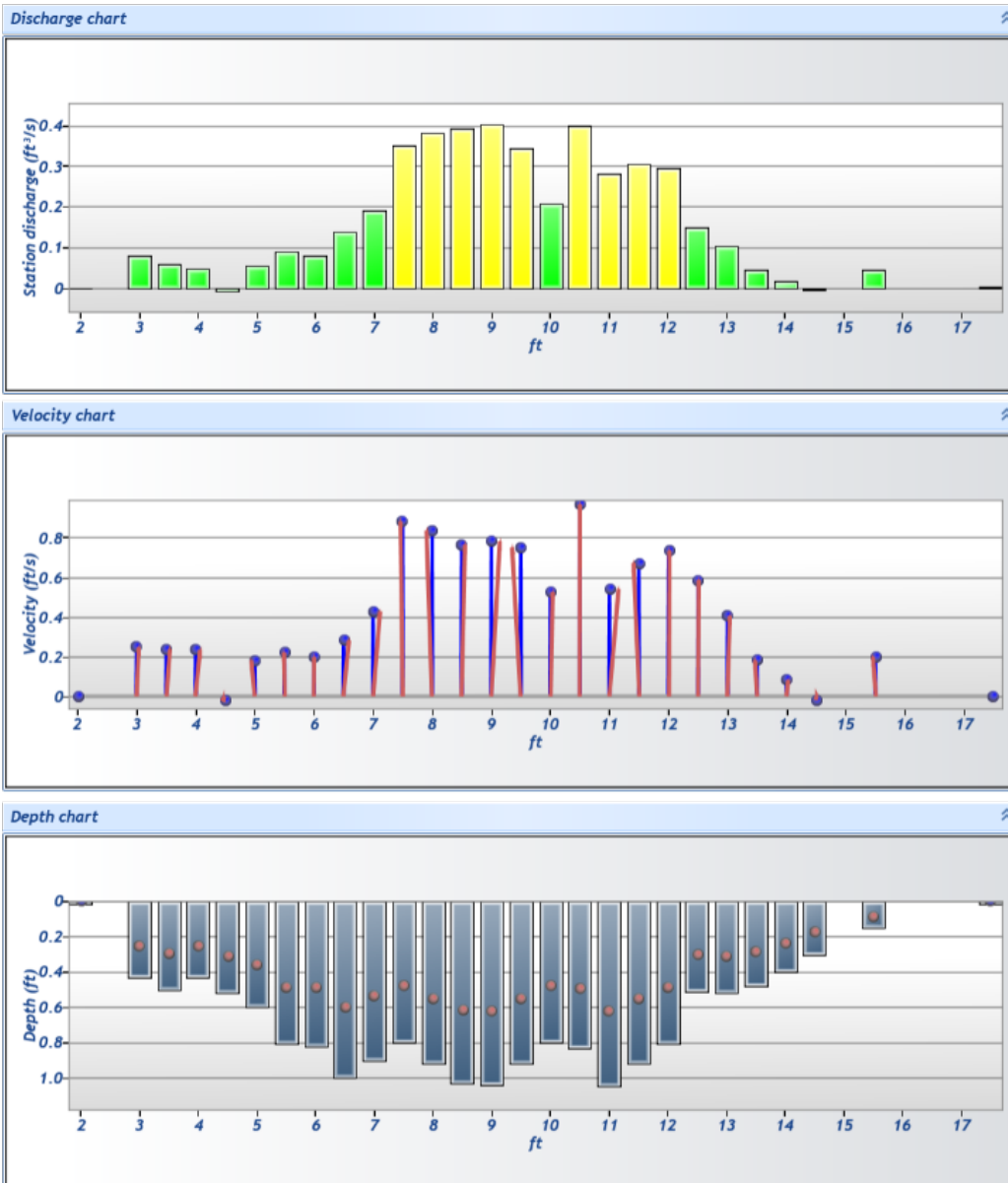
Station discharge < 5.00%

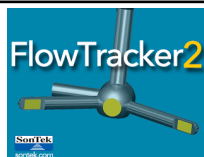
Station discharge caution

5.00% >= Station discharge < 10.00%

Station discharge warning

Station discharge >= 10.00%

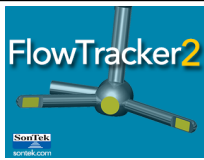




Discharge Measurement Summary

Site name WMuddy
Site number 11062023
Operator(s) SC
File name WMuddy_20231106-142058.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 (ft ²)	Flow (ft ³ /s)	%Q
0	1:34 PM	2.000	None	0.010	0.0000	0.000	0	0.0000	1.0000	0.2482	0.0050	0.0012	0.03 ✓
1	1:35 PM	3.000	0.6	0.430	0.6000	0.258	57	0.2482	1.0000	0.2482	0.3225	0.0800	1.79 ✓
2	1:37 PM	3.500	0.6	0.500	0.6000	0.300	49	0.2385	1.0000	0.2385	0.2500	0.0596	1.33 ✓
3	1:39 PM	4.000	0.6	0.430	0.6000	0.258	69	0.2347	1.0000	0.2347	0.2150	0.0505	1.13 ✓
4	1:41 PM	4.500	0.6	0.520	0.6000	0.312	51	-0.0227	1.0000	-0.0227	0.2600	-0.0059	-0.13 ✓
5	1:42 PM	5.000	0.6	0.600	0.6000	0.360	55	0.1817	1.0000	0.1817	0.3000	0.0545	1.22 ✓
6	1:44 PM	5.500	0.6	0.810	0.6000	0.486	63	0.2226	1.0000	0.2226	0.4050	0.0902	2.01 ✓
7	1:46 PM	6.000	0.6	0.820	0.6000	0.492	58	0.1994	1.0000	0.1994	0.4100	0.0817	1.82 ✓
8	1:48 PM	6.500	0.6	1.000	0.6000	0.600	49	0.2819	1.0000	0.2819	0.5000	0.1409	3.15 ✓
9	1:49 PM	7.000	0.6	0.900	0.6000	0.540	51	0.4276	1.0000	0.4276	0.4500	0.1924	4.30 ✓
10	1:51 PM	7.500	0.6	0.800	0.6000	0.480	50	0.8782	1.0000	0.8782	0.4000	0.3513	7.84 ✓
11	1:53 PM	8.000	0.6	0.920	0.6000	0.552	49	0.8337	1.0000	0.8337	0.4600	0.3835	8.56 ✓
12	1:54 PM	8.500	0.6	1.030	0.6000	0.618	45	0.7632	1.0000	0.7632	0.5150	0.3931	8.78 ✓
13	1:56 PM	9.000	0.6	1.040	0.6000	0.624	50	0.7793	1.0000	0.7793	0.5200	0.4052	9.05 ✓
14	1:57 PM	9.500	0.6	0.920	0.6000	0.552	51	0.7488	1.0000	0.7488	0.4600	0.3444	7.69 ✓
15	1:59 PM	10.000	0.6	0.800	0.6000	0.480	65	0.5239	1.0000	0.5239	0.4000	0.2096	4.68 ✓
16	2:01 PM	10.500	0.6	0.830	0.6000	0.498	50	0.9641	1.0000	0.9641	0.4150	0.4001	8.93 ✓
17	2:03 PM	11.000	0.6	1.050	0.6000	0.630	60	0.5397	1.0000	0.5397	0.5250	0.2833	6.33 ✓
18	2:04 PM	11.500	0.6	0.920	0.6000	0.552	62	0.6699	1.0000	0.6699	0.4600	0.3082	6.88 ✓
19	2:06 PM	12.000	0.6	0.810	0.6000	0.486	48	0.7331	1.0000	0.7331	0.4050	0.2969	6.63 ✓
20	2:08 PM	12.500	0.6	0.510	0.6000	0.306	45	0.5862	1.0000	0.5862	0.2550	0.1495	3.34 ✓
21	2:09 PM	13.000	0.6	0.520	0.6000	0.312	49	0.4059	1.0000	0.4059	0.2600	0.1055	2.36 ✓
22	2:10 PM	13.500	0.6	0.480	0.6000	0.288	49	0.1822	1.0000	0.1822	0.2400	0.0437	0.98 ✓
23	2:12 PM	14.000	0.6	0.400	0.6000	0.240	80	0.0828	1.0000	0.0828	0.2000	0.0166	0.37 ✓
24	2:15 PM	14.500	0.6	0.300	0.6000	0.180	80	-0.0191	1.0000	-0.0191	0.2250	-0.0043	-0.10 ✓
25	2:17 PM	15.500	0.6	0.150	0.6000	0.090	43	0.2000	1.0000	0.2000	0.2250	0.0450	1.00 ✓
26	2:19 PM	17.500	None	0.010	0.0000	0.000	0	0.0000	1.0000	0.2000	0.0100	0.0020	0.04 ✓



Discharge Measurement Summary

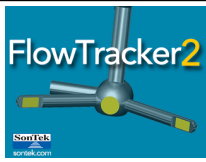
Site name WMuddy
Site number 11062023
Operator(s) SC
File name WMuddy_20231106-142058.ft
Comment

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
17	2:03 PM	11.000	0.6	1.050	0.6000	0.630	Standard Error > QC
18	2:04 PM	11.500	0.6	0.920	0.6000	0.552	Standard Error > QC
20	2:08 PM	12.500	0.6	0.510	0.6000	0.306	Standard Error > QC
23	2:12 PM	14.000	0.6	0.400	0.6000	0.240	Boundary Interference, Velocity Angle > QC
24	2:15 PM	14.500	0.6	0.300	0.6000	0.180	Boundary Interference



Discharge Measurement Summary

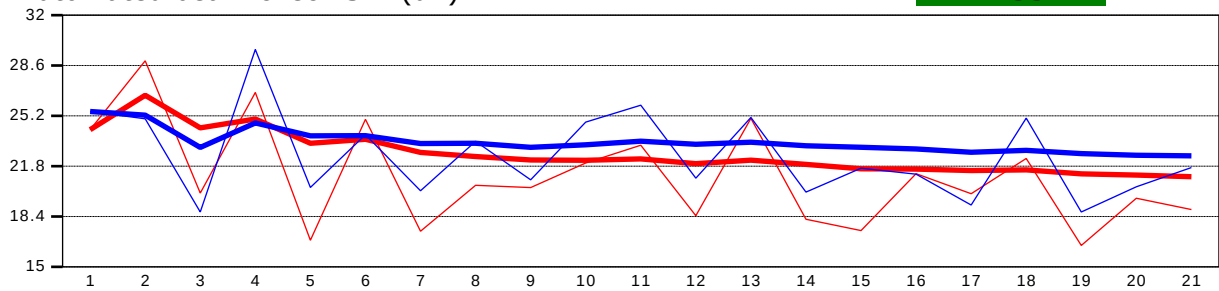
Site name WMuddy
Site number 11062023
Operator(s) SC
File name WMuddy_20231106-142058.ft
Comment

Beam 1	
Beam 2	

Automated beam check Start time 11/6/2023 1:34:26 PM

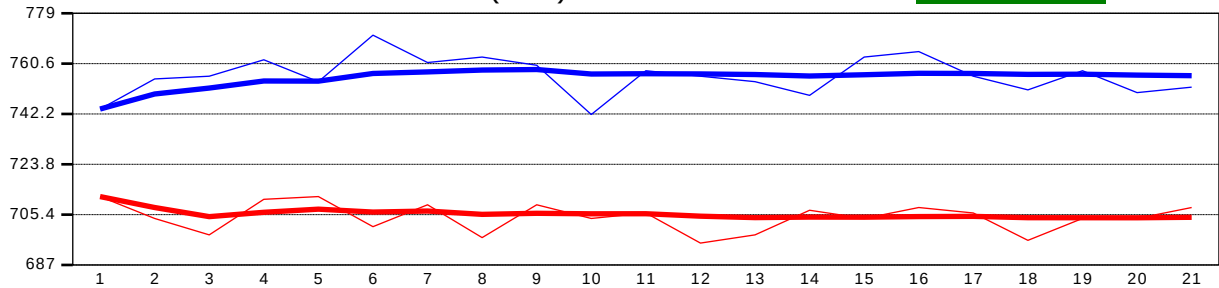
Automated beam check SNR(dB)

PASS



Automated beam check Noise level(cnts)

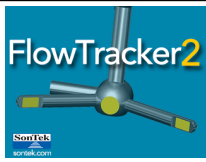
PASS



Automated beam check Quality control warnings

No quality control warnings

11/6/2023 3:35:45 PM



Discharge Measurement Summary

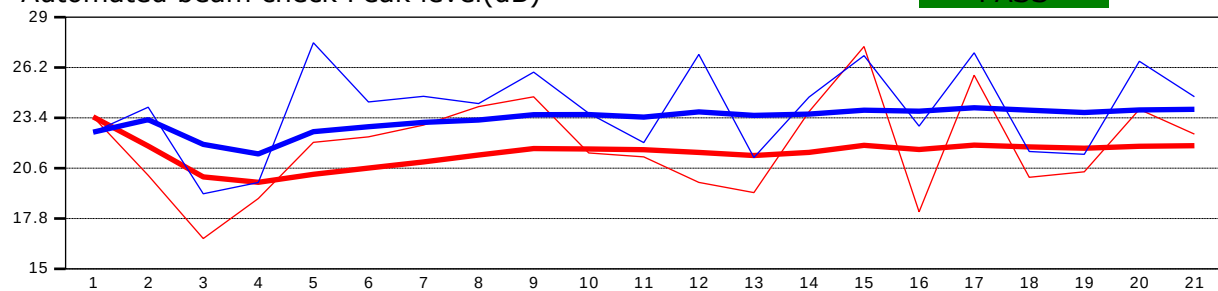
Site name WMuddy
Site number 11062023
Operator(s) SC
File name WMuddy_20231106-142058.ft
Comment

Beam 1	
Beam 2	

Automated beam check Start time 11/6/2023 1:34:26 PM

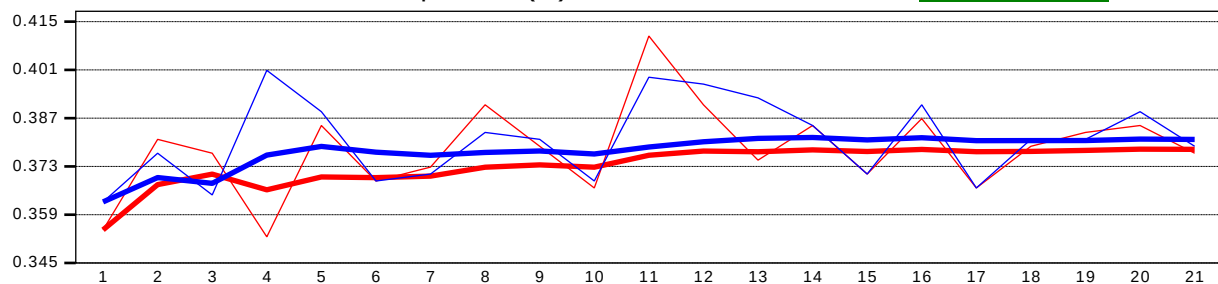
Automated beam check Peak level(dB)

PASS



Automated beam check Peak position(ft)

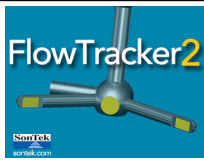
PASS



Automated beam check Quality control warnings

No quality control warnings

11/6/2023 3:35:45 PM



Discharge Measurement Summary

Site name	West Muddy Creek abv confl with East Muddy Creek
Site number	WMUDDYD4
Operator(s)	LFSC
File name	West Muddy Creek abv confl with East Muddy Creek_20240328-160634.ft
Comment	

Start time	3/28/2024 3:45 PM	Sensor type	Top Setting
End time	3/28/2024 4:04 PM	Handheld serial number	FT2H2322005
Start location latitude	39.000	Probe serial number	FT2P2317010
Start location longitude	-107.358	Probe firmware	1.30
Calculations engine	FlowTracker2	Handheld software	1.7

# Stations	Avg interval (s)	Total discharge (ft³/s)
22	40	5.2943

Total width (ft)	Total area (ft²)	Wetted Perimeter (ft)
16.450	11.9380	17.878

Mean SNR (dB)	Mean depth (ft)	Mean velocity (ft/s)
30	0.726	0.4435

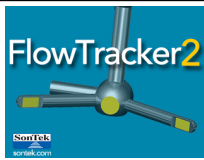
Mean temp (°F)	Max depth (ft)	Max velocity (ft/s)
45.473	1.480	0.7533

Discharge Uncertainty		
Category	ISO	IVE
Accuracy	1.0%	1.0%
Depth	0.2%	5.9%
Velocity	1.1%	5.5%
Width	0.1%	0.1%
Method	1.8%	
# Stations	2.3%	
Overall	3.3%	8.1%

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 West Muddy Creek abv confl with East Muddy Creek
Site number WМУDDYD4
Operator(s) LFSC
File name West Muddy Creek abv confl with East Muddy Creek_20240328-160634.ft
Comment

Station Warning Settings

Station discharge OK

Station discharge < 5.00%

Station discharge caution

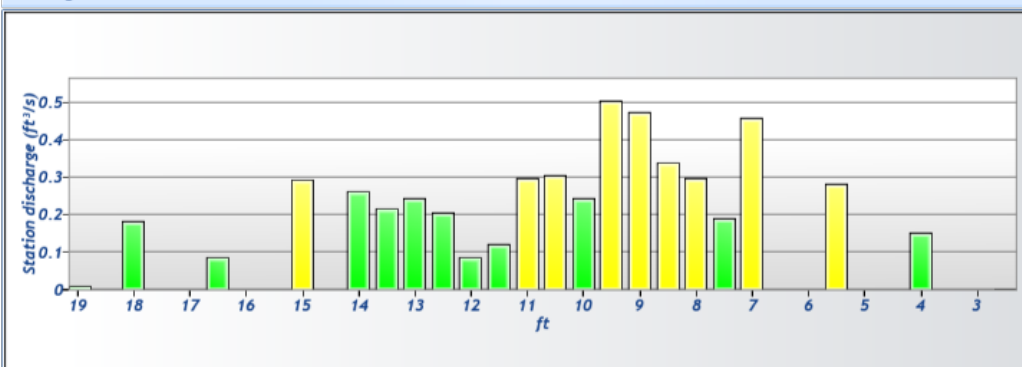
5.00% >= Station discharge < 10.00%

Station discharge warning

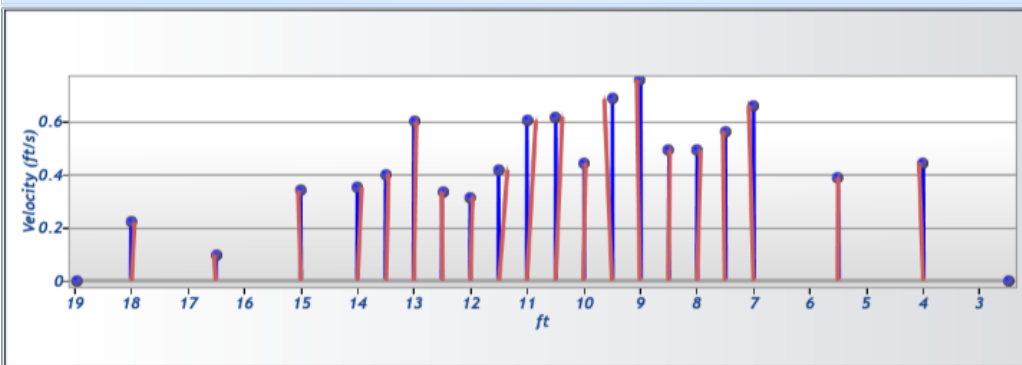
Station discharge >= 10.00%



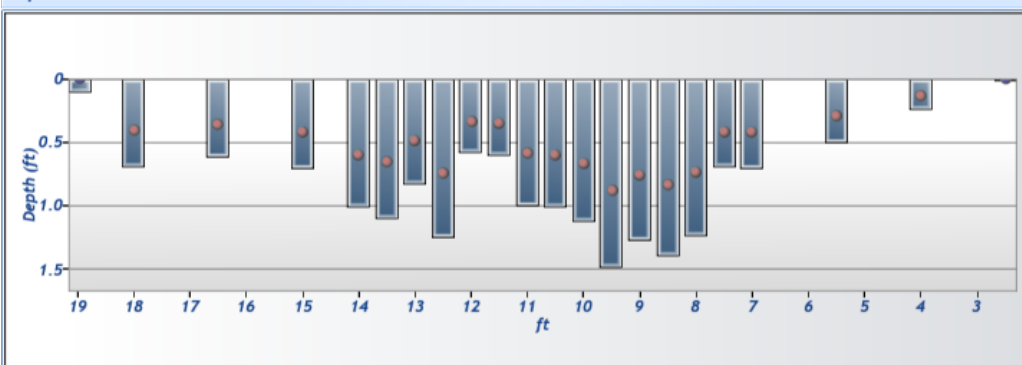
Discharge chart

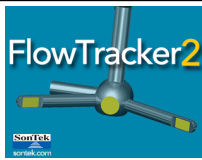


Velocity chart



Depth chart

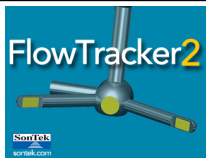




Discharge Measurement Summary

Site name	West Muddy Creek abv confl with East Muddy Creek
Site number	WMUDDYD4
Operator(s)	LFSC
File name	West Muddy Creek abv confl with East Muddy Creek_20240328-160634.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 (ft ²)	Flow (ft ³ /s)	%Q		
21	4:04 PM	2.500	None	0.010	0.0000	0.000	0	0.0000	1.0000	0.4437	0.0075	0.0033	0.06	✓	
20	4:02 PM	4.000	0.6	0.230	0.6000	0.138	30	0.4437	1.0000	0.4437	0.3450	0.1531	2.89	✓	
19	4:01 PM	5.500	0.6	0.490	0.6000	0.294	30	0.3877	1.0000	0.3877	0.7350	0.2850	5.38	✓	
18	4:01 PM	7.000	0.6	0.700	0.6000	0.420	35	0.6591	1.0000	0.6591	0.7000	0.4614	8.71	✓	
17	4:04 PM	7.500	0.6	0.690	0.6000	0.414	36	0.5608	1.0000	0.5608	0.3450	0.1935	3.65	✓	
16	4:00 PM	8.000	0.6	1.230	0.6000	0.738	35	0.4893	1.0000	0.4893	0.6150	0.3009	5.68	✓	
15	3:59 PM	8.500	0.6	1.390	0.6000	0.834	34	0.4912	1.0000	0.4912	0.6950	0.3414	6.45	✓	
14	3:58 PM	9.000	0.6	1.260	0.6000	0.756	24	0.7533	1.0000	0.7533	0.6300	0.4746	8.96	✓	
13	3:57 PM	9.500	0.6	1.480	0.6000	0.888	34	0.6828	1.0000	0.6828	0.7400	0.5052	9.54	✓	
12	3:56 PM	10.000	0.6	1.110	0.6000	0.666	47	0.4409	1.0000	0.4409	0.5550	0.2447	4.62	✓	
11	3:55 PM	10.500	0.6	1.000	0.6000	0.600	41	0.6162	1.0000	0.6162	0.5000	0.3081	5.82	✓	
10	3:54 PM	11.000	0.6	0.990	0.6000	0.594	44	0.6039	1.0000	0.6039	0.4950	0.2989	5.65	✓	
9	3:52 PM	11.500	0.6	0.590	0.6000	0.354	70	0.4169	1.0000	0.4169	0.2950	0.1230	2.32	✓	
8	3:51 PM	12.000	0.6	0.570	0.6000	0.342	39	0.3137	1.0000	0.3137	0.2850	0.0894	1.69	✓	
7	3:50 PM	12.500	0.6	1.240	0.6000	0.744	42	0.3339	1.0000	0.3339	0.6200	0.2070	3.91	✓	
6	3:50 PM	13.000	0.6	0.820	0.6000	0.492	22	0.5962	1.0000	0.5962	0.4100	0.2444	4.62	✓	
5	3:49 PM	13.500	0.6	1.090	0.6000	0.654	38	0.4011	1.0000	0.4011	0.5450	0.2186	4.13	✓	
4	3:48 PM	14.000	0.6	1.000	0.6000	0.600	33	0.3508	1.0000	0.3508	0.7500	0.2631	4.97	✓	
3	3:47 PM	15.000	0.6	0.700	0.6000	0.420	22	0.3377	1.0000	0.3377	0.8750	0.2955	5.58	✓	
2	3:46 PM	16.500	0.6	0.610	0.6000	0.366	50	0.0981	1.0000	0.0981	0.9150	0.0897	1.69	✓	
1	3:45 PM	18.000	0.6	0.680	0.6000	0.408	48	0.2196	1.0000	0.2196	0.8330	0.1829	3.46	✓	
0	3:45 PM	18.950	None	0.100	0.0000	0.000	0	0.0000	1.0000	0.2196	0.0475	0.0104	0.20	✓	

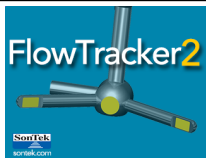


Discharge Measurement Summary

Site name	West Muddy Creek abv confl with East Muddy Creek
Site number	WMUDDYD4
Operator(s)	LFSC
File name	West Muddy Creek abv confl with East Muddy Creek_20240328-160634.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
16	4:00 PM	8.000	0.6	1.230	0.6000	0.738	Stn Spacing > QC



Discharge Measurement Summary

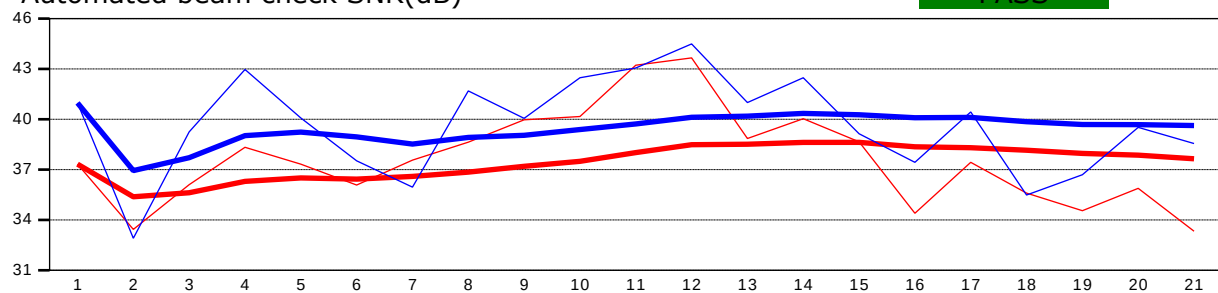
Site name West Muddy Creek abv confl with East Muddy Creek
Site number WMUDDYD4
Operator(s) LFSC
File name West Muddy Creek abv confl with East Muddy Creek_20240328-160634.ft
Comment

Beam 1	
Beam 2	

Automated beam check Start time 3/28/2024 3:44:02 PM

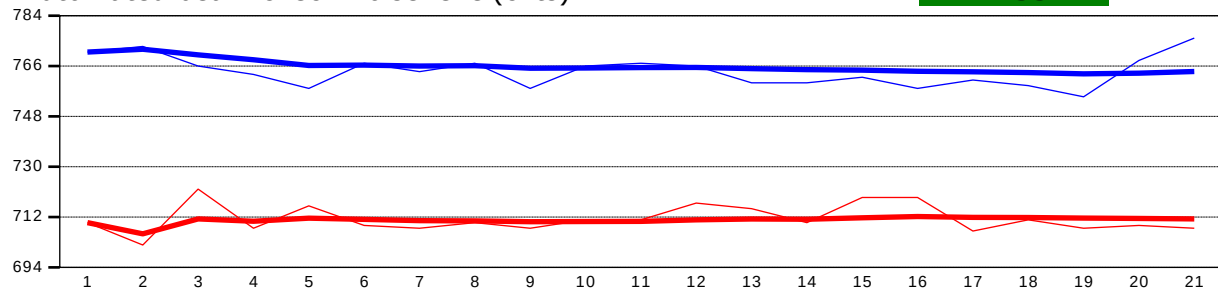
Automated beam check SNR(dB)

PASS



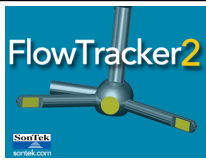
Automated beam check Noise level(cnts)

PASS



Automated beam check Quality control warnings

No quality control warnings



Discharge Measurement Summary

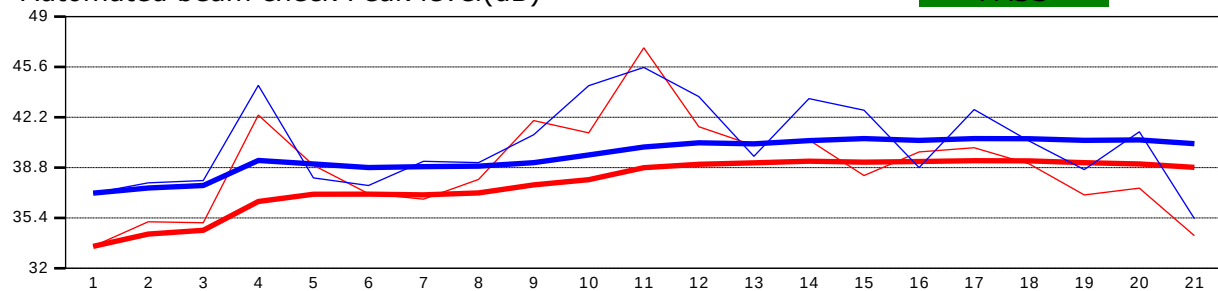
Site name West Muddy Creek abv confl with East Muddy Creek
Site number WMUDDYD4
Operator(s) LFSC
File name West Muddy Creek abv confl with East Muddy Creek_20240328-160634.ft
Comment

Beam 1	
Beam 2	

Automated beam check Start time 3/28/2024 3:44:02 PM

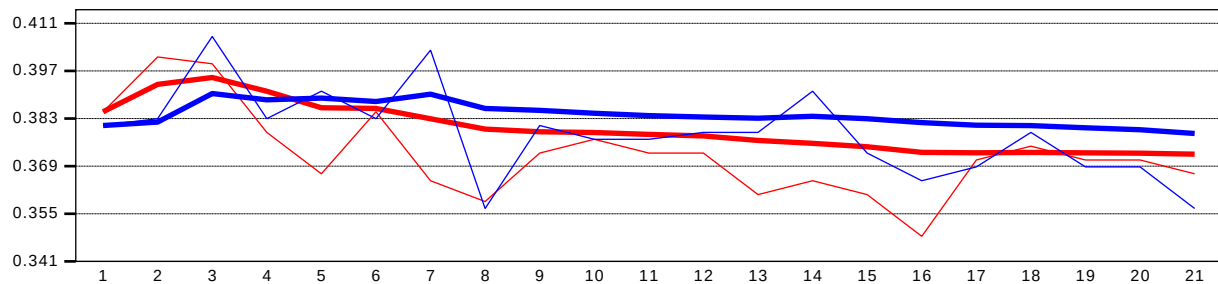
Automated beam check Peak level(dB)

PASS



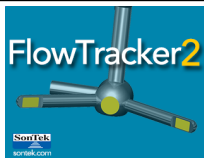
Automated beam check Peak position(ft)

PASS



Automated beam check Quality control warnings

No quality control warnings



Discharge Measurement Summary

Site name	West Muddy Creek abv confl with East Muddy Creek
Site number	WMUDDYD4
Operator(s)	Lfsc
File name	20240625-102605_West Muddy Creek abv confl with East Muddy Creek.ft
Comment	

Start time	6/25/2024 9:52 AM	Sensor type	Top Setting
End time	6/25/2024 10:23 AM	Handheld serial number	FT2H2322006
Start location latitude	38.990	Probe serial number	FT2P2319001
Start location longitude	-107.347	Probe firmware	1.30
Calculations engine	FlowTracker2	Handheld software	1.7

# Stations	Avg interval (s)	Total discharge (ft³/s)
28	40	7.4112

Total width (ft)	Total area (ft²)	Wetted Perimeter (ft)
17.700	9.3855	18.989

Mean SNR (dB)	Mean depth (ft)	Mean velocity (ft/s)
52	0.530	0.7896

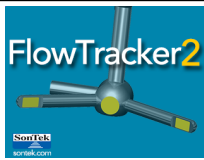
Mean temp (°F)	Max depth (ft)	Max velocity (ft/s)
59.472	1.200	1.2376

Discharge Uncertainty		
Category	ISO	IVE
Accuracy	1.0%	1.0%
Depth	0.2%	5.1%
Velocity	1.1%	3.6%
Width	0.1%	0.1%
Method	1.6%	
# Stations	1.8%	
Overall	2.9%	6.3%

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 West Muddy Creek abv confl with East Muddy Creek
Site number WMUDDYD4
Operator(s) Lfsc
File name 20240625-102605_West Muddy Creek abv confl with East Muddy Creek.ft
Comment

Station Warning Settings

Station discharge OK

Station discharge < 5.00%

Station discharge caution

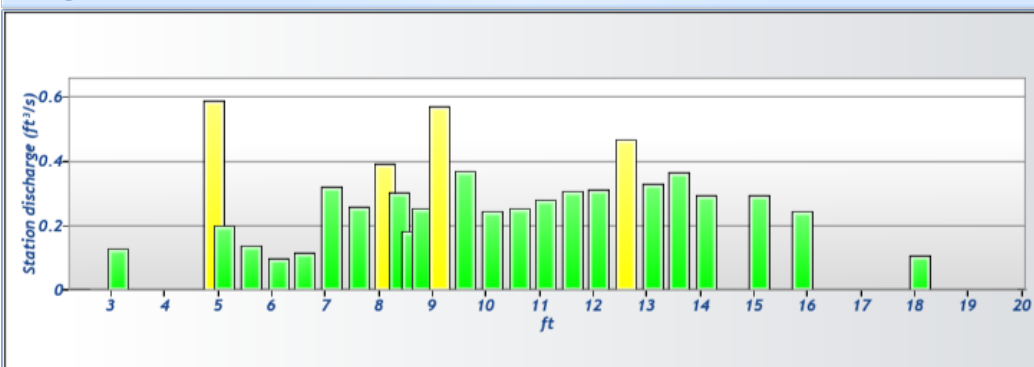
5.00% >= Station discharge < 10.00%

Station discharge warning

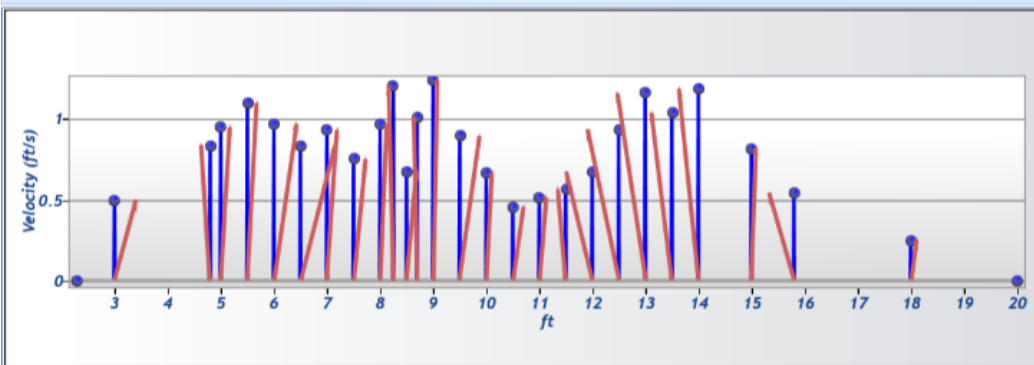
Station discharge >= 10.00%



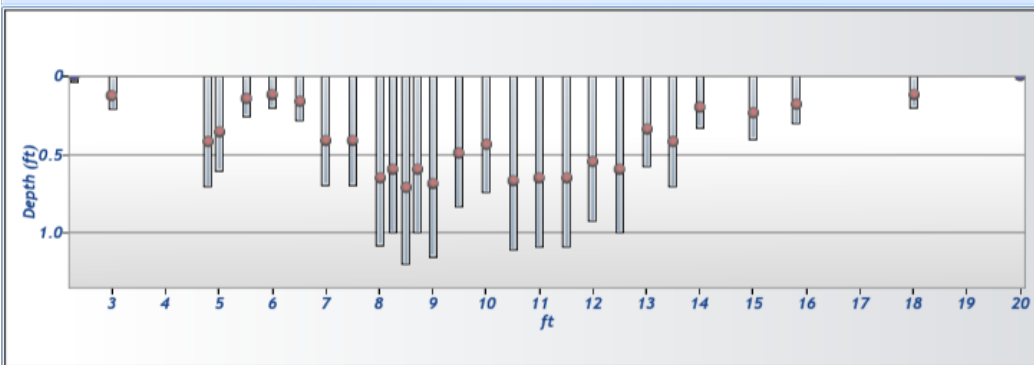
Discharge chart

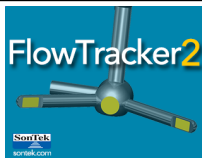


Velocity chart



Depth chart

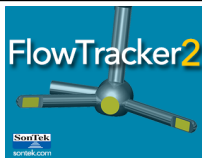




Discharge Measurement Summary

Site name	West Muddy Creek abv confl with East Muddy Creek
Site number	WMUDDYD4
Operator(s)	Lfsc
File name	20240625-102605_West Muddy Creek abv confl with East Muddy Creek.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 (ft ²)	Flow (ft ³ /s)	%Q		
0	9:52 AM	2.300	None	0.030	0.0000	0.000	0	0.0000	1.0000	0.4992	0.0105	0.0052	0.07	✓	
1	9:53 AM	3.000	0.6	0.210	0.6000	0.126	48	0.4992	1.0000	0.4992	0.2625	0.1310	1.77	✓	
2	9:55 AM	4.800	0.6	0.700	0.6000	0.420	54	0.8366	1.0000	0.8366	0.7000	0.5856	7.90	✓	
3	9:56 AM	5.000	0.6	0.600	0.6000	0.360	57	0.9476	1.0000	0.9476	0.2100	0.1990	2.69	✓	
4	9:58 AM	5.500	0.6	0.250	0.6000	0.150	19	1.0972	1.0000	1.0972	0.1250	0.1371	1.85	✓	
5	9:59 AM	6.000	0.6	0.200	0.6000	0.120	34	0.9675	1.0000	0.9675	0.1000	0.0968	1.31	✓	
6	10:00 AM	6.500	0.6	0.280	0.6000	0.168	43	0.8361	1.0000	0.8361	0.1400	0.1171	1.58	✓	
7	10:00 AM	7.000	0.6	0.690	0.6000	0.414	61	0.9307	1.0000	0.9307	0.3450	0.3211	4.33	✓	
8	10:02 AM	7.500	0.6	0.690	0.6000	0.414	54	0.7505	1.0000	0.7505	0.3450	0.2589	3.49	✓	
9	10:03 AM	8.000	0.6	1.080	0.6000	0.648	80	0.9672	1.0000	0.9672	0.4050	0.3917	5.29	✓	
10	10:23 AM	8.250	0.6	1.000	0.6000	0.600	32	1.2019	1.0000	1.2019	0.2500	0.3005	4.05	✓	
11	10:04 AM	8.500	0.6	1.200	0.6000	0.720	59	0.6760	1.0000	0.6760	0.2700	0.1825	2.46	✓	
12	10:22 AM	8.700	0.6	1.000	0.6000	0.600	40	1.0093	1.0000	1.0093	0.2500	0.2523	3.40	✓	
13	10:05 AM	9.000	0.6	1.150	0.6000	0.690	26	1.2376	1.0000	1.2376	0.4600	0.5693	7.68	✓	
14	10:06 AM	9.500	0.6	0.830	0.6000	0.498	66	0.8927	1.0000	0.8927	0.4150	0.3705	5.00	✓	
15	10:08 AM	10.000	0.6	0.740	0.6000	0.444	54	0.6660	1.0000	0.6660	0.3700	0.2464	3.32	✓	
16	10:09 AM	10.500	0.6	1.110	0.6000	0.666	33	0.4546	1.0000	0.4546	0.5550	0.2523	3.40	✓	
17	10:10 AM	11.000	0.6	1.090	0.6000	0.654	45	0.5124	1.0000	0.5124	0.5450	0.2793	3.77	✓	
18	10:11 AM	11.500	0.6	1.090	0.6000	0.654	61	0.5638	1.0000	0.5638	0.5450	0.3072	4.15	✓	
19	10:12 AM	12.000	0.6	0.920	0.6000	0.552	38	0.6725	1.0000	0.6725	0.4600	0.3094	4.17	✓	
20	10:14 AM	12.500	0.6	1.000	0.6000	0.600	55	0.9351	1.0000	0.9351	0.5000	0.4675	6.31	✓	
21	10:15 AM	13.000	0.6	0.570	0.6000	0.342	51	1.1567	1.0000	1.1567	0.2850	0.3297	4.45	✓	
22	10:15 AM	13.500	0.6	0.700	0.6000	0.420	33	1.0366	1.0000	1.0366	0.3500	0.3628	4.90	✓	
23	10:17 AM	14.000	0.6	0.330	0.6000	0.198	28	1.1829	1.0000	1.1829	0.2475	0.2928	3.95	✓	
24	10:18 AM	15.000	0.6	0.400	0.6000	0.240	15	0.8168	1.0000	0.8168	0.3600	0.2941	3.97	✓	
25	10:19 AM	15.800	0.6	0.300	0.6000	0.180	15	0.5413	1.0000	0.5413	0.4500	0.2436	3.29	✓	
26	10:20 AM	18.000	0.6	0.200	0.6000	0.120	46	0.2501	1.0000	0.2501	0.4200	0.1050	1.42	✓	
27	10:21 AM	20.000	None	0.010	0.0000	0.000	0	0.0000	1.0000	0.2501	0.0100	0.0025	0.03	✓	

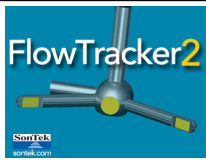


Discharge Measurement Summary

Site name	West Muddy Creek abv confl with East Muddy Creek
Site number	WMUDDYD4
Operator(s)	Lfsc
File name	20240625-102605_West Muddy Creek abv confl with East Muddy Creek.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	9:53 AM	3.000	0.6	0.210	0.6000	0.126	Velocity Angle > QC
3	9:56 AM	5.000	0.6	0.600	0.6000	0.360	Standard Error > QC
4	9:58 AM	5.500	0.6	0.250	0.6000	0.150	Stn Spacing > QC
5	9:59 AM	6.000	0.6	0.200	0.6000	0.120	Velocity Angle > QC
6	10:00 AM	6.500	0.6	0.280	0.6000	0.168	Velocity Angle > QC
7	10:00 AM	7.000	0.6	0.690	0.6000	0.414	Boundary Interference,Standard Error > QC
13	10:05 AM	9.000	0.6	1.150	0.6000	0.690	Standard Error > QC
14	10:06 AM	9.500	0.6	0.830	0.6000	0.498	Velocity Angle > QC
16	10:09 AM	10.500	0.6	1.110	0.6000	0.666	Standard Error > QC,Velocity Angle > QC
19	10:12 AM	12.000	0.6	0.920	0.6000	0.552	Standard Error > QC,Velocity Angle > QC
20	10:14 AM	12.500	0.6	1.000	0.6000	0.600	Velocity Angle > QC
21	10:15 AM	13.000	0.6	0.570	0.6000	0.342	Velocity Angle > QC
22	10:15 AM	13.500	0.6	0.700	0.6000	0.420	Velocity Angle > QC
23	10:17 AM	14.000	0.6	0.330	0.6000	0.198	High % Spikes
24	10:18 AM	15.000	0.6	0.400	0.6000	0.240	Standard Error > QC
25	10:19 AM	15.800	0.6	0.300	0.6000	0.180	Standard Error > QC,Velocity Angle > QC
26	10:20 AM	18.000	0.6	0.200	0.6000	0.120	Boundary Interference,Velocity Angle > QC



Discharge Measurement Summary

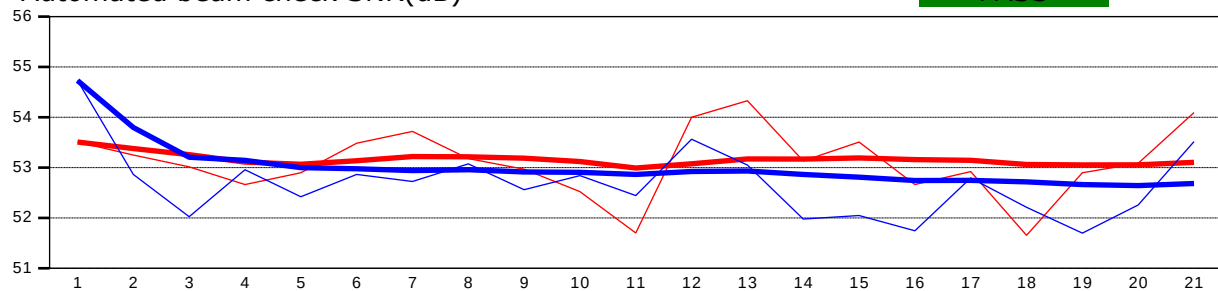
Site name West Muddy Creek abv confl with East Muddy Creek
Site number WMUDDYD4
Operator(s) Lfsc
File name 20240625-102605_West Muddy Creek abv confl with East Muddy Creek.ft
Comment

Beam 1	
Beam 2	

Automated beam check Start time 6/25/2024 9:52:35 AM

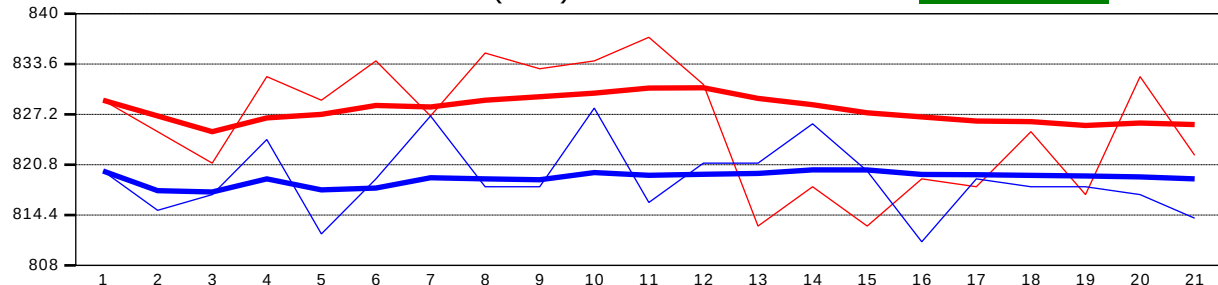
Automated beam check SNR(dB)

PASS



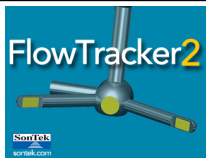
Automated beam check Noise level(cnts)

PASS



Automated beam check Quality control warnings

No quality control warnings



Discharge Measurement Summary

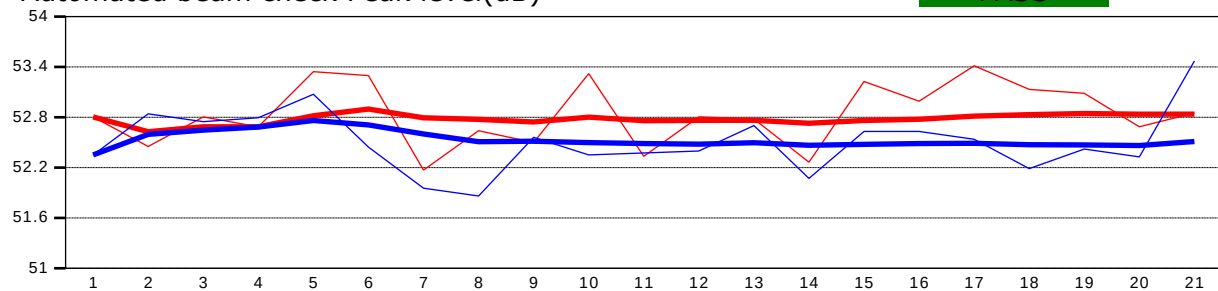
Site name West Muddy Creek abv confl with East Muddy Creek
Site number WMUDDYD4
Operator(s) Lfsc
File name 20240625-102605_West Muddy Creek abv confl with East Muddy Creek.ft
Comment

Beam 1	
Beam 2	

Automated beam check Start time 6/25/2024 9:52:35 AM

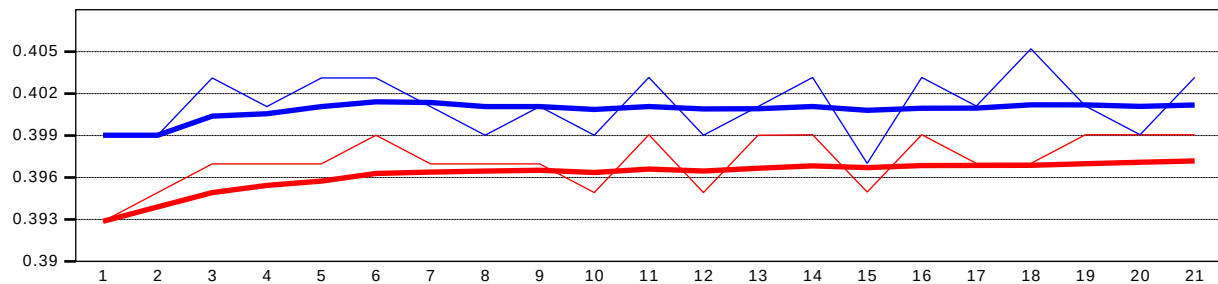
Automated beam check Peak level(dB)

PASS



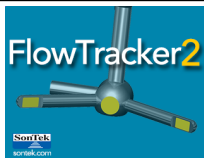
Automated beam check Peak position(ft)

PASS



Automated beam check Quality control warnings

No quality control warnings



Discharge Measurement Summary

Site name	West Muddy Creek abv confl with East Muddy Creek
Site number	WMUDDYD4
Operator(s)	Lfsc
File name	20240812-153758_West Muddy Creek abv confl with East Muddy Creek.ft
Comment	

Start time	8/12/2024 2:56 PM	Sensor type	Top Setting
End time	8/12/2024 3:26 PM	Handheld serial number	FT2H2322006
Start location latitude	39.000	Probe serial number	FT2P2319001
Start location longitude	-107.358	Probe firmware	1.30
Calculations engine	FlowTracker2	Handheld software	1.7

# Stations	Avg interval (s)	Total discharge (ft³/s)
27	40	1.5640

Total width (ft)	Total area (ft²)	Wetted Perimeter (ft)
10.900	5.6225	11.839

Mean SNR (dB)	Mean depth (ft)	Mean velocity (ft/s)
37	0.516	0.2782

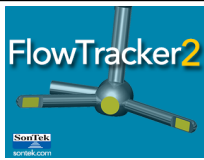
Mean temp (°F)	Max depth (ft)	Max velocity (ft/s)
70.271	0.860	0.6357

Discharge Uncertainty		
Category	ISO	IVE
Accuracy	1.0%	1.0%
Depth	0.3%	4.1%
Velocity	0.9%	5.5%
Width	0.1%	0.1%
Method	1.7%	
# Stations	1.9%	
Overall	2.9%	6.9%

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 West Muddy Creek abv confl with East Muddy Creek
Site number WМУDDYD4
Operator(s) Lfsc
File name 20240812-153758_West Muddy Creek abv confl with East Muddy Creek.ft
Comment

Station Warning Settings

Station discharge OK

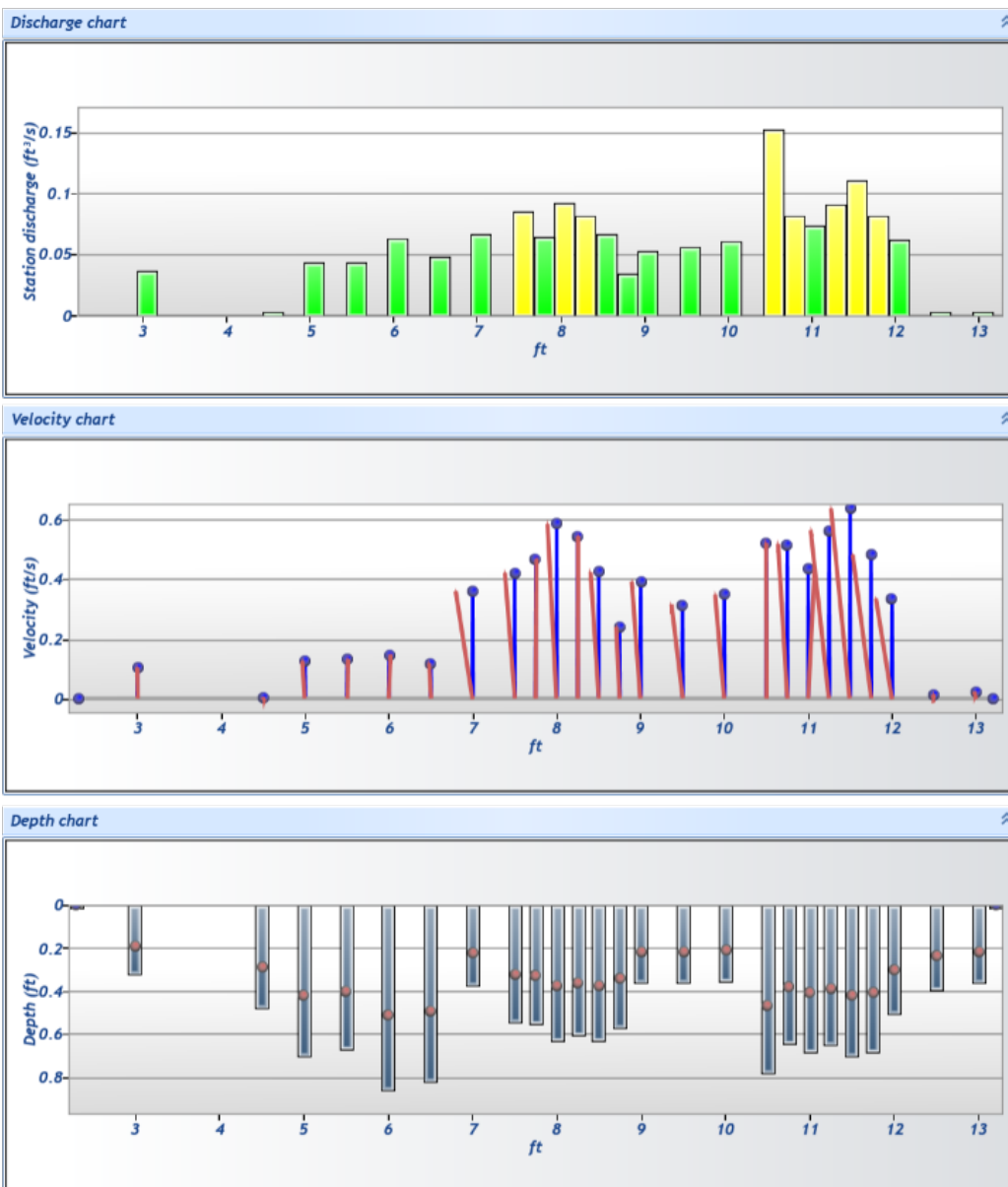
Station discharge < 5.00%

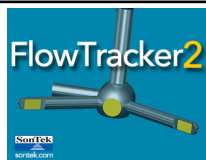
Station discharge caution

5.00% >= Station discharge < 10.00%

Station discharge warning

Station discharge >= 10.00%

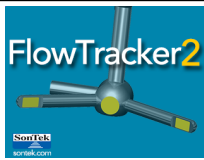




Discharge Measurement Summary

Site name	West Muddy Creek abv confl with East Muddy Creek
Site number	WMUDDYD4
Operator(s)	Lfsc
File name	20240812-153758_West Muddy Creek abv confl with East Muddy Creek.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 (ft ²)	Flow (ft ³ /s)	%Q		
26	3:18 PM	2.300	None	0.010	0.0000	0.000	0	0.0000	1.0000	0.1050	0.0035	0.0004	0.02	✓	
25	3:17 PM	3.000	0.6	0.320	0.6000	0.192	20	0.1050	1.0000	0.1050	0.3520	0.0370	2.36	✓	
24	3:16 PM	4.500	0.6	0.480	0.6000	0.288	26	0.0067	1.0000	0.0067	0.4800	0.0032	0.21	✓	
23	3:15 PM	5.000	0.6	0.700	0.6000	0.420	31	0.1262	1.0000	0.1262	0.3500	0.0442	2.82	✓	
22	3:14 PM	5.500	0.6	0.670	0.6000	0.402	44	0.1323	1.0000	0.1323	0.3350	0.0443	2.83	✓	
21	3:12 PM	6.000	0.6	0.860	0.6000	0.516	22	0.1474	1.0000	0.1474	0.4300	0.0634	4.05	✓	
20	3:11 PM	6.500	0.6	0.820	0.6000	0.492	33	0.1184	1.0000	0.1184	0.4100	0.0486	3.10	✓	
19	3:10 PM	7.000	0.6	0.370	0.6000	0.222	42	0.3597	1.0000	0.3597	0.1850	0.0665	4.25	✓	
18	3:09 PM	7.500	0.6	0.540	0.6000	0.324	59	0.4206	1.0000	0.4206	0.2025	0.0852	5.45	✓	
17	3:20 PM	7.750	0.6	0.550	0.6000	0.330	32	0.4673	1.0000	0.4673	0.1375	0.0643	4.11	✓	
16	3:07 PM	8.000	0.6	0.630	0.6000	0.378	80	0.5839	1.0000	0.5839	0.1575	0.0920	5.88	✓	
15	3:21 PM	8.250	0.6	0.600	0.6000	0.360	30	0.5438	1.0000	0.5438	0.1500	0.0816	5.22	✓	
14	3:06 PM	8.500	0.6	0.630	0.6000	0.378	44	0.4229	1.0000	0.4229	0.1575	0.0666	4.26	✓	
13	3:22 PM	8.750	0.6	0.570	0.6000	0.342	19	0.2396	1.0000	0.2396	0.1425	0.0341	2.18	✓	
12	3:05 PM	9.000	0.6	0.360	0.6000	0.216	26	0.3912	1.0000	0.3912	0.1350	0.0528	3.38	✓	
11	3:04 PM	9.500	0.6	0.360	0.6000	0.216	44	0.3138	1.0000	0.3138	0.1800	0.0565	3.61	✓	
10	3:03 PM	10.000	0.6	0.350	0.6000	0.210	53	0.3479	1.0000	0.3479	0.1750	0.0609	3.89	✓	
9	3:02 PM	10.500	0.6	0.780	0.6000	0.468	44	0.5206	1.0000	0.5206	0.2925	0.1523	9.74	✓	
8	3:24 PM	10.750	0.6	0.640	0.6000	0.384	53	0.5168	1.0000	0.5168	0.1600	0.0827	5.29	✓	
7	3:01 PM	11.000	0.6	0.680	0.6000	0.408	34	0.4364	1.0000	0.4364	0.1700	0.0742	4.74	✓	
6	3:25 PM	11.250	0.6	0.650	0.6000	0.390	60	0.5624	1.0000	0.5624	0.1625	0.0914	5.84	✓	
5	3:00 PM	11.500	0.6	0.700	0.6000	0.420	42	0.6357	1.0000	0.6357	0.1750	0.1112	7.11	✓	
4	3:26 PM	11.750	0.6	0.680	0.6000	0.408	26	0.4813	1.0000	0.4813	0.1700	0.0818	5.23	✓	
3	2:58 PM	12.000	0.6	0.500	0.6000	0.300	59	0.3348	1.0000	0.3348	0.1875	0.0628	4.01	✓	
2	2:57 PM	12.500	0.6	0.390	0.6000	0.234	26	0.0147	1.0000	0.0147	0.1950	0.0029	0.18	✓	
1	2:56 PM	13.000	0.6	0.360	0.6000	0.216	46	0.0263	1.0000	0.0263	0.1260	0.0033	0.21	✓	
0	2:56 PM	13.200	None	0.010	0.0000	0.000	0	0.0000	1.0000	0.0263	0.0010	0.0000	0.00	✓	

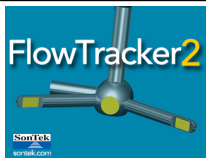


Discharge Measurement Summary

Site name	West Muddy Creek abv confl with East Muddy Creek
Site number	WMUDDYD4
Operator(s)	Lfsc
File name	20240812-153758_West Muddy Creek abv confl with East Muddy Creek.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	3:16 PM	4.500	0.6	0.480	0.6000	0.288	Large SNR Variation,SNR Threshold Variation
22	3:14 PM	5.500	0.6	0.670	0.6000	0.402	Stn Spacing > QC
19	3:10 PM	7.000	0.6	0.370	0.6000	0.222	Velocity Angle > QC
11	3:04 PM	9.500	0.6	0.360	0.6000	0.216	Velocity Angle > QC
9	3:02 PM	10.500	0.6	0.780	0.6000	0.468	Boundary Interference
6	3:25 PM	11.250	0.6	0.650	0.6000	0.390	Velocity Angle > QC
4	3:26 PM	11.750	0.6	0.680	0.6000	0.408	Velocity Angle > QC
3	2:58 PM	12.000	0.6	0.500	0.6000	0.300	Velocity Angle > QC
2	2:57 PM	12.500	0.6	0.390	0.6000	0.234	Boundary Interference,High % Spikes



Discharge Measurement Summary

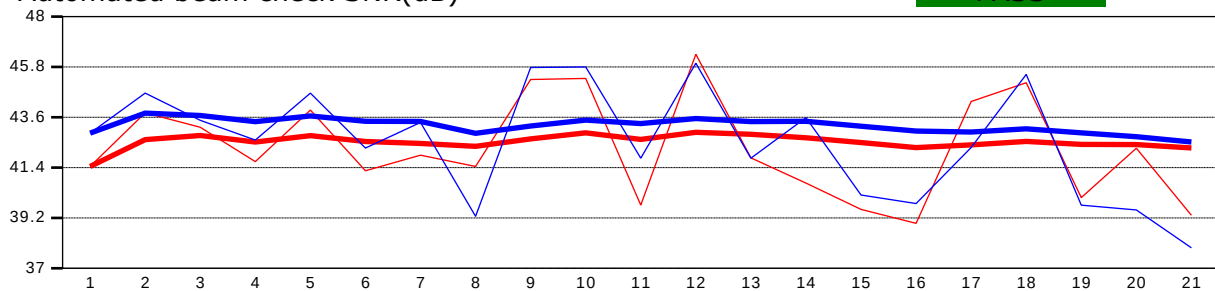
Site name West Muddy Creek abv confl with East Muddy Creek
Site number WMUDDYD4
Operator(s) Lfsc
File name 20240812-153758_West Muddy Creek abv confl with East Muddy Creek.ft
Comment

Beam 1	
Beam 2	

Automated beam check Start time 8/12/2024 2:55:48 PM

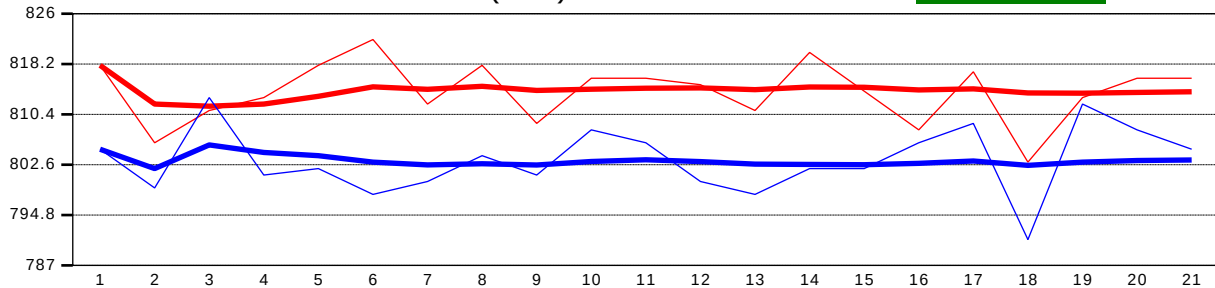
Automated beam check SNR(dB)

PASS



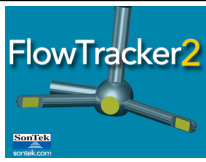
Automated beam check Noise level(cnts)

PASS



Automated beam check Quality control warnings

No quality control warnings



Discharge Measurement Summary

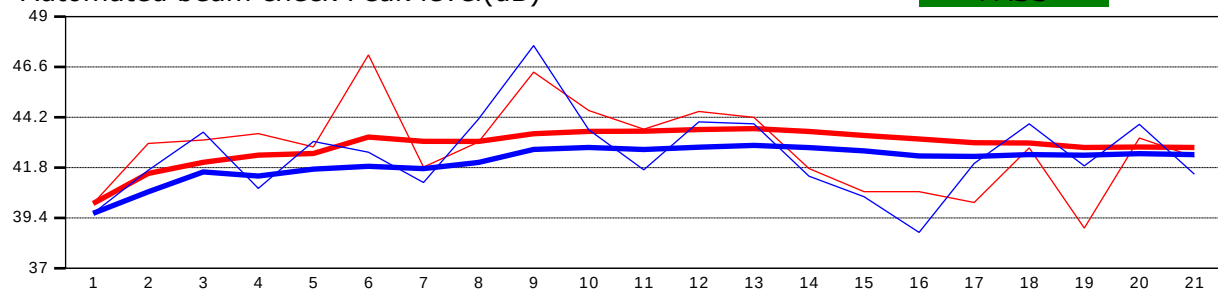
Site name West Muddy Creek abv confl with East Muddy Creek
Site number WMUDDYD4
Operator(s) Lfsc
File name 20240812-153758_West Muddy Creek abv confl with East Muddy Creek.ft
Comment

Beam 1	
Beam 2	

Automated beam check Start time 8/12/2024 2:55:48 PM

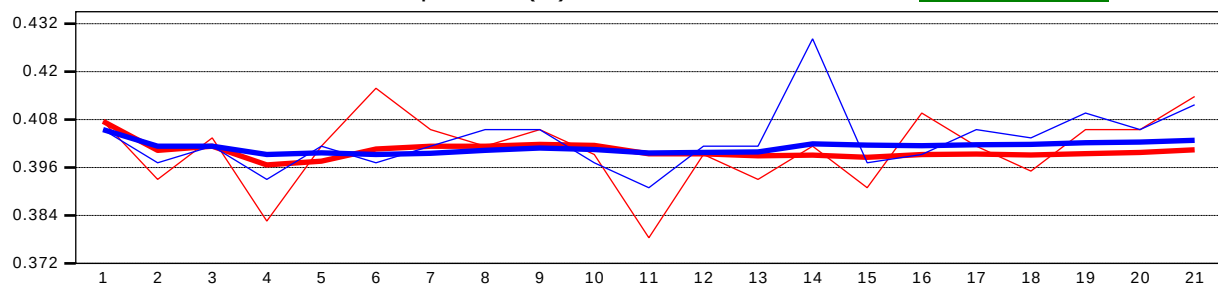
Automated beam check Peak level(dB)

PASS



Automated beam check Peak position(ft)

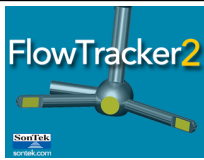
PASS



Automated beam check Quality control warnings

No quality control warnings

8/15/2024 9:46:20 AM



Discharge Measurement Summary

Site name	West Muddy Creek abv confl with East Muddy Creek
Site number	WMUDDYD4
Operator(s)	Lfsc
File name	20240912-151340_West Muddy Creek abv confl with East Muddy Creek.ft
Comment	

Start time	9/12/2024 2:47 PM	Sensor type	Top Setting
End time	9/12/2024 3:11 PM	Handheld serial number	FT2H2322006
Start location latitude	-	Probe serial number	FT2P2319001
Start location longitude	-	Probe firmware	1.30
Calculations engine	FlowTracker2	Handheld software	1.7

# Stations	Avg interval (s)	Total discharge (ft³/s)
34	40	1.6685

Total width (ft)	Total area (ft²)	Wetted Perimeter (ft)
12.650	6.5375	13.572

Mean SNR (dB)	Mean depth (ft)	Mean velocity (ft/s)
33	0.517	0.2552

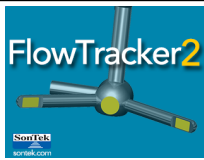
Mean temp (°F)	Max depth (ft)	Max velocity (ft/s)
65.803	0.900	0.7022

Discharge Uncertainty		
Category	ISO	IVE
Accuracy	1.0%	1.0%
Depth	0.3%	3.4%
Velocity	1.2%	13.6%
Width	0.1%	0.1%
Method	1.6%	
# Stations	1.5%	
Overall	2.7%	14.1%

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 West Muddy Creek abv confl with East Muddy Creek
Site number WMUDDYD4
Operator(s) Lfsc
File name 20240912-151340_West Muddy Creek abv confl with East Muddy Creek.ft
Comment

Station Warning Settings

Station discharge OK

Station discharge < 5.00%

Station discharge caution

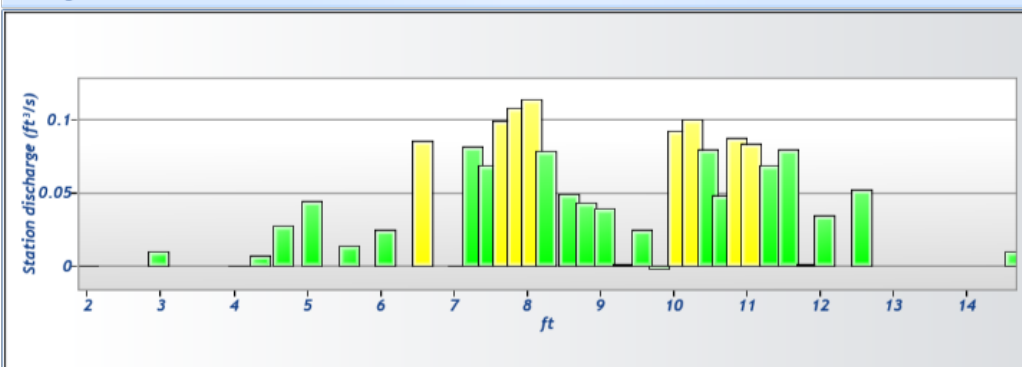
5.00% >= Station discharge < 10.00%

Station discharge warning

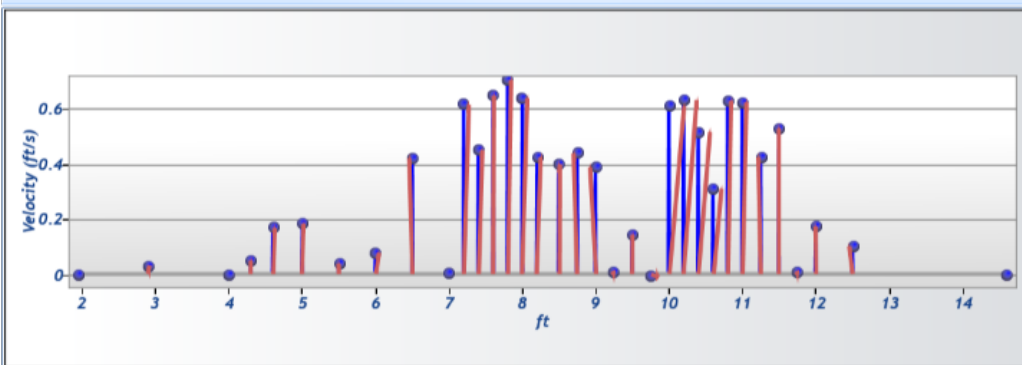
Station discharge >= 10.00%



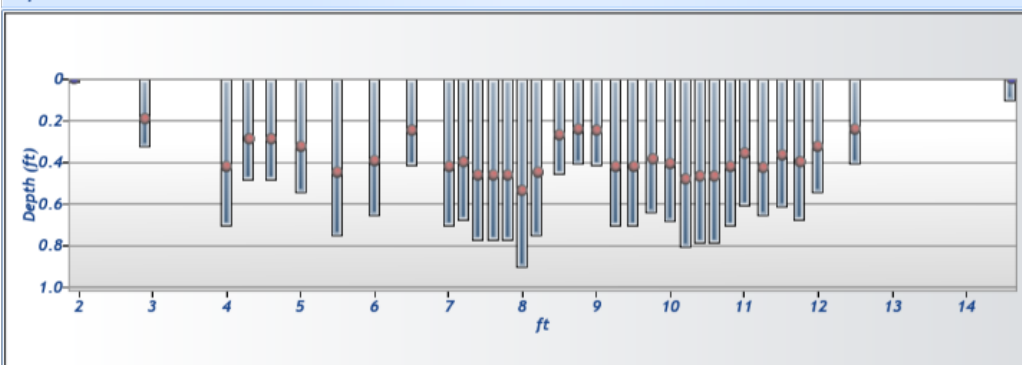
Discharge chart

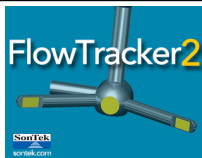


Velocity chart



Depth chart

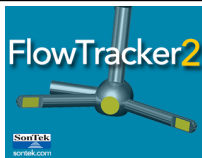




Discharge Measurement Summary

Site name	West Muddy Creek abv confl with East Muddy Creek
Site number	WMUDDYD4
Operator(s)	Lfsc
File name	20240912-151340_West Muddy Creek abv confl with East Muddy Creek.ft
Comment	

Measurement results													
St#	Time	Location (ft)	Method	Depth (ft)	%Depth	Measured Depth (ft)	Samples	Velocity (ft/s)	Correcti on	Mean Velocity (ft/s)	Area (ft ²)	Flow (ft ³ /s)	%Q
0	2:47 PM	1.950	None	0.010	0.0000	0.000	0	0.0000	1.0000	0.0311	0.0048	0.0001	0.01 ✓
1	2:47 PM	2.900	0.6	0.320	0.6000	0.192	13	0.0311	1.0000	0.0311	0.3280	0.0102	0.61 ✓
2	2:48 PM	4.000	0.6	0.700	0.6000	0.420	19	-0.0002	1.0000	-0.0002	0.4900	-0.0001	-0.01 ✓
3	2:49 PM	4.300	0.6	0.480	0.6000	0.288	18	0.0500	1.0000	0.0500	0.1440	0.0072	0.43 ✓
4	2:50 PM	4.600	0.6	0.480	0.6000	0.288	35	0.1671	1.0000	0.1671	0.1680	0.0281	1.68 ✓
5	2:50 PM	5.000	0.6	0.540	0.6000	0.324	30	0.1826	1.0000	0.1826	0.2430	0.0444	2.66 ✓
6	2:51 PM	5.500	0.6	0.750	0.6000	0.450	26	0.0382	1.0000	0.0382	0.3750	0.0143	0.86 ✓
7	2:52 PM	6.000	0.6	0.650	0.6000	0.390	38	0.0772	1.0000	0.0772	0.3250	0.0251	1.50 ✓
8	2:52 PM	6.500	0.6	0.410	0.6000	0.246	69	0.4198	1.0000	0.4198	0.2050	0.0861	5.16 ✓
9	2:54 PM	7.000	0.6	0.700	0.6000	0.420	17	0.0006	1.0000	0.0006	0.2450	0.0001	0.01 ✓
10	2:55 PM	7.200	0.6	0.670	0.6000	0.402	17	0.6132	1.0000	0.6132	0.1340	0.0822	4.93 ✓
11	2:56 PM	7.400	0.6	0.770	0.6000	0.462	38	0.4487	1.0000	0.4487	0.1540	0.0691	4.14 ✓
12	2:56 PM	7.600	0.6	0.770	0.6000	0.462	22	0.6459	1.0000	0.6459	0.1540	0.0995	5.96 ✓
13	2:57 PM	7.800	0.6	0.770	0.6000	0.462	17	0.7022	1.0000	0.7022	0.1540	0.1081	6.48 ✓
14	2:58 PM	8.000	0.6	0.900	0.6000	0.540	26	0.6370	1.0000	0.6370	0.1800	0.1147	6.87 ✓
15	2:58 PM	8.200	0.6	0.750	0.6000	0.450	24	0.4227	1.0000	0.4227	0.1875	0.0793	4.75 ✓
16	2:59 PM	8.500	0.6	0.450	0.6000	0.270	21	0.3980	1.0000	0.3980	0.1238	0.0493	2.95 ✓
17	3:00 PM	8.750	0.6	0.400	0.6000	0.240	36	0.4372	1.0000	0.4372	0.1000	0.0437	2.62 ✓
18	3:01 PM	9.000	0.6	0.410	0.6000	0.246	29	0.3864	1.0000	0.3864	0.1025	0.0396	2.37 ✓
19	3:01 PM	9.250	0.6	0.700	0.6000	0.420	30	0.0091	1.0000	0.0091	0.1750	0.0016	0.10 ✓
20	3:03 PM	9.500	0.6	0.700	0.6000	0.420	25	0.1432	1.0000	0.1432	0.1750	0.0251	1.50 ✓
21	3:03 PM	9.750	0.6	0.640	0.6000	0.384	26	-0.0091	1.0000	-0.0091	0.1600	-0.0015	-0.09 ✓
22	3:04 PM	10.000	0.6	0.680	0.6000	0.408	33	0.6079	1.0000	0.6079	0.1530	0.0930	5.57 ✓
23	3:05 PM	10.200	0.6	0.800	0.6000	0.480	23	0.6300	1.0000	0.6300	0.1600	0.1008	6.04 ✓
24	3:05 PM	10.400	0.6	0.780	0.6000	0.468	19	0.5141	1.0000	0.5141	0.1560	0.0802	4.81 ✓
25	3:06 PM	10.600	0.6	0.780	0.6000	0.468	25	0.3089	1.0000	0.3089	0.1560	0.0482	2.89 ✓
26	3:06 PM	10.800	0.6	0.700	0.6000	0.420	23	0.6280	1.0000	0.6280	0.1400	0.0879	5.27 ✓
27	3:07 PM	11.000	0.6	0.600	0.6000	0.360	36	0.6216	1.0000	0.6216	0.1350	0.0839	5.03 ✓
28	3:07 PM	11.250	0.6	0.650	0.6000	0.430	17	0.4232	1.0000	0.4232	0.1625	0.0688	4.12 ✓
29	3:08 PM	11.500	0.6	0.610	0.6000	0.366	25	0.5273	1.0000	0.5273	0.1525	0.0804	4.82 ✓
30	3:09 PM	11.750	0.6	0.670	0.6000	0.402	40	0.0086	1.0000	0.0086	0.1675	0.0014	0.09 ✓
31	3:10 PM	12.000	0.6	0.540	0.6000	0.324	26	0.1732	1.0000	0.1732	0.2025	0.0351	2.10 ✓
32	3:10 PM	12.500	0.6	0.400	0.6000	0.240	25	0.1003	1.0000	0.1003	0.5200	0.0522	3.13 ✓
33	3:11 PM	14.600	None	0.100	0.0000	0.000	0	0.0000	1.0000	0.1003	0.1050	0.0105	0.63 ✓

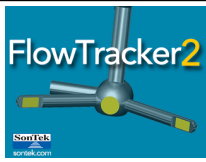


Discharge Measurement Summary

Site name	West Muddy Creek abv confl with East Muddy Creek
Site number	WMUDDYD4
Operator(s)	Lfsc
File name	20240912-151340_West Muddy Creek abv confl with East Muddy Creek.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
2	2:48 PM	4.000	0.6	0.700	0.6000	0.420	Boundary Interference, SNR Threshold Variation
4	2:50 PM	4.600	0.6	0.480	0.6000	0.288	Stn Spacing > QC
7	2:52 PM	6.000	0.6	0.650	0.6000	0.390	Velocity Angle > QC
9	2:54 PM	7.000	0.6	0.700	0.6000	0.420	SNR Threshold Variation
11	2:56 PM	7.400	0.6	0.770	0.6000	0.462	Stn Spacing > QC
14	2:58 PM	8.000	0.6	0.900	0.6000	0.540	High % Spikes
22	3:04 PM	10.000	0.6	0.680	0.6000	0.408	Boundary Interference
25	3:06 PM	10.600	0.6	0.780	0.6000	0.468	Standard Error > QC
26	3:06 PM	10.800	0.6	0.700	0.6000	0.420	Standard Error > QC
31	3:10 PM	12.000	0.6	0.540	0.6000	0.324	High % Spikes
32	3:10 PM	12.500	0.6	0.400	0.6000	0.240	Velocity Angle > QC
33	3:11 PM	14.600	None	0.100	0.0000	0.000	Stn Spacing > QC



Discharge Measurement Summary

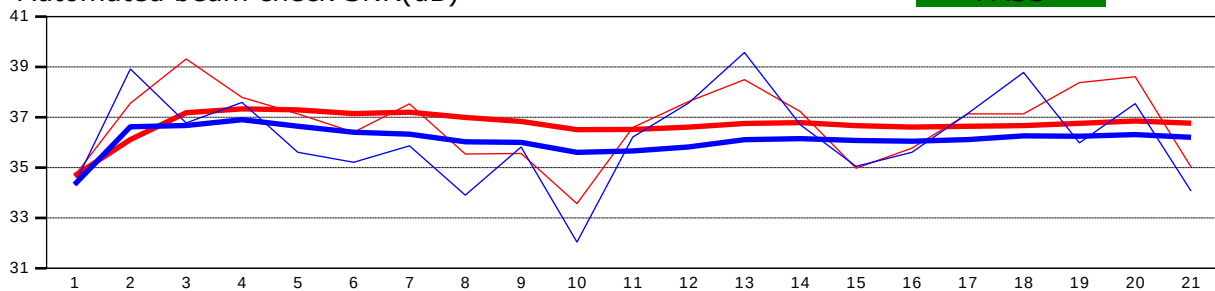
Site name West Muddy Creek abv confl with East Muddy Creek
Site number WMUDDYD4
Operator(s) Lfsc
File name 20240912-151340_West Muddy Creek abv confl with East Muddy Creek.ft
Comment

Beam 1	
Beam 2	

Automated beam check Start time 9/12/2024 2:46:43 PM

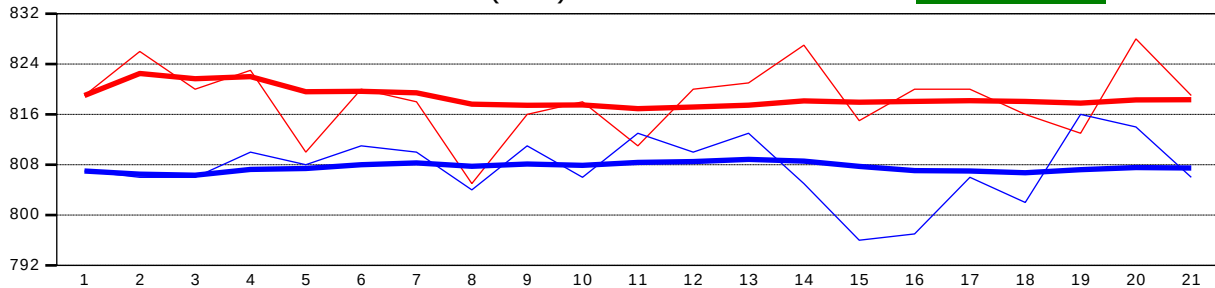
Automated beam check SNR(dB)

PASS



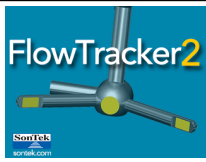
Automated beam check Noise level(cnts)

PASS



Automated beam check Quality control warnings

No quality control warnings



Discharge Measurement Summary

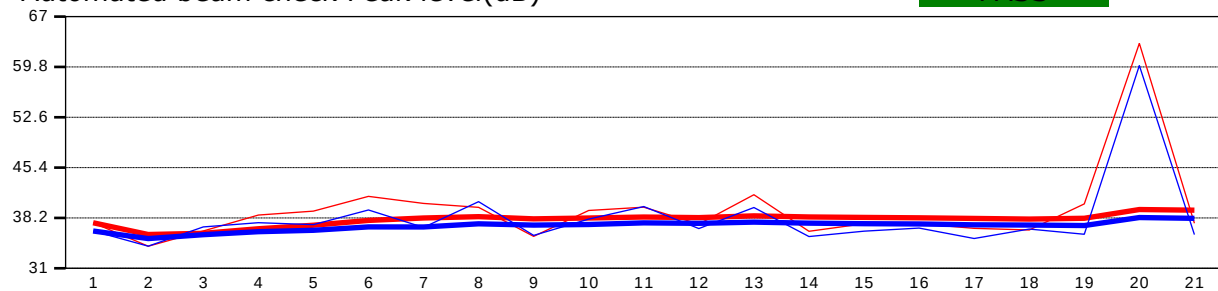
Site name West Muddy Creek abv confl with East Muddy Creek
Site number WMUDDYD4
Operator(s) Lfsc
File name 20240912-151340_West Muddy Creek abv confl with East Muddy Creek.ft
Comment

Beam 1	
Beam 2	

Automated beam check Start time 9/12/2024 2:46:43 PM

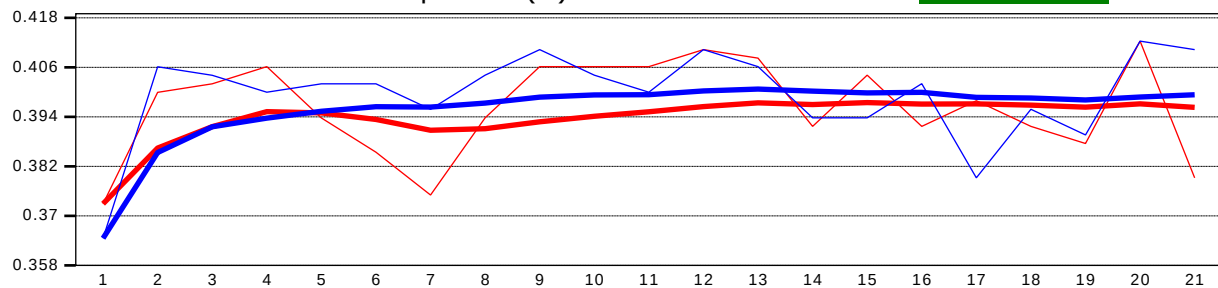
Automated beam check Peak level(dB)

PASS



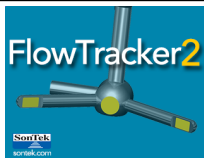
Automated beam check Peak position(ft)

PASS



Automated beam check Quality control warnings

No quality control warnings



Discharge Measurement Summary

Site name	West Muddy Creek abv confl with East Muddy Creek
Site number	WMUDDYD4
Operator(s)	Lfsc
File name	20241008-102159_West Muddy Creek abv confl with East Muddy Creek.ft
Comment	

Start time	10/8/2024 9:51 AM	Sensor type	Top Setting
End time	10/8/2024 10:18 AM	Handheld serial number	FT2H2322006
Start location latitude	39.000	Probe serial number	FT2P2319001
Start location longitude	-107.358	Probe firmware	1.30
Calculations engine	FlowTracker2	Handheld software	1.7

# Stations	Avg interval (s)	Total discharge (ft³/s)
31	40	1.4870

Total width (ft)	Total area (ft²)	Wetted Perimeter (ft)
11.800	5.2508	12.740

Mean SNR (dB)	Mean depth (ft)	Mean velocity (ft/s)
19	0.445	0.2832

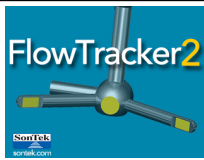
Mean temp (°F)	Max depth (ft)	Max velocity (ft/s)
41.143	0.850	0.5384

Discharge Uncertainty		
Category	ISO	IVE
Accuracy	1.0%	1.0%
Depth	0.3%	4.2%
Velocity	1.0%	4.7%
Width	0.1%	0.1%
Method	1.5%	
# Stations	1.7%	
Overall	2.7%	6.4%

Discharge equation	Mid Section
Discharge uncertainty	IVE
Discharge reference	Rated

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

Summary overview
No changes were made to this file
Quality control warnings



Discharge Measurement Summary

Site name West Muddy Creek abv confl with East Muddy Creek
Site number WМУDDYD4
Operator(s) Lfsc
File name 20241008-102159_West Muddy Creek abv confl with East Muddy Creek.ft
Comment

Station Warning Settings

Station discharge OK

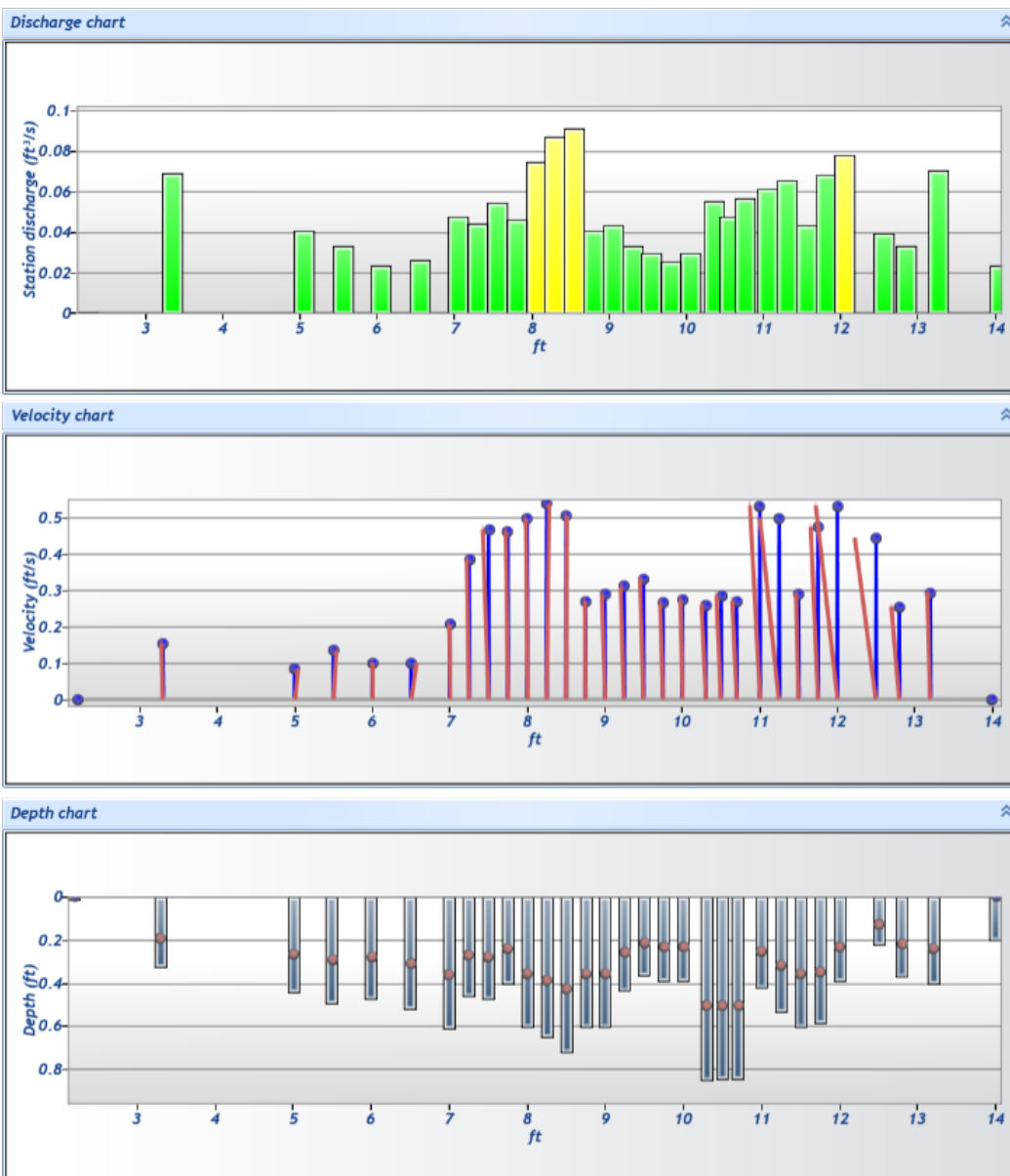
Station discharge < 5.00%

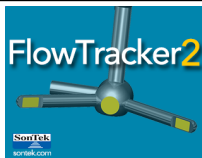
Station discharge caution

5.00% >= Station discharge < 10.00%

Station discharge warning

Station discharge >= 10.00%

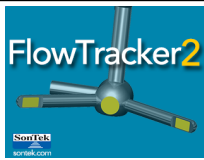




Discharge Measurement Summary

Site name	West Muddy Creek abv confl with East Muddy Creek
Site number	WMUDDYD4
Operator(s)	Lfsc
File name	20241008-102159_West Muddy Creek abv confl with East Muddy Creek.ft
Comment	

Measurement results															
St#	Time	Location (ft)	Method	Depth (ft)	%Depth	Measured Depth (ft)	Samples	Velocity (ft/s)	Correcti on	Mean Velocity (ft/s)	Area (ft ²)	Flow (ft ³ /s)	%Q		
30	10:18 AM	2.200	None	0.010	0.0000	0.000	0	0.0000	1.0000	0.1541	0.0055	0.0008	0.06	✓	
29	10:16 AM	3.300	0.6	0.320	0.6000	0.192	37	0.1541	1.0000	0.1541	0.4480	0.0690	4.64	✓	
28	10:16 AM	5.000	0.6	0.440	0.6000	0.264	37	0.0839	1.0000	0.0839	0.4840	0.0406	2.73	✓	
27	10:15 AM	5.500	0.6	0.490	0.6000	0.294	28	0.1346	1.0000	0.1346	0.2450	0.0330	2.22	✓	
26	10:15 AM	6.000	0.6	0.470	0.6000	0.282	35	0.1002	1.0000	0.1002	0.2350	0.0235	1.58	✓	
25	10:14 AM	6.500	0.6	0.520	0.6000	0.312	44	0.1005	1.0000	0.1005	0.2600	0.0261	1.76	✓	
24	10:13 AM	7.000	0.6	0.610	0.6000	0.366	33	0.2073	1.0000	0.2073	0.2288	0.0474	3.19	✓	
23	10:12 AM	7.250	0.6	0.460	0.6000	0.276	24	0.3855	1.0000	0.3855	0.1150	0.0443	2.98	✓	
22	10:11 AM	7.500	0.6	0.470	0.6000	0.282	19	0.4677	1.0000	0.4677	0.1175	0.0550	3.70	✓	
21	10:10 AM	7.750	0.6	0.400	0.6000	0.240	46	0.4637	1.0000	0.4637	0.1000	0.0464	3.12	✓	
20	10:10 AM	8.000	0.6	0.600	0.6000	0.360	24	0.4970	1.0000	0.4970	0.1500	0.0745	5.01	✓	
19	10:09 AM	8.250	0.6	0.650	0.6000	0.390	30	0.5384	1.0000	0.5384	0.1625	0.0875	5.88	✓	
18	10:08 AM	8.500	0.6	0.720	0.6000	0.432	23	0.5063	1.0000	0.5063	0.1800	0.0911	6.13	✓	
17	10:08 AM	8.750	0.6	0.600	0.6000	0.360	34	0.2714	1.0000	0.2714	0.1500	0.0407	2.74	✓	
16	10:07 AM	9.000	0.6	0.600	0.6000	0.360	39	0.2888	1.0000	0.2888	0.1500	0.0433	2.91	✓	
15	10:06 AM	9.250	0.6	0.430	0.6000	0.258	18	0.3115	1.0000	0.3115	0.1075	0.0335	2.25	✓	
14	10:06 AM	9.500	0.6	0.360	0.6000	0.216	47	0.3334	1.0000	0.3334	0.0900	0.0300	2.02	✓	
13	10:05 AM	9.750	0.6	0.390	0.6000	0.234	40	0.2658	1.0000	0.2658	0.0975	0.0259	1.74	✓	
12	10:04 AM	10.000	0.6	0.390	0.6000	0.234	30	0.2756	1.0000	0.2756	0.1073	0.0296	1.99	✓	
11	9:59 AM	10.300	0.6	0.850	0.6000	0.510	25	0.2603	1.0000	0.2603	0.2125	0.0553	3.72	✓	
10	10:00 AM	10.500	0.6	0.840	0.6000	0.504	49	0.2854	1.0000	0.2854	0.1680	0.0479	3.22	✓	
9	9:58 AM	10.700	0.6	0.840	0.6000	0.504	63	0.2707	1.0000	0.2707	0.2100	0.0569	3.82	✓	
8	9:57 AM	11.000	0.6	0.420	0.6000	0.252	62	0.5329	1.0000	0.5329	0.1155	0.0616	4.14	✓	
7	10:02 AM	11.250	0.6	0.530	0.6000	0.318	26	0.4983	1.0000	0.4983	0.1325	0.0660	4.44	✓	
6	9:56 AM	11.500	0.6	0.600	0.6000	0.360	37	0.2909	1.0000	0.2909	0.1500	0.0436	2.93	✓	
5	10:01 AM	11.750	0.6	0.580	0.6000	0.348	39	0.4743	1.0000	0.4743	0.1450	0.0688	4.63	✓	
4	9:55 AM	12.000	0.6	0.390	0.6000	0.234	21	0.5329	1.0000	0.5329	0.1463	0.0779	5.24	✓	
3	9:53 AM	12.500	0.6	0.220	0.6000	0.132	79	0.4448	1.0000	0.4448	0.0880	0.0391	2.63	✓	
2	9:52 AM	12.800	0.6	0.370	0.6000	0.222	47	0.2554	1.0000	0.2554	0.1295	0.0331	2.22	✓	
1	9:51 AM	13.200	0.6	0.400	0.6000	0.240	35	0.2949	1.0000	0.2949	0.2400	0.0708	4.76	✓	
0	9:51 AM	14.000	None	0.200	0.0000	0.000	0	0.0000	1.0000	0.2949	0.0800	0.0236	1.59	✓	

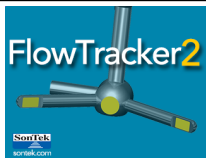


Discharge Measurement Summary

Site name	West Muddy Creek abv confl with East Muddy Creek
Site number	WMUDDYD4
Operator(s)	Lfsc
File name	20241008-102159_West Muddy Creek abv confl with East Muddy Creek.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
28	10:16 AM	5.000	0.6	0.440	0.6000	0.264	Velocity Angle > QC
26	10:15 AM	6.000	0.6	0.470	0.6000	0.282	Stn Spacing > QC
25	10:14 AM	6.500	0.6	0.520	0.6000	0.312	Velocity Angle > QC
7	10:02 AM	11.250	0.6	0.530	0.6000	0.318	Velocity Angle > QC
5	10:01 AM	11.750	0.6	0.580	0.6000	0.348	Standard Error > QC
4	9:55 AM	12.000	0.6	0.390	0.6000	0.234	Velocity Angle > QC
3	9:53 AM	12.500	0.6	0.220	0.6000	0.132	Velocity Angle > QC
2	9:52 AM	12.800	0.6	0.370	0.6000	0.222	Velocity Angle > QC
1	9:51 AM	13.200	0.6	0.400	0.6000	0.240	SNR Threshold Variation



Discharge Measurement Summary

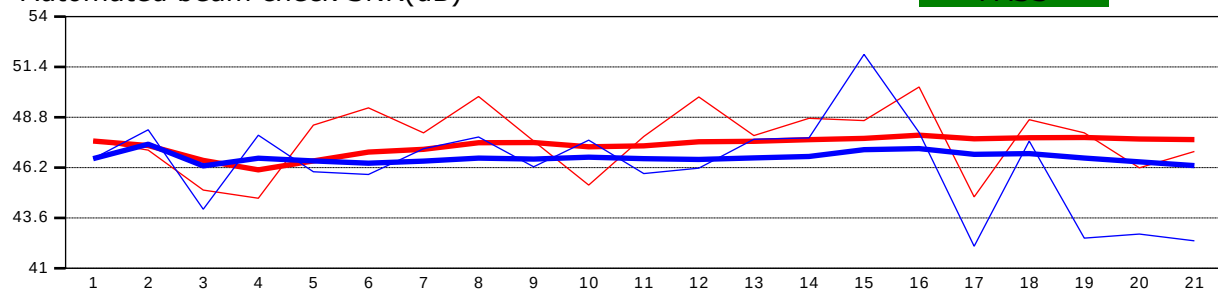
Site name West Muddy Creek abv confl with East Muddy Creek
Site number WMUDDYD4
Operator(s) Lfsc
File name 20241008-102159_West Muddy Creek abv confl with East Muddy Creek.ft
Comment

Beam 1	
Beam 2	

Automated beam check Start time 10/8/2024 9:50:21 AM

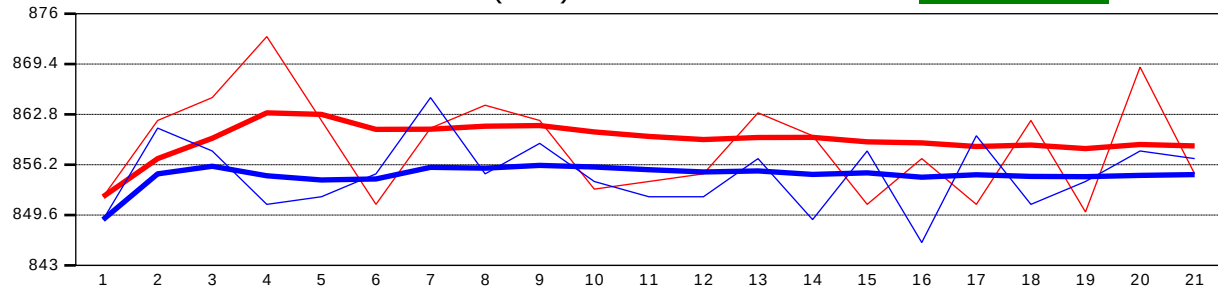
Automated beam check SNR(dB)

PASS



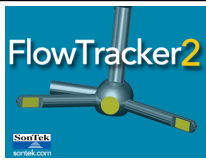
Automated beam check Noise level(cnts)

PASS



Automated beam check Quality control warnings

No quality control warnings



Discharge Measurement Summary

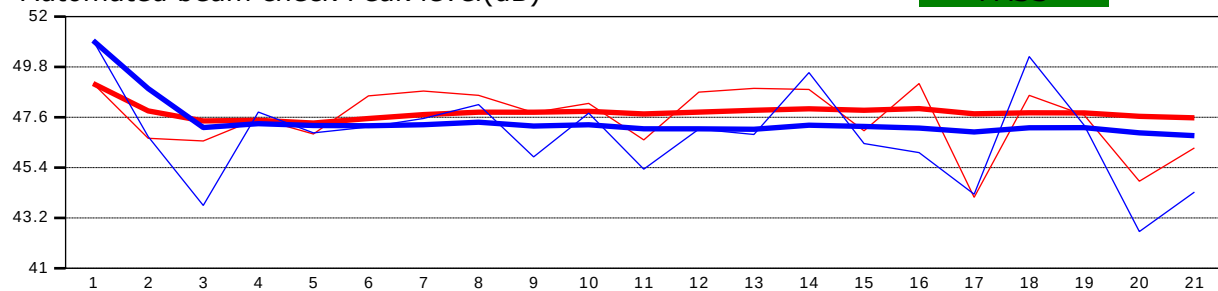
Site name West Muddy Creek abv confl with East Muddy Creek
Site number WMUDDYD4
Operator(s) Lfsc
File name 20241008-102159_West Muddy Creek abv confl with East Muddy Creek.ft
Comment

Beam 1	
Beam 2	

Automated beam check Start time 10/8/2024 9:50:21 AM

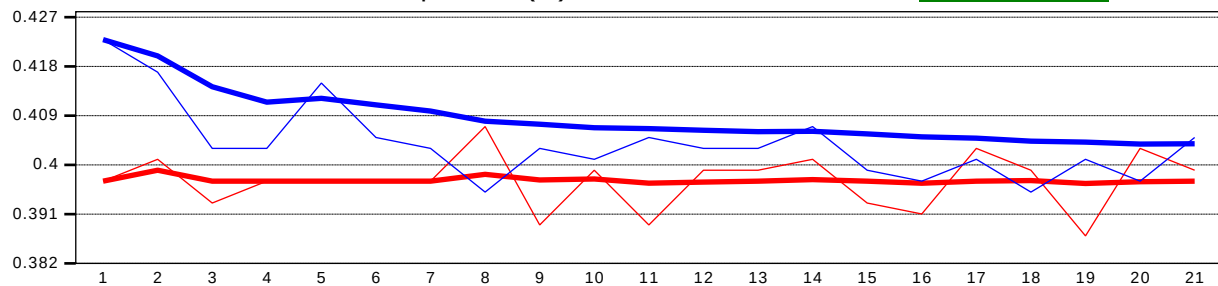
Automated beam check Peak level(dB)

PASS



Automated beam check Peak position(ft)

PASS



Automated beam check Quality control warnings

No quality control warnings



COLORADO

Colorado Water
Conservation Board

Department of Natural Resources

1313 Sherman Street, Room 718
Denver, CO 80203

West Muddy Creek Temporary Streamgage

Location: 13N 295780 4319463

Installation Date: April 13, 2022

Equipment: Onset HOBO MX2001 water level logger, staff gage, and trail camera.

Description: The streamgage consists of a datalogger and a pressure transducer protected in a 2 inch width PVC pipe, secured to the bank with fence post. The pressure transducer measured water level and temperature on a 15 minute intervals in a pool formed by boulders at the top of a riffle. A co-located staff gage and reference marks were used to calibrate the water level measured by the pressure transducer. A trail camera was used to document conditions at the gage site, such as ice.





















