United States Department of the Interior

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

In Reply Refer To:
7250 (CO-932)

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

Dear Mr. Viehl:

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

Location and Land Status. Monitor Creek originates near Columbine Pass on the Uncompahgre Plateau and flows into Potter Creek approximately nine miles southwest of Delta, CO. This recommendation covers the stream reach beginning at the confluence with Little Monitor Creek and extends downstream to the confluence with Potter Creek. This stream reach covers a distance of approximately 7.9 miles. The entire reach is owned and managed by the Bureau of Land Management.

Biological Summary. This portion of Monitor Creek is a cool-water, moderate gradient stream located in a narrow canyon. The stream has variable substrate, ranging from gravels to large boulders. The stream exhibits good bank stability and a good mix of riffle, run and pool habitat. Fish populations are limited by low flows and, specifically for rainbow trout, fish populations are limited by high stream temperatures in late summer and fall.

Biological surveys indicate that Monitor Creek provides important spawning habitat for two BLM sensitive fish species, bluehead sucker and flannelmouth sucker. In addition, surveys have documented that speckled dace, white sucker, and rainbow trout utilize the creek. Amphibian species that inhabit the creek corridor include northern leopard frog, which appears on BLM's sensitive species list, and Woodhouse toads.

Macroinvertebrate surveys indicate populations of mayfly and caddisfly that appear to support the fish population. Sampling conducted in 2003 and 2004 indicated good macroinvertebrate richness and abundance but also indicated some slight organic pollution. Sampling conducted in 2018 found that the stream conforms with the CDPHE Aquatic Life Use Attainment Policy with a macroinvertebrate multi-metric index score of 46.5.

Riparian communities along Monitor Creek include a narrowleaf cottonwood and red osier dogwood community as well as a community comprised of coyote willow and multiple species of grass-like herbaceous plants.

R2Cross Analysis. BLM collected the following R2Cross data from Monitor 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)
05/10/2012 #1	2.00 cfs	22.7 feet	3.20 cfs	5.52 cfs
05/10/2012 #2	1.96 cfs	19.0 feet	1.68 cfs	3.75 cfs
		Averages:	2.44 cfs	4.63 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:

> 4.60 cubic feet per second is recommended during the peak snowmelt season from April 1 through May 31. This recommendation is driven by the average velocity criteria. Monitor Creek experiences consistently low flows during late summer and fall, so it is important to protect as much physical habitat as possible during the limited time when snowmelt runoff flows are available. Protecting this flow rate will help ensure that habitat and passage is available for native species that spawn in the creek.
>
> 3.6 cubic feet per second is recommended for the early summer period, from June 1 to June 30. This recommendation is driven by limited water availability. This flow rate meets two of three instream flow criteria. This flow rate will assist adult fish, young-of-the-year, and larvae in returning to the Roubideau Creek and the Gunnison Creek after spawning is complete.

Water Availability. There is no readily available long-term gage data for this creek. However, the CWCB operated a temporary gage on the creek from 2017 through 2022, and BLM recommends relying upon this data. This data was collected during an extreme drought period, so it is a very conservative estimate of available flow.

BLM is not aware of any decreed water rights within the proposed instream flow reach. However, BLM is aware of the following ditches located upstream from the proposed instream flow reach:

Little Monitor Ditch – 4.0 cfs, 1914 priority
Noah R. White Ditch – 3.0 cfs, 1932 priority
Big Monitor Ditch – 49.85 cfs, 1918 priority
Monitor Ditch – 1.00 cfs, 1905 priority

All of the ditches listed above irrigate lands within the Monitor Creek watershed, so the return flows from diversions should accrue to Monitor Creek. BLM recommends that the CWCB consult the diversion records for these ditches, because it appears that some of the ditches have historically diverted significantly less than the decreed amounts

BLM is also aware that the Everlasting Ditch, decreed for 27.0 cfs with 1901 and 1964 priorities, imports water to the Monitor Creek watershed from Cottonwood Creek, which is parallel to and northwest of Monitor Creek. In addition, the 25 Mesa Upper Ditch, decreed for 7.0 cfs with a 1904 priority, imports some water to the Monitor Creek watershed from Cottonwood Creek.

Relationship to Land Management Plans. BLM's land use plan has determined that Monitor Creek is suitable for designation into the National Wild and Scenic Rivers System based upon globally significant riparian communities. Appropriation of an instream flow water right would assist BLM in long-term management of riparian and aquatic habitats.

Data sheets, R2Cross output, fishery survey information, and photographs of the cross sections have been previously conveyed to the CWCB staff. BLM thanks both Colorado Parks and Wildlife and the Colorado Water Conservation Board for their cooperation in this effort.

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

Sincerely,

Digitally signed by ALAN BITTNER
Date: 2022.12.19 12:28:48 -07'00'

Alan Bittner
Deputy State Director
Resources

Cc:
Jedd Sondergard, Uncompahgre FO
Suzanne Copping, Uncompahgre FO
Stephanie Connolly, Southwest District

COLORADO WATER CONSERVATION BOARD

FIELD DATA FOR INSTREAM FLOW DETERMINATIONS

COLORADO DIVISION OF WILDLIFE

LOCATION INFORMATION

STREAM NAME: Monitor Creek					CROSS-SECTION NO.: 1	
CROSS-SECTION LOCATION: 1/4 mile upstream from confluence with Potter Creek						
DATE: 5-10-12	OBSERVERS: R. Smith, J. Sondergard					
LEGAL DESCRIPTION	¼ SECTION: NE NE	SECTION: 9	TOWNSHIP: 50 (N)/S	RANGE: 12 E/(W)	PM: NM	
COUNTY: Delta	WATERSHED: Gunnison	WATER DIVISION: 4	DOW WATER CODE: 41727			
MAP(S): USGS:	Zone 12 0742884					
USFS:	4278249					

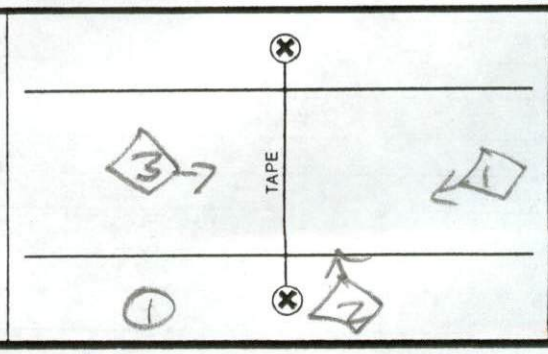
SUPPLEMENTAL DATA

SAG TAPE SECTION SAME AS DISCHARGE SECTION: (YES) NO	METER TYPE: M-M			
METER NUMBER:	DATE RATED:	CALIB/SPIN: ____ sec	TAPE WEIGHT: surveyed ____ lbs/foot	TAPE TENSION: surveyed ____ lbs
CHANNEL BED MATERIAL SIZE RANGE: gravel to 1-foot boulders	PHOTOGRAPHS TAKEN: (YES)/NO	NUMBER OF PHOTOGRAPHS:		

CHANNEL PROFILE DATA

STATION	DISTANCE FROM TAPE (ft)	ROD READING (ft)
⊗ Tape @ Stake LB	0.0	surveyed
⊗ Tape @ Stake RB	0.0	surveyed
① WS @ Tape LB/RB	0.0	
② WS Upstream	32.5'	4.35'
③ WS Downstream	38.8'	5.34'
SLOPE	0.99/71.3' = 0.014	

SKETCH



LEGEND:
Stake ⊗
Station ①
Photo ◇①→
Direction of Flow

AQUATIC SAMPLING SUMMARY

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

LENGTH - FREQUENCY DISTRIBUTION BY ONE-INCH SIZE GROUPS (1.0-1.9, 2.0-2.9, ETC.)

SPECIES (FILL IN)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	>15	TOTAL

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

COMMENTS

Cond = 473
Temp = 17.6° C
Ph = 8.45
Salinity = 0.3

Abundant flannelmouth sucker sighted
Mottled sculpin sighted.

DISCHARGE/CROSS SECTION NOTES

STREAM NAME: Moultor Creek	CROSS-SECTION NO.: 1	DATE: 5-10-12	SHEET ___ OF ___
BEGINNING OF MEASUREMENT	EDGE OF WATER LOOKING DOWNSTREAM: (0.0 AT STAKE) LEFT / RIGHT	Gage Reading: _____ ft	TIME: 11:30 am

Features: Stake (S) Grassline (G) Waterline (W) Rock (R)	Distance From Initial Point (ft)	Width (ft)	Total Vertical Depth From Tape/Inst (ft)	Water Depth (ft)	Depth of Observation (ft)	Revolutions	Time (sec)	Velocity (ft/sec) At Point	Velocity (ft/sec) Mean in Vertical	Area (ft^2)	Discharge (cfs)
RS	0.0		3.32								
G	0.4		4.00								
	1.2		4.16								
RW	2.7		4.57		← ϕ			ϕ			
	3		4.59		.02			ϕ			
	3.5		4.65		.10			ϕ			
	4		4.70		.15			ϕ			
	4.5		4.70		.15			ϕ			
	5		4.75		.20			.17			
	5.5		4.76		.21			.33			
	6		4.70		.15			.13			
	6.5		4.65		.10			.27			
	7		4.78		.23			.57			
	7.5		4.85		← .30			1.19			
	8		4.93		.38			.93			
	8.5		4.90		.35			.66			
	9		5.05		.50			.85			
	9.5		4.70		.15			1.08			
	10		4.75		.20			1.17			
	10.5		4.75		.20			ϕ			
	11		4.70		.15			ϕ			
	11.5		4.80		.25			.91			
	12		4.77		← .22			1.38			
	12.5		4.90		.35			1.12			
	13		4.85		.30			0.63			
	13.5		4.85		.30			0.85			
	14		4.87		.32			0.89			
	14.5		4.80		.25			0.87			
	15		4.70		.15			0.61			
	15.5		4.65		.10			0.13			
	16		4.68		.13			ϕ			
	16.5		4.68		← .13			ϕ			
LW	17.0		4.53								
	21.0		4.52								
G	23.8		3.83								
LS	25.0		3.13								
TOTALS:											

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

STREAM NAME: Monitor Creek
XS LOCATION: 1/4 mile upst fr conf w/ Potter Ck.
XS NUMBER: 1

Constant Manning's n

GL = lowest Grassline elevation corrected for sag
WL = Waterline corrected for variations in field measured water surface elevations and sag

STAGING TABLE

	DIST TO WATER (FT)	TOP WIDTH (FT)	AVG. DEPTH (FT)	MAX. DEPTH (FT)	AREA (SQ FT)	WETTED PERIM. (FT)	PERCENT WET PERIM (%)	HYDR RADIUS (FT)	FLOW (CFS)	AVG. VELOCITY (FT/SEC)
GL	4.00	22.71	0.62	1.05	14.15	23.10	100.0%	0.61	19.28	1.36
	4.00	22.71	0.62	1.05	14.14	23.09	100.0%	0.61	19.26	1.36
	4.05	22.25	0.58	1.00	13.01	22.63	98.0%	0.58	17.00	1.31
	4.10	21.80	0.55	0.95	11.91	22.16	96.0%	0.54	14.88	1.25
	4.15	21.35	0.51	0.90	10.83	21.70	94.0%	0.50	12.88	1.19
	4.20	20.95	0.47	0.85	9.78	21.29	92.2%	0.46	10.99	1.12
	4.25	20.56	0.42	0.80	8.74	20.89	90.4%	0.42	9.23	1.06
	4.30	20.18	0.38	0.75	7.72	20.49	88.7%	0.38	7.61	0.99
	4.35	19.79	0.34	0.70	6.72	20.09	87.0%	0.33	6.12	0.91
	4.40	19.40	0.30	0.65	5.74	19.69	85.3%	0.29	4.77	0.83
	4.45	19.02	0.25	0.60	4.78	19.30	83.5%	0.25	3.56	0.75
	4.50	18.63	0.21	0.55	3.84	18.90	81.8%	0.20	2.51	0.65
WL	4.55	14.30	0.21	0.50	3.02	14.55	63.0%	0.21	2.00	0.66
	4.60	13.68	0.17	0.45	2.32	13.92	60.3%	0.17	1.32	0.57
	4.65	13.07	0.13	0.40	1.65	13.30	57.6%	0.12	0.77	0.47
	4.70	9.78	0.11	0.35	1.07	9.99	43.3%	0.11	0.45	0.43
	4.75	6.59	0.10	0.30	0.65	6.76	29.3%	0.10	0.25	0.39
	4.80	4.59	0.08	0.25	0.37	4.72	20.4%	0.08	0.13	0.35
	4.85	3.09	0.05	0.20	0.17	3.20	13.8%	0.05	0.04	0.26
	4.90	1.39	0.05	0.15	0.06	1.46	6.3%	0.04	0.01	0.23
	4.95	0.47	0.05	0.10	0.02	0.52	2.3%	0.05	0.01	0.24
	5.00	0.24	0.02	0.05	0.01	0.26	1.1%	0.02	0.00	0.15

2 of 3: 3.03 cfs
3 of 3: out of confidence interval

COLORADO WATER CONSERVATION BOARD

FIELD DATA FOR INSTREAM FLOW DETERMINATIONS

COLORADO DIVISION OF WILDLIFE

LOCATION INFORMATION

STREAM NAME: Monitor Creek					CROSS-SECTION NO.: 2	
CROSS-SECTION LOCATION: 1/8 mile upstream from confluence with Potter Ck.						
DATE: 5-10-12	OBSERVERS: R. Smith, J. Soundergard					
LEGAL DESCRIPTION	¼ SECTION: NE NE	SECTION: 9	TOWNSHIP: 50 (N)/S	RANGE: 12 E/(W)	PM: NM	
COUNTY: Delta	WATERSHED: Gunnison	WATER DIVISION: 4	DOW WATER CODE: 41727			
MAP(S):	USGS:					
	USFS:					

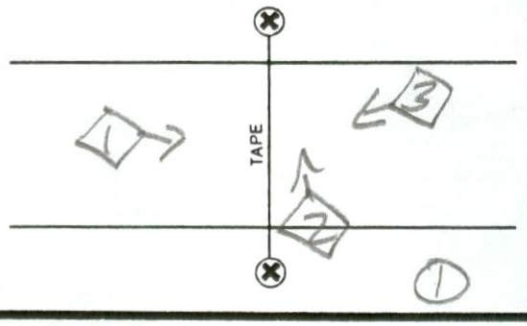
SUPPLEMENTAL DATA

SAG TAPE SECTION SAME AS DISCHARGE SECTION: YES / NO	METER TYPE: M-M			
METER NUMBER:	DATE RATED:	CALIB/SPIN: ____ sec	TAPE WEIGHT: surveyed ___ lbs/foot	TAPE TENSION: surveyed ___ lbs
CHANNEL BED MATERIAL SIZE RANGE: gravel to 1-foot boulders	PHOTOGRAPHS TAKEN: (YES)/NO	NUMBER OF PHOTOGRAPHS: 3		

CHANNEL PROFILE DATA

STATION	DISTANCE FROM TAPE (ft)	ROD READING (ft)
⊗ Tape @ Stake LB	0.0	surveyed
⊗ Tape @ Stake RB	0.0	surveyed
① WS @ Tape LB/RB	0.0	5.30 / 5.30
② WS Upstream	32.5	4.65
③ WS Downstream	40.0	5.64
SLOPE	0.99/72.5 = 0.014	

SKETCH



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

AQUATIC SAMPLING SUMMARY

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

LENGTH - FREQUENCY DISTRIBUTION BY ONE-INCH SIZE GROUPS (1.0-1.9, 2.0-2.9, ETC.)

SPECIES (FILL IN)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	>15	TOTAL

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

mayfly, caddisfly

COMMENTS

Cond = 473
Temp = 17.6°C
Ph = 8.45
Salinity = 0.3

DISCHARGE/CROSS SECTION NOTES

STREAM NAME: Monitor Creek | CROSS-SECTION NO.: 2 | DATE: 5-10-12 | SHEET ___ OF ___

BEGINNING OF MEASUREMENT | EDGE OF WATER LOOKING DOWNSTREAM: (0.0 AT STAKE) LEFT / RIGHT | Gage Reading: _____ ft | TIME: 1:05 pm

Features (Stake (S), Grassline (G), Waterline (W), Rock (R))	Distance From Initial Point (ft)	Width (ft)	Total Vertical Depth From Tape/Inst (ft)	Water Depth (ft)	Depth of Observation (ft)	Revolutions	Time (sec)	Velocity (ft/sec) At Point	Velocity (ft/sec) Mean in Vertical	Area (ft^2)	Discharge (cfs)
LS	0.0		2.79								
G	0.5		4.02								
W	1.9		5.30								
	2		5.42	.12				0			
	2.5		5.45	.15				0.52			
	3		5.3	0				0			
	3.5		5.70	.40				1.40			
	4		5.78	.48				1.06			
	4.5		5.78	.48				.95			
	5		5.55	.25				1.07			
	5.5		5.65	.35				.65			
	6		5.55	.25				0			
	6.5		5.80	.50				1.00			
	7		5.65	.35				1.43			
	7.5		5.62	.32				1.08			
	8		5.60	.30				.27			
	8.5		5.49	.19				.27			
	9		5.30	0				0			
	9.5		5.55	.25				0			
	10		5.50	.20				.43			
	10.5		5.40	.10				.75			
	11		5.40	.10				.66			
	11.5		5.30	0				0			
	12		5.30	0				0			
	12.5		5.45	.15				.18			
	13		5.48	.18				.55			
	13.5		5.37	.07				0			
	14		5.40	.1				0			
	14.5		5.40	.1				0			
	15		5.30	0				0			
W	15.5		5.30								
	18.0		4.67								
G	19.5		4.02								
RS	24.0		3.15								
TOTALS:											

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

STREAM NAME: Monitor Creek
XS LOCATION: 1/8 mile upst from conf w/ Potter Ck.
XS NUMBER: 2

Constant Manning's n

GL = lowest Grassline elevation corrected for sag
WL = Waterline corrected for variations in field measured water surface elevations and sag

STAGING TABLE

	DIST TO WATER (FT)	TOP WIDTH (FT)	AVG. DEPTH (FT)	MAX. DEPTH (FT)	AREA (SQ FT)	WETTED PERIM. (FT)	PERCENT WET PERIM (%)	HYDR RADIUS (FT)	FLOW (CFS)	AVG. VELOCITY (FT/SEC)
GL	4.02	19.00	1.26	1.78	23.88	20.26	100.0%	1.18	56.71	2.38
	4.30	18.05	1.04	1.50	18.69	19.14	94.5%	0.98	39.15	2.10
	4.35	17.88	1.00	1.45	17.79	18.94	93.5%	0.94	36.32	2.04
	4.40	17.71	0.95	1.40	16.90	18.74	92.5%	0.90	33.58	1.99
	4.45	17.54	0.91	1.35	16.02	18.54	91.5%	0.86	30.94	1.93
	4.50	17.37	0.87	1.30	15.15	18.34	90.5%	0.83	28.38	1.87
	4.55	17.20	0.83	1.25	14.28	18.14	89.5%	0.79	25.92	1.82
	4.60	17.03	0.79	1.20	13.43	17.94	88.6%	0.75	23.56	1.75
	4.65	16.86	0.75	1.15	12.58	17.74	87.6%	0.71	21.29	1.69
	4.70	16.64	0.71	1.10	11.74	17.50	86.4%	0.67	19.16	1.63
	4.75	16.38	0.67	1.05	10.92	17.22	85.0%	0.63	17.15	1.57
	4.80	16.13	0.63	1.00	10.10	16.94	83.6%	0.60	15.24	1.51
	4.85	15.88	0.59	0.95	9.30	16.66	82.2%	0.56	13.43	1.44
	4.90	15.62	0.55	0.90	8.52	16.38	80.9%	0.52	11.72	1.38
	4.95	15.37	0.50	0.85	7.74	16.10	79.5%	0.48	10.11	1.31
	5.00	15.12	0.46	0.80	6.98	15.82	78.1%	0.44	8.61	1.23
	5.05	14.87	0.42	0.75	6.23	15.55	76.7%	0.40	7.21	1.16
	5.10	14.61	0.38	0.70	5.49	15.27	75.3%	0.36	5.91	1.08
	5.15	14.36	0.33	0.65	4.77	14.99	74.0%	0.32	4.73	0.99
	5.20	14.11	0.29	0.60	4.06	14.71	72.6%	0.28	3.66	0.90
	5.25	13.85	0.24	0.55	3.36	14.43	71.2%	0.23	2.70	0.81
WL	5.30	12.60	0.21	0.50	2.67	13.15	64.9%	0.20	1.96	0.74
	5.35	11.43	0.18	0.45	2.07	11.90	58.7%	0.17	1.37	0.66
	5.40	8.63	0.18	0.40	1.54	9.00	44.4%	0.17	1.01	0.66
	5.45	7.00	0.16	0.35	1.14	7.31	36.1%	0.16	0.71	0.62
	5.50	5.80	0.14	0.30	0.83	6.06	29.9%	0.14	0.47	0.56
	5.55	4.91	0.11	0.25	0.56	5.13	25.3%	0.11	0.27	0.49
	5.60	3.92	0.09	0.20	0.34	4.08	20.1%	0.08	0.14	0.41
	5.65	2.15	0.09	0.15	0.19	2.25	11.1%	0.08	0.08	0.41
	5.70	1.71	0.05	0.10	0.09	1.77	8.7%	0.05	0.03	0.30
	5.75	1.02	0.02	0.05	0.03	1.05	5.2%	0.02	0.00	0.18

3 of 3 = 4.86 cfs
2 of 3 = 1.76 cfs

9-275-F
(May 1971)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

WATER RESOURCES DIVISION

DISCHARGE MEASUREMENT NOTES

12S 742995 4278311

Meas. No. ______

Comp. by ______

Checked by ______

Sta. No. ______
Monitor Creek (D674275082R00151)

Date 5/20, 19 2003 Party Clements, murphy, Johnson, Massy

Width 15.6 Area 8.13 Vel. ______ G. H. ______ Disch. 12.89

Method ______ No. secs. ______ G. H. change ______ in ______ hrs. Susp. ______

Method coef. ______ Hor. angle coef. ______ Susp. coef. ______ Meter No. ______

GAGE READINGS				
Time		Recorder	Inside	Outside
Weighted M. G. H.				
G. H. correction				
Correct M. G. H.				

Type of meter pygmy

Date rated ______ for rod, other.

Meter ______ ft. above bottom of weight.

Spin before meas. ______ after ______

Meas. plots ____ % diff. from rating ______

Wading, cable, ice, boat, upstr., downstr., side bridge ______ feet, mile, above, below gage, and ______

Check-bar, found ______ changed to ______ at ______

Correct ______

Levels obtained ______

Measurement rated excellent (2%), good (5%), fair (8%), poor (over 8%), based on following conditions: Cross section ______

Flow ______ Weather Clear warm

Other ______ Air 21 °C °F@ 1PM

Gage ______ Water 13° °C °F@ 12:47

______ Record removed ______ Intake flushed ______

Observer ______

E Conductivity 240 us/cm

Control ______ Litmus pH 7.5

Remarks WATER High & Turbid

MACRO & Chemical sample Taken

G. H. of zero flow ______ ft.

River at—

Angle coefficient	Dist. from initial point	Width	Depth	Observation depth	Revolutions	Time in seconds	VELOCITY At point	VELOCITY Mean in vertical	Adjusted for hor. angle or ______	Area	
LEW	9.4										
	10.5	1.05	0.1		40	44	.916			.11	.101
	11.5	1	0.1		31	40	1.50			.1	.15
	12.5	1	0.25		28	40	.71			.25	.18
	13.5	1	0.1		41	40	1.0278			.1	.12
	14.5	1	0.5		84	40	2.078			.5	1.04
	15.5	1	0.55		97	40	2.3965			.55	1.32
	16.5	1	0.50		87	40	1.6615			.5	.83
	17.5	1	0.80		40	40	1.0			.8	.8
	18.5	1	0.70		60	40	1.49			.7	1.04
	19.5	1	0.90		70	40	1.735			.9	1.56
	20.5	1	0.80		81	40	2.045			.8	1.60
	21.5	1	0.80		89	41	1.954			.8	1.56
	22.5	1	0.80		80	50	1.59			.8	1.27
⊙	23.5	1	0.60		60	44	1.36			.6	.82
	24.5	1.55	0.40		33	41	.8144			.62	.50
							0				
REW	26.6	15.6								8.13	12.89
			.527								

.0 .10 .20 .30 .40 .50 .60 .70 .75

.90 .92 .94 .96 .97 .98 .99 1.00 .99 .98 .97 .96 .94 .92 .90 .85 .80

9-275-F
(May 1971)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WATER RESOURCES DIVISION

DISCHARGE MEASUREMENT NOTES

Meas. No. .....
Comp. by .....
Checked by .....

Sta. No. MONITOR CREEK 10674275 082 R00151
Date 5/25/04, 19 Party CLAPP, JOHNSON
Width ..... Area ..... Vel. ..... G. H. ..... Disch. 2.32 2.36
Method ..... No. secs. ..... G. H. change ..... in ..... hrs. Susp. .....
Method coef. ..... Hor. angle coef. ..... Susp. coef. ..... Meter No. .....
Type of meter MARSH-MCBIRNEY
Date rated ..... for rod, other.
Meter ..... ft. above bottom of weight.
Spin before meas. ..... after .....
Meas. plots .... % diff. from rating .....
Wading, cable, ice, boat, upstr., downstr., side bridge ..... feet, mile, above, below gage, and .....
Check-bar, found .....
changed to ..... at .....
Correct .....
Levels obtained .....

GAGE READINGS

Time		Recorder	Inside	Outside
Weighted M. G. H.				
G. H. correction				
Correct M. G. H.				

Measurement rated excellent (2%) (good (5%)) fair (8%), poor (over 8%), based on following conditions: Cross section .....
Flow ..... Weather .....
Other ..... Air 27 °F@ 3:30 P
Gage ..... Water 22.5 °F@ 4:45 P
..... Record removed ..... Intake flushed U .....
Observer .....
Control COND. 547 PH 8.5
Remarks WARM DRY WINDY MCR FLOWS BANKFULL HAS BEEN MUCH HIGHER RECENTLY
G. H. of zero flow ..... ft.

River at—

Angle coefficient	Dist. from initial point	Width	Depth	Observation depth	Revolutions	Time in seconds	VELOCITY At point	VELOCITY Mean in vertical	Adjusted for hor. angle or	Area
LEW	6.5									
	6.9		.20					.25		
	7.35		.20					.29		
	7.8		.35					.55		
			feet							
LEW	6.5									
	6.8		.2					.12		
	7.25		.25					.32		
	7.8		.37					.69		
	8.1		.4					.93		
	8.65		.39					1.84		
	9.0		.3					1.82		
	9.3		.3					.72		
	9.8		.5					1.02		
⊙	10.3		.47					.85		
	10.8		.5					1.85		
	11.3		.45					1.07		
	12.0		.4					.64		
	12.35		.4					0		
	12.9		.3					.37		
	13.6		.3					.1		
	13.8		.2					-.04		
REW	14.3									

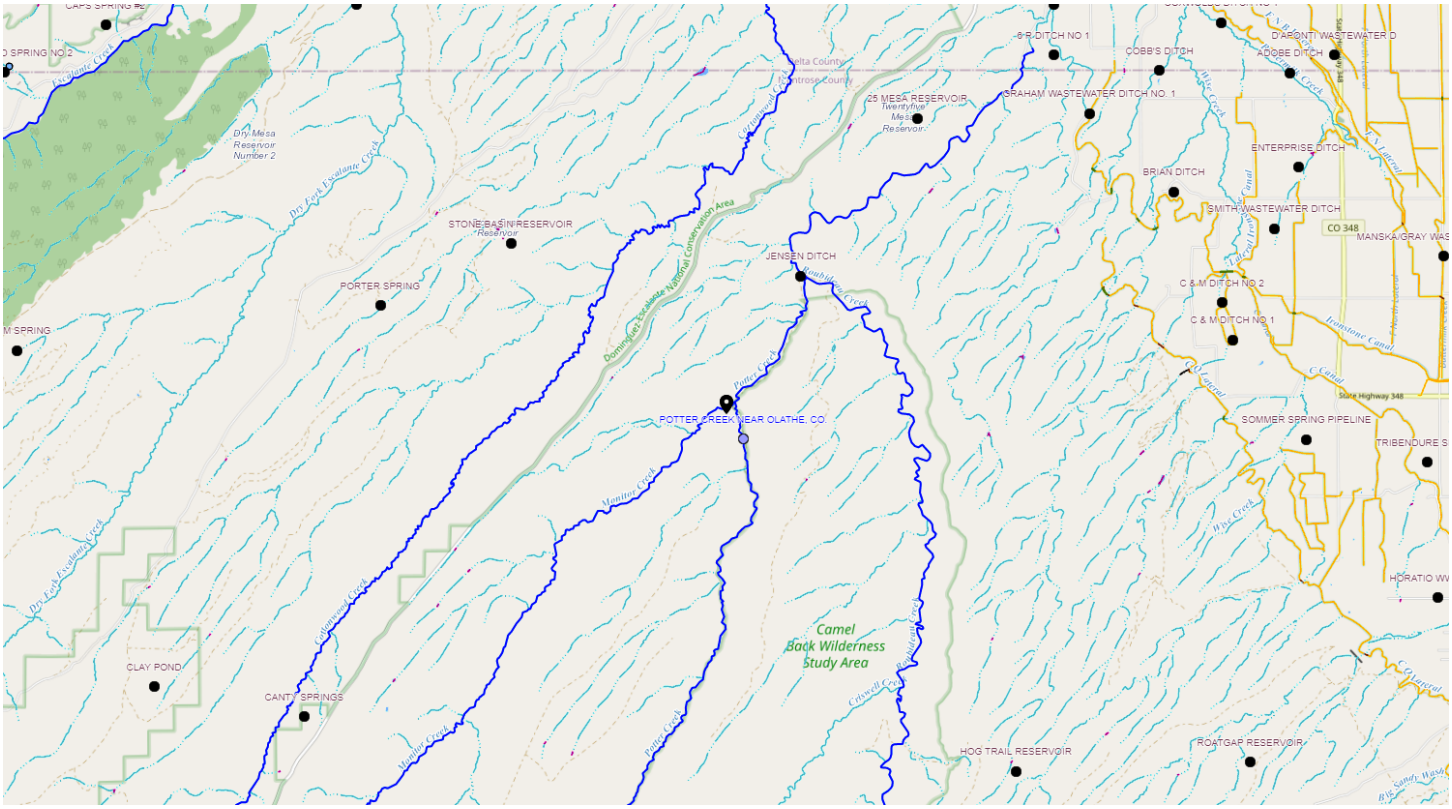
.0 .10 .20 .30 .40 .50 .60 .70 .75

.85 .90 .92 .94 .96 .97 .98 .99 1.00 .99 .98 .97 .96 .94 .92 .90 .85 .80

R2Cross RESULTS

Stream Name: Monitor Cr
Stream Locations: 1/4 mile upst fr conf w/ Potter Ck.
Fieldwork Date: 05/10/2012
Cross-section:
Observers: 1
Coordinate System: UTM Zone 12
X (easting): 742884
Y (northing): 4278249
Date Processed: 10/27/2022
Slope: 0.014
Discharge: R2Cross data file: 2 (cfs)
Computation method: Ferguson VPE
R2Cross data filename: Monitor Creek 5-10-12 #1.xlsx
R2Cross version: 2.0.0

LOCATION



ANALYSIS RESULTS

Habitat Criteria Results

Bankfull top width (ft) = 22.71

	Habitat Criteria	Discharge (cfs) Meeting Criteria
Mean Depth (ft)	0.2	3.2
Percent Wetted Perimeter (%)	50.0	0.39
Mean Velocity (ft/s)	1.0	5.52

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	22.71	0.62	1.05	14.15	23.1	100.0	0.61	0.05	2.67	37.83
	4.0	22.71	0.62	1.05	14.14	23.09	99.98	0.61	0.05	2.67	37.77
	4.05	22.25	0.58	1.0	13.01	22.63	97.97	0.58	0.05	2.49	32.36
	4.1	21.8	0.55	0.95	11.91	22.16	95.96	0.54	0.05	2.3	27.38
	4.15	21.35	0.51	0.9	10.83	21.7	93.95	0.5	0.05	2.1	22.8
	4.2	20.95	0.47	0.85	9.78	21.29	92.17	0.46	0.06	1.9	18.59
	4.25	20.56	0.42	0.8	8.74	20.89	90.45	0.42	0.06	1.69	14.8
	4.3	20.18	0.38	0.75	7.72	20.49	88.72	0.38	0.06	1.48	11.45
	4.35	19.79	0.34	0.7	6.72	20.09	87.0	0.33	0.07	1.27	8.54
	4.4	19.41	0.3	0.65	5.74	19.69	85.27	0.29	0.07	1.06	6.07
	4.45	19.02	0.25	0.6	4.78	19.3	83.54	0.25	0.08	0.85	4.05
	4.5	18.63	0.21	0.55	3.84	18.9	81.82	0.2	0.09	0.64	2.47
Waterline	4.55	14.3	0.21	0.5	3.02	14.55	63.02	0.21	0.09	0.66	2.0
	4.6	13.68	0.17	0.45	2.32	13.92	60.26	0.17	0.11	0.48	1.12
	4.65	13.07	0.13	0.4	1.65	13.3	57.6	0.12	0.14	0.32	0.52
	4.7	9.78	0.11	0.35	1.07	9.99	43.26	0.11	0.16	0.25	0.27
	4.75	6.59	0.1	0.3	0.65	6.76	29.26	0.1	0.17	0.22	0.14
	4.8	4.59	0.08	0.25	0.37	4.72	20.44	0.08	0.2	0.16	0.06
	4.85	3.09	0.05	0.2	0.17	3.2	13.84	0.05	0.28	0.09	0.01
	4.9	1.39	0.05	0.15	0.06	1.46	6.32	0.04	0.32	0.07	0.0
	4.95	0.47	0.05	0.1	0.02	0.52	2.25	0.05	0.31	0.07	0.0
	5.0	0.24	0.02	0.05	0.01	0.26	1.12	0.02	0.56	0.03	0.0
	5.04	0.07	0.01	0.01	0.0	0.08	0.34	0.01	1.51	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) =	2	(cfs)
Calculated Flow (Qc) =	2	(cfs)
(Qm-Qc)/Qm * 100 =	0.00%	
Measured Waterline (WLm) =	4.55	(ft)
Calculated Waterline (WLc) =	4.55	(ft)
(WLm-WLc)/WLm * 100 =	-0.01%	
Max Measured Depth (Dm) =	0.5	(ft)
Max Calculated Depth (Dc) =	0.5	(ft)
(Dm-Dc)/Dm * 100 =	0.10%	
Mean Velocity =	0.66	(ft/s)
Manning's n =	0.093	
0.4 * Qm =	0.8	(cfs)
2.5 * Qm =	4.99	(cfs)

FIELD DATA

Feature	Station (ft)	Rod Height (ft)	Water depth (ft)	Velocity (ft/s)
	0	3.32		
Bankfull	0.4	4		
	1.2	4.16		
Waterline	2.7	4.57	0	0
	3	4.59	0.02	0
	3.5	4.65	0.1	0
	4	4.7	0.15	0
	4.5	4.7	0.15	0
	5	4.75	0.2	0.17
	5.5	4.76	0.21	0.33
	6	4.7	0.15	0.13
	6.5	4.65	0.1	0.27
	7	4.78	0.23	0.52
	7.5	4.85	0.3	1.19
	8	4.93	0.38	0.93
	8.5	4.9	0.35	0.66
	9	5.05	0.5	0.85
	9.5	4.7	0.15	1.08
	10	4.75	0.2	1.12
	10.5	4.75	0.2	0
	11	4.7	0.15	0
	11.5	4.8	0.25	0.91
	12	4.77	0.22	1.38
	12.5	4.9	0.35	1.12
	13	4.85	0.3	0.63
	13.5	4.85	0.3	0.85
	14	4.87	0.32	0.89
	14.5	4.8	0.25	0.87
	15	4.7	0.15	0.61
	15.5	4.65	0.1	0.13

	16	4.68	0.13	0
	16.5	4.68	0.13	0
Waterline	17	4.53	0	0
	21	4.52		
Bankfull	23.8	3.83		
	25	3.13		

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
0.3	0.02	0.01	0	0
0.5	0.1	0.05	0	0
0.5	0.15	0.07	0	0
0.5	0.15	0.07	0	0
0.5	0.2	0.1	0.02	0.85
0.5	0.21	0.1	0.03	1.73
0.5	0.15	0.07	0.01	0.49
0.5	0.1	0.05	0.01	0.68
0.52	0.23	0.12	0.06	2.99
0.5	0.3	0.15	0.18	8.94
0.51	0.38	0.19	0.18	8.85
0.5	0.35	0.17	0.12	5.78
0.52	0.5	0.25	0.21	10.64
0.61	0.15	0.07	0.08	4.05
0.5	0.2	0.1	0.11	5.61
0.5	0.2	0.1	0	0
0.5	0.15	0.07	0	0
0.51	0.25	0.12	0.11	5.69
0.5	0.22	0.11	0.15	7.6
0.52	0.35	0.17	0.2	9.81
0.5	0.3	0.15	0.09	4.73
0.5	0.3	0.15	0.13	6.38
0.5	0.32	0.16	0.14	7.13
0.5	0.25	0.12	0.11	5.44
0.51	0.15	0.07	0.05	2.29
0.5	0.1	0.05	0.01	0.33

0.5	0.13	0.07	0	0
0.5	0.13	0.07	0	0
0.52	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

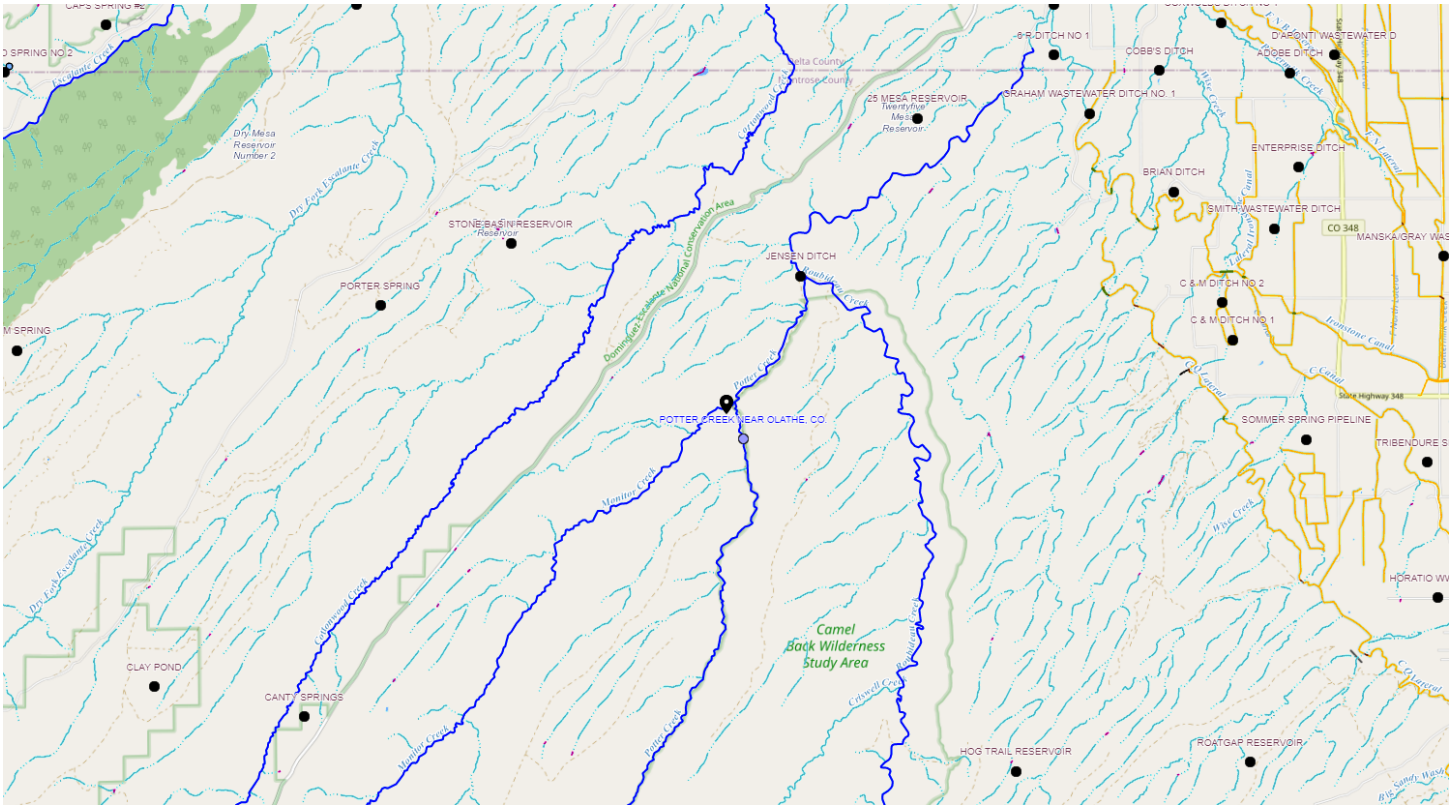
DISCLAIMER

"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: Monitor Creek
Stream Locations: 1/8 mile upst from conf w/ Potter Ck.
Fieldwork Date: 05/10/2012
Cross-section: 2
Observers: R. Smith, J. Sondergard
Coordinate System: UTM Zone 12
X (easting): 742884
Y (northing): 4278249
Date Processed: 10/27/2022
Slope: 0.014
Discharge: R2Cross data file: 1.96 (cfs)
Computation method: Ferguson VPE
R2Cross data filename: Monitor Creek 5-10-12 #2.xlsx
R2Cross version: 2.0.0

LOCATION



ANALYSIS RESULTS

Habitat Criteria Results

Bankfull top width (ft) = 19.0

	Habitat Criteria	Discharge (cfs) Meeting Criteria
Mean Depth (ft)	0.2	1.68
Percent Wetted Perimeter (%)	50.0	1.02
Mean Velocity (ft/s)	1.0	3.75

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	4.02	19.0	1.26	1.78	23.87	20.26	100.0	1.18	0.04	5.54	132.21
	4.05	18.9	1.23	1.75	23.31	20.14	99.41	1.16	0.04	5.45	127.03
	4.1	18.73	1.19	1.7	22.37	19.94	98.42	1.12	0.04	5.3	118.58
	4.15	18.56	1.15	1.65	21.43	19.74	97.44	1.09	0.04	5.15	110.39
	4.2	18.39	1.12	1.6	20.51	19.54	96.45	1.05	0.04	5.0	102.45
	4.25	18.22	1.08	1.55	19.6	19.34	95.46	1.01	0.04	4.84	94.78
	4.3	18.05	1.04	1.5	18.69	19.14	94.48	0.98	0.04	4.67	87.36
	4.35	17.88	1.0	1.45	17.79	18.94	93.49	0.94	0.04	4.51	80.21
	4.4	17.71	0.95	1.4	16.9	18.74	92.5	0.9	0.04	4.34	73.32
	4.45	17.54	0.91	1.35	16.02	18.54	91.52	0.86	0.04	4.16	66.7
	4.5	17.37	0.87	1.3	15.15	18.34	90.53	0.83	0.04	3.98	60.35
	4.55	17.2	0.83	1.25	14.28	18.14	89.54	0.79	0.04	3.8	54.29
	4.6	17.03	0.79	1.2	13.43	17.94	88.56	0.75	0.04	3.61	48.5
	4.65	16.86	0.75	1.15	12.58	17.74	87.57	0.71	0.04	3.42	43.0
	4.7	16.64	0.71	1.1	11.74	17.5	86.35	0.67	0.04	3.23	37.91
	4.75	16.38	0.67	1.05	10.92	17.22	84.98	0.63	0.04	3.04	33.18
	4.8	16.13	0.63	1.0	10.1	16.94	83.6	0.6	0.04	2.85	28.75
	4.85	15.88	0.59	0.95	9.3	16.66	82.23	0.56	0.05	2.65	24.62
	4.9	15.62	0.55	0.9	8.52	16.38	80.85	0.52	0.05	2.44	20.79
	4.95	15.37	0.5	0.85	7.74	16.1	79.47	0.48	0.05	2.23	17.27
	5.0	15.12	0.46	0.8	6.98	15.82	78.1	0.44	0.05	2.02	14.06
	5.05	14.87	0.42	0.75	6.23	15.55	76.72	0.4	0.05	1.79	11.18
	5.1	14.61	0.38	0.7	5.49	15.27	75.35	0.36	0.06	1.57	8.62
	5.15	14.36	0.33	0.65	4.77	14.99	73.97	0.32	0.06	1.34	6.4
	5.2	14.11	0.29	0.6	4.06	14.71	72.6	0.28	0.07	1.11	4.52

	5.25	13.85	0.24	0.55	3.36	14.43	71.22	0.23	0.08	0.89	2.98
Waterline	5.3	12.6	0.21	0.5	2.67	13.15	64.91	0.2	0.08	0.74	1.96
	5.35	11.43	0.18	0.45	2.07	11.9	58.71	0.17	0.09	0.59	1.23
	5.4	8.63	0.18	0.4	1.54	9.0	44.42	0.17	0.09	0.58	0.89
	5.45	7.0	0.16	0.35	1.14	7.31	36.05	0.16	0.1	0.51	0.58
	5.5	5.8	0.14	0.3	0.83	6.06	29.9	0.14	0.11	0.42	0.35
	5.55	4.91	0.11	0.25	0.56	5.13	25.33	0.11	0.13	0.3	0.17
	5.6	3.92	0.09	0.2	0.34	4.08	20.12	0.08	0.16	0.2	0.07
	5.65	2.15	0.09	0.15	0.19	2.25	11.13	0.08	0.16	0.21	0.04
	5.7	1.71	0.05	0.1	0.09	1.77	8.73	0.05	0.24	0.1	0.01
	5.75	1.02	0.02	0.05	0.03	1.05	5.17	0.02	0.45	0.03	0.0
	5.79	0.08	0.01	0.01	0.0	0.09	0.42	0.01	1.27	0.01	0.0

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

MODEL SUMMARY

Measured Flow (Qm) =	1.96	(cfs)
Calculated Flow (Qc) =	1.96	(cfs)
(Qm-Qc)/Qm * 100 =	-0.00%	
Measured Waterline (WLm) =	5.3	(ft)
Calculated Waterline (WLc) =	5.3	(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 =	0.74	(ft/s)
Manning's n =	0.083	
0.4 * Qm =	0.79	(cfs)
2.5 * Qm =	4.91	(cfs)

FIELD DATA

Feature	Station (ft)	Rod Height (ft)	Water depth (ft)	Velocity (ft/s)
	0	2.79		
Bankfull	0.5	4.02		
Waterline	1.9	5.3	0	0
	2	5.42	0.12	0
	2.5	5.45	0.15	0.52
	3	5.3	0	0
	3.5	5.7	0.4	1.4
	4	5.78	0.48	1.06
	4.5	5.78	0.48	0.95
	5	5.55	0.25	1.07
	5.5	5.65	0.35	0.65
	6	5.55	0.25	0
	6.5	5.8	0.5	1
	7	5.65	0.35	1.43
	7.5	5.62	0.32	1.08
	8	5.6	0.3	0.27
	8.5	5.49	0.19	0.27
	9	5.3	0	0
	9.5	5.55	0.25	0
	10	5.5	0.2	0.43
	10.5	5.4	0.1	0.75
	11	5.4	0.1	0.66
	11.5	5.3	0	0
	12	5.3	0	0
	12.5	5.45	0.15	0.18
	13	5.48	0.18	0.55
	13.5	5.37	0.07	0
	14	5.4	0.1	0
	14.5	5.4	0.1	0
	15	5.3	0	0

Waterline	15.5	5.3	0	0
	18	4.67		
Bankfull	19.5	4.02		
	24	3.15		

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
0.16	0.12	0.04	0	0
0.5	0.15	0.07	0.04	1.99
0.52	0	0	0	0
0.64	0.4	0.2	0.28	14.25
0.51	0.48	0.24	0.25	12.95
0.5	0.48	0.24	0.23	11.61
0.55	0.25	0.12	0.13	6.81
0.51	0.35	0.17	0.11	5.79
0.51	0.25	0.12	0	0
0.56	0.5	0.25	0.25	12.73
0.52	0.35	0.17	0.25	12.74
0.5	0.32	0.16	0.17	8.8
0.5	0.3	0.15	0.04	2.06
0.51	0.19	0.1	0.03	1.31
0.53	0	0	0	0
0.56	0.25	0.12	0	0
0.5	0.2	0.1	0.04	2.19
0.51	0.1	0.05	0.04	1.91
0.5	0.1	0.05	0.03	1.68
0.51	0	0	0	0
0	0	0	0	0
0.52	0.15	0.07	0.01	0.69
0.5	0.18	0.09	0.05	2.52
0.51	0.07	0.04	0	0
0.5	0.1	0.05	0	0
0.5	0.1	0.05	0	0
0.51	0	0	0	0

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

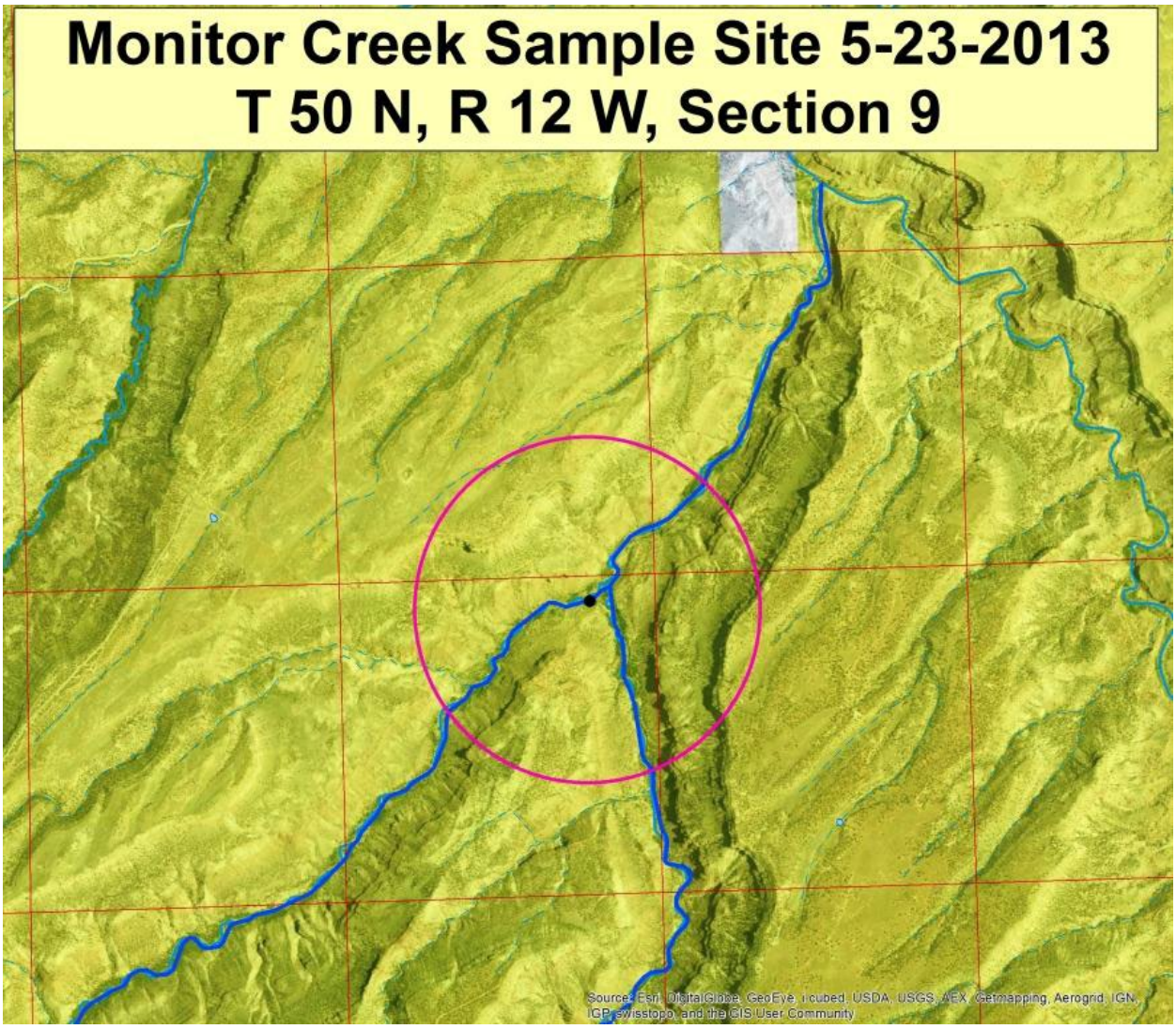
DISCLAIMER

"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.

Uncompahgre Field Office Stream Surveys
May 2013

Monitor Creek - Water Code #41727

Monitor Creek, located southwest of Delta, Colorado on BLM lands managed by the Uncompahgre Field Office, was sampled on May 23, 2013. Monitor Creek is tributary to Potter Creek, then Roubideau Creek then the Gunnison River. A two-pass removal estimate was conducted via 2 backpack electro shockers working side by side to document native fish use and obtain a population estimate. A 543-foot reach was sampled starting just above the confluence with Potter Creek. The stream was also sampled to assess the fisheries potential for eligibility consideration under the Wild & Scenic Rivers Act. Bluehead sucker, flannelmouth sucker, speckled dace, and rainbow trout were collected. Personnel present were Tom Fresques, Amanda Clements, Gregor Dekleva, and Cindy Sperling.

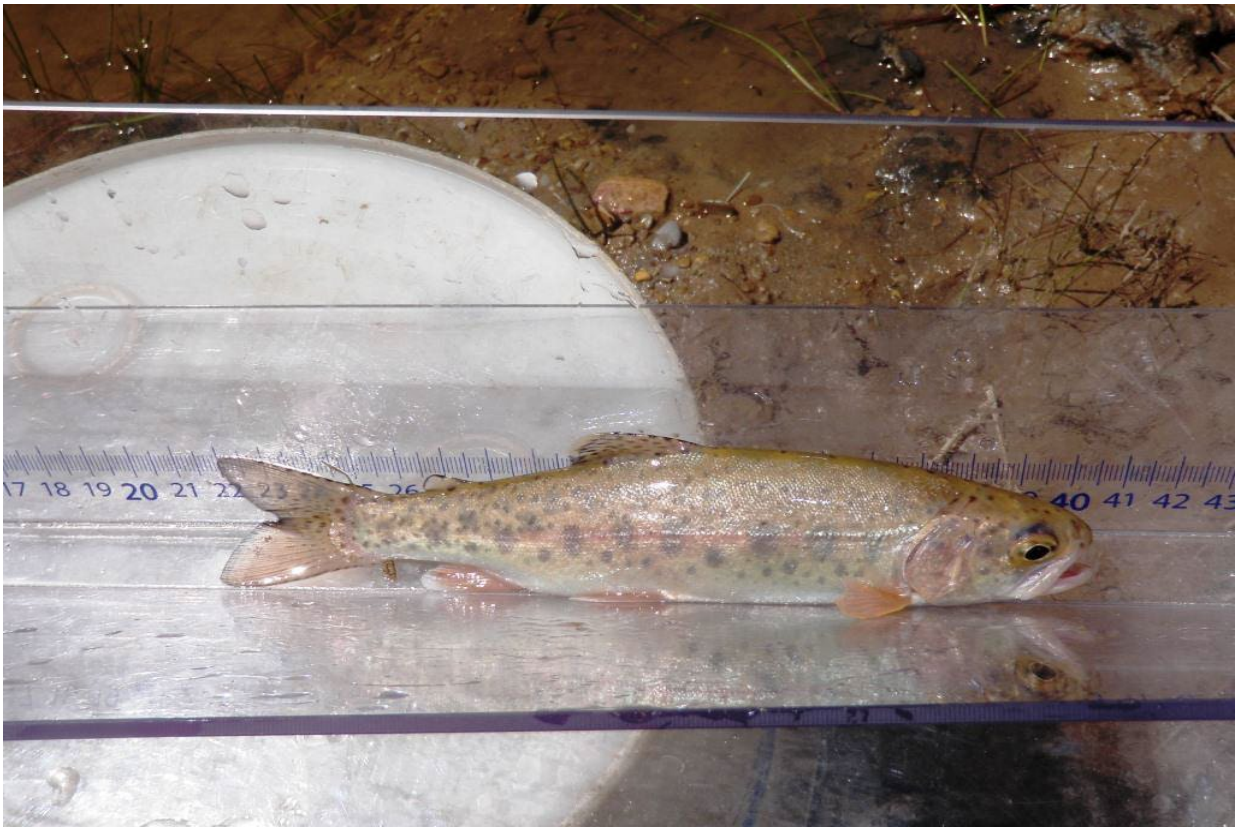


Monitor Creek

Monitor Creek

Bluehead sucker adult

Flannelmouth sucker



Rainbow trout

Northern leopard frog

FISH SAMPLING DATA SUMMARY 2013

WATER Monitor Creek DATE 5/23/2013 GEAR Backpack Shocker - 1
EFFORT spot sampling 543 ft. CREW Fresques, Dekleva, Clements, Sperling, Lightsey BLM

Species	Length (mm)		Species	Length (mm)
BHS	132		WHS	264
BHS	67			
BHS	65		FMS	94
BHS	70		FMS	96
BHS	73			
BHS	64		SPD	97
BHS	67		SPD	79
BHS	88		SPD	68
BHS	68		SPD	93
BHS	68		SPD	62
BHS	200		SPD	74
BHS	103		SPD	86
BHS	299		SPD	57
BHS	251		SPD	54
BHS	94		SPD	42 additional caught and not measured
BHS	66			
FMW	66			
RBT	233			
RBT	184			

BHS = Bluehead sucker, FMW = Fathead minnow, RBT = Rainbow trout, WHS = White sucker, FMS = Flannelmouth sucker, SPD = Speckled dace

Notes: Stream Width Average 10.74 ft. Sample Reach Length 543 ft.
GPS Coordinates at start of sample reach: Zone 12S X: 743001 Y: 4278318

Discussion:
Monitor Creek was running high but was past peak flows and was clear at the time of sampling. Adult bluehead suckers were collected and were in spawning condition. No adult flannelmouth suckers or roundtail chub were collected, but small flannelmouth were collected. It is likely that adult native fish use the stream seasonally for spawning. In addition to the target species, one white sucker was collected, as was one fathead minnow, two rainbow trout, and several speckled dace. In addition to fish, native northern leopard frogs and Woodhouse's toads were noted within the sample reach.

It is likely that use of Monitor Creek by native fish increases and peaks during the spring when adult fish move in from Potter Creek, Roubideau Creek and the Gunnison River to spawn. Later in the summer, this stream serves as nursery habitat for young native fishes. It is possible that some adult bluehead suckers are resident fish depending on seasonal flows and residual pool depth and availability.

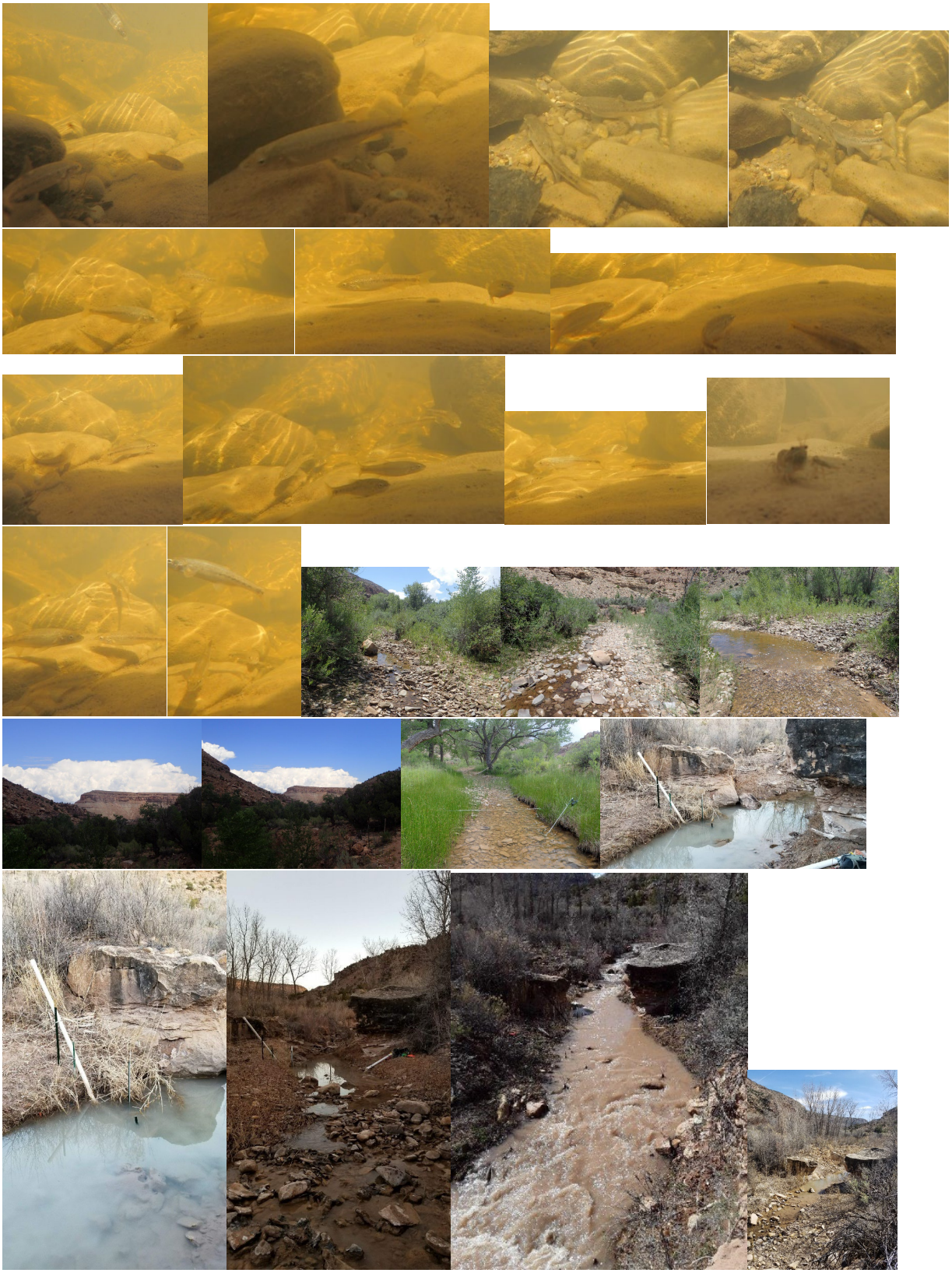
Monitor Creek contained riffles, small runs, and a few deeper pools with a good cobble substrate. The riparian area is healthy and contains Freemont and narrowleaf cottonwoods, sandbar willow, a few sedges and rushes, buffalo berry, common reedgrass, cattails, and horsetail. The stream appears to be a Rosgen B channel type at the sample location.

Recommendations:

- Continue to periodically monitor this stream and attempt to sample on the ascending limb of the hydrograph to try and detect flannelmouth sucker adults.

- Based on native fish use, consider the fishery as a possible ORV for eligibility consideration under the W&SR Act

- Pursue instream flow recommendation for this stream







68°F MONITOR CREEK 27 JUL 2019 08:00 am


96°F MONITOR CREEK 27 JUL 2019 10:30 am
96°F MONITOR CREEK 27 JUL 2019 10:45 am
96°F MONITOR CREEK 27 JUL 2019 11:00 am


95°F MONITOR CREEK 27 JUL 2019 11:15 am
98°F MONITOR CREEK 27 JUL 2019 11:30 am
96°F MONITOR CREEK 27 JUL 2019 11:45 am


91°F MONITOR CREEK 27 JUL 2019 12:00 pm
82°F MONITOR CREEK 27 JUL 2019 12:15 pm
75°F MONITOR CREEK 27 JUL 2019 12:30 pm


69°F MONITOR CREEK 27 JUL 2019 12:45 pm
68°F MONITOR CREEK 27 JUL 2019 01:00 pm
69°F MONITOR CREEK 27 JUL 2019 01:15 pm


71°F MONITOR CREEK 27 JUL 2019 01:30 pm
75°F MONITOR CREEK 27 JUL 2019 01:45 pm
78°F MONITOR CREEK 27 JUL 2019 02:00 pm

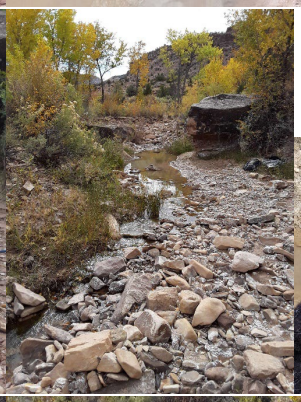

78°F MONITOR CREEK 27 JUL 2019 02:15 pm
80°F MONITOR CREEK 27 JUL 2019 02:30 pm
84°F MONITOR CREEK 27 JUL 2019 02:45 pm


84°F MONITOR CREEK 27 JUL 2019 03:00 pm
84°F MONITOR CREEK 27 JUL 2019 03:15 pm
84°F MONITOR CREEK 27 JUL 2019 03:30 pm

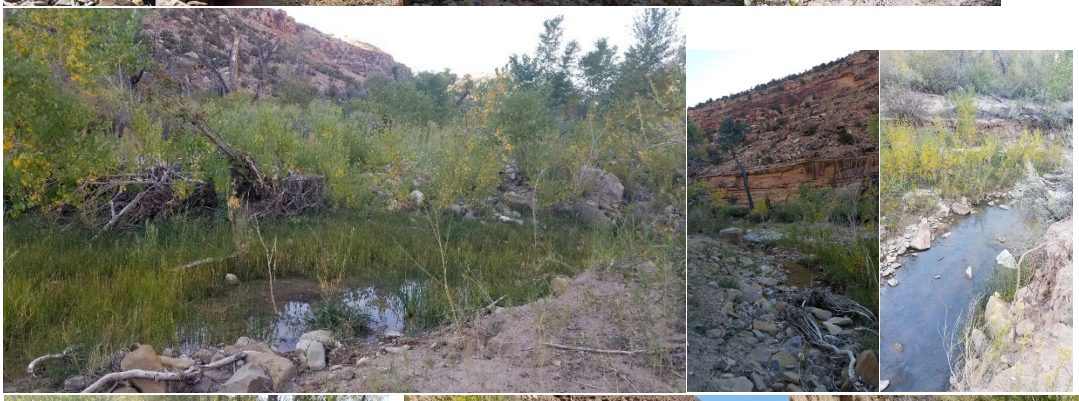

91°F MONITOR CREEK 27 JUL 2019 03:45 pm
96°F MONITOR CREEK 27 JUL 2019 04:00 pm
96°F MONITOR CREEK 27 JUL 2019 04:15 pm
98°F MONITOR CREEK 27 JUL 2019 04:30 pm
95°F MONITOR CREEK 27 JUL 2019 04:45 pm
96°F MONITOR CREEK 27 JUL 2019 05:00 pm
98°F MONITOR CREEK 27 JUL 2019 05:15 pm
98°F MONITOR CREEK 27 JUL 2019 05:30 pm
98°F MONITOR CREEK 27 JUL 2019 05:45 pm
98°F MONITOR CREEK 27 JUL 2019 06:00 pm
93°F MONITOR CREEK 27 JUL 2019 06:15 pm
87°F MONITOR CREEK 27 JUL 2019 06:30 pm
84°F MONITOR CREEK 27 JUL 2019 06:45 pm
82°F MONITOR CREEK 27 JUL 2019 07:00 pm
80°F MONITOR CREEK 27 JUL 2019 07:15 pm
78°F MONITOR CREEK 27 JUL 2019 07:30 pm
77°F MONITOR CREEK 27 JUL 2019 07:45 pm
77°F MONITOR CREEK 27 JUL 2019 08:00 pm
MOULTRIE 68°F MONITOR CREEK 27 JUL 2019 01:00 pm

























Monitor Creek Div4 SegID 18/4/A-003 Gage Site Visit Information

9/29/2022 15:48	Water present but below control. No flow
11/3/2021 10:30	In depth survey for tying down top of rating curve. Stream had small flow, calm, with some leaves on section control.
5/11/2021 0:00	Installed new staff gage; two backup water elevations; reset pt to new staff gage; trail camera dead and unable to replace
4/11/2019 10:41	Moved timelapse camera to mounted on stake; pounded into vertical bank downstream of gage; left bank. Pointed upstream at gage.
4/8/2019 17:50	Installed camera 50ft downstream of gage on left bank. Attached to base of sagebrush at top of raw bank; approx 6ft above water level. set at 15min interval; 6am to 8pm. No password set.
8/24/2017 19:43	Removed debris on gage.
8/24/2017 19:18	Review of gage record: active monsoon, July 20 large precip event, pt stage = 4.22'. Aug 12 large precip event, pt stage = 2.08. Debris downstream and upstream indicates high water at 4.22' is reasonable.
8/24/2017 18:15	Staff plate leaning, 1.29' (tilted straight = 1.27'), snapped back to crooked reading 1.28'.
8/24/2017 18:15	Gage pool silted in, cannot see slotted pvc housing
7/13/2017 11:58	Did not download logger data (no app.). Observed many fish and crawfish still present. Recent afternoon thunderstorms, road had lots of standing water in ditch and trail was wet.
6/22/2017 9:30	Observed fish and crawfish in every pool observed
6/22/2017 8:54	Pictures 954-962 of fish in gage pool, gage pool, and cross section
6/8/2017 10:47	installed temporary gage, Install location in natural pool
4/19/2017 18:52	At current discharge it is difficult to determine a good location for a temporary gage installation.
4/19/2017 18:51	At Q measurement x-section, this years high water level mark is approximately 0.95 feet above the current water level.
4/19/2017 18:50	At Q measurement x-section, water level approximately 1.60' below bankful indicators, slope break and plant growth.

Discharge Measurment Field Visit Data Report *(Filters: Name begins with Monitor; Division = 4;)*

Div	Name	CWCB Case Number	Segment ID	Meas. Date	UTM	Location	Flow Amount (cfs)	Meas #	Rating	Station ID
4	Monitor Creek		18/4/A-008	05/20/2003	UTMx: 220612 UTMy: 4279502	Monitor Creek D75082R001S1	12.89	1	g	
4	Monitor Creek		18/4/A-008	05/25/2004	UTMx: 220612 UTMy: 4279502	Monitor Creek	2.32	2	g	
4	Monitor Creek		18/4/A-008	06/12/2014	UTMx: 220061.07567 UTMy: 4279100.7800	At Monitor Gage	0.84	3	g	
4	Monitor Creek		18/4/A-008	04/08/2015	UTMx: 20061 UTMy: 4279101	at dead Colorado ash tree downstream of cottonwood with debris stacked	3.55	4	f	
4	Monitor Creek		18/4/A-008	07/23/2015	UTMx: 220584.64868 UTMy: 4279466.2773	Monitor Creek abv Potter	0.97	5	f	
4	Monitor Creek		18/4/A-008	05/04/2016	UTMx: 220062 UTMy: 4279104	Colorado ash tree	30.32	6	f	
4	Monitor Creek		18/4/A-008	03/10/2017	UTMx: 220648.7 UTMy: 4279551.9	Just above confluence with Potter Creek	0.28	7	f	
4	Monitor Creek		18/4/A-008	04/13/2017	UTMx: 220062 UTMy: 4279104	Colorado ash tree	32.15	8	f	
4	Monitor Creek		18/4/A-008	04/19/2017	UTMx: 220635 UTMy: 4279525	Monitor Creek near confluence with Potter Creek	57.69	9	g	MONCNCPC
4	Monitor Creek		18/4/A-008	05/22/2017	UTMx: 220062 UTMy: 4279104	Colorado ash tree	14.48	10	f	
4	Monitor Creek		18/4/A-008	06/08/2017	UTMx: 220635 UTMy: 4279525	Monitor Creek near confluence with Potter Creek	1.53	11	f	MONCNCPC
4	Monitor Creek		18/4/A-008	06/22/2017	UTMx: 220635 UTMy: 4279525	Monitor Creek near confluence with Potter Creek	0.37	12	g	MONCRNPC
4	Monitor Creek		18/4/A-008	06/26/2017	UTMx: 220062 UTMy: 4279104	Colorado ash tree	0.09	13	f	
4	Monitor Creek		18/4/A-008	07/13/2017	UTMx: 220636 UTMy: 4279524	Monitor Creek above Potter Creek	0.75	14	g	MONCACPC
4	Monitor Creek		18/4/A-008	08/24/2017	UTMx: 220635 UTMy: 4279525	Monitor Creek near confluence with Potter Creek	0.12	15	f	MONCNCPC
4	Monitor Creek		18/4/A-008	03/20/2018	UTMx: 220608 UTMy: 4279488	Monitor Creek above conf Potter Creek temporary gage, 300ft upstream of gage	0.04	16	p	Monitor Creek - D4
4	Monitor Creek		18/4/A-008	03/21/2018	UTMx: 220636 UTMy: 4279535	Monitor Creek above conf Potter Creek temporary gage	0.08	17	p	Monitor Creek - D4
4	Monitor Creek		18/4/A-008	04/03/2018	UTMx: 220628 UTMy: 4279531	Monitor Creek above conf Potter Creek temporary gage	0.09	18	p	Monitor Creek - D4
4	Monitor Creek		18/4/A-008	05/10/2018	UTMx: 220628 UTMy: 4279529	Monitor Creek above conf Potter Creek	0.09	19	e	MONITRD4
4	Monitor Creek		18/4/A-008	07/03/2018	UTMx: 220628 UTMy: 4279529	Monitor Creek above conf Potter Creek	0.02	20	f	MONITRD4
4	Monitor Creek		18/4/A-008	08/22/2018	UTMx: 220628 UTMy: 4279529	Monitor Creek above conf Potter Creek	0.03	21	g	MONITRD4
4	Monitor Creek		18/4/A-008	04/08/2019	UTMx: 743007 UTMy: 4278333	Monitor Creek 300ft upstream of confl with Potter Creek	3.35	22	f	MONITRD4

4	Monitor Creek		18/4/A-008	04/11/2019	UTMx: 742998 UTMy: 4278342	Monitor Creek 300ft upstream of confl with Potter Creek	11.61	23	f	MONITRD4
4	Monitor Creek		18/4/A-008	05/03/2019	UTMx: 220628 UTMy: 4279529	Monitor Creek above confl with Potter Creek	48.31	24	f	MONITRD4
4	Monitor Creek		18/4/A-008	05/15/2019	UTMx: 220628 UTMy: 4279529	Monitor Creek near confl with Potter Creek	55.13	25	f	MONITRD4
4	Monitor Creek		18/4/A-008	06/19/2019	UTMx: 220628 UTMy: 4279529	Monitor Creek 100ft upstream of temp gage	5.07	26	f	MONITRD4
4	Monitor Creek		18/4/A-008	07/31/2019	UTMx: 220628 UTMy: 4279529	Monitor Creek 10ft DS of gage	0.25	27	f	MONITRD4
4	Monitor Creek		18/4/A-008	10/17/2019	UTMx: 220628 UTMy: 4279529	Monitor Creek 50ft ds of temp gage	0.06	28	P	MONITRD4
4	Monitor Creek		18/4/A-008	03/04/2020	UTMx: 220628 UTMy: 4279529	Monitor Creek 10ft upstream of gage	0.06	29	P	MONITRD4
4	Monitor Creek		18/4/A-008	05/13/2020	UTMx: 220628 UTMy: 4279529	At Monitor Creek gage.	0.55	30	f	MONITRD4
4	Monitor Creek		18/4/A-008	10/01/2020	UTMx: 220628 UTMy: 4279529	10ft upstream of gage above boulders	0.05	31	g	MONITRD4
4	Monitor Creek		18/4/A-008	04/05/2021	UTMx: 220628 UTMy: 4279529	MONTD4 temp gage	0.02	32	p	MONITRD4
4	Monitor Creek		18/4/A-008	05/11/2021	UTMx: 220628 UTMy: 4279529	At Monitor gage	0.03	33	p	MONITRD4
4	Monitor Creek		18/4/A-008	07/22/2021	UTMx: 220628 UTMy: 4279529	At Monitor gage	0.04	34	p	MONITRD4
4	Monitor Creek		18/4/A-008	09/14/2021	UTMx: 220628 UTMy: 4279529	At Monitor age	0	35	p	MONITRD4
4	Monitor Creek		18/4/A-008	02/23/2022	UTMx: 220628 UTMy: 4279529	At Monitor Gage	0.04	36	p	MONITRD4
4	Monitor Creek		18/4/A-008	03/26/2022	UTMx: 220628 UTMy: 4279529	At Monitor Gage	0.02	37	f	MONITRD4
4	Monitor Creek		18/4/A-008	04/28/2022	UTMx: 220628 UTMy: 4279529	At Monitor Gage	47.53	38	g	MONITRD4
4	Monitor Creek		18/4/A-008	05/06/2022	UTMx: 220628 UTMy: 4279529	At Monitor Gage	23.2	39	g	MONITRD4
4	Monitor Creek		18/4/A-008	06/09/2022	UTMx: 220628 UTMy: 4279529	At Monitor Gage	0.12	40	g	MONITRD4

9-275-F
(May 1971)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WATER RESOURCES DIVISION

Meas. No. ______
Comp. by ______
Checked by ______

DISCHARGE MEASUREMENT NOTES

12S 742995 4278311

Sta. No. ______
Monitor Creek (D67427508ZR00151)

Date 5/20, 19 2003 Party Clements, murphy, Johnson, massy

Width 15.6 Area 8.13 Vel. ______ G. H. ______ Disch. 12.89

Method ______ No. secs. ______ G. H. change ______ in ______ hrs. Susp. ______

Method coef. ______ Hor. angle coef. ______ Susp. coef. ______ Meter No. ______

GAGE READINGS				
Time		Recorder	Inside	Outside
Weighted M. G. H.				
G. H. correction				
Correct M. G. H.				

Type of meter pygmy

Date rated ______ for rod, other.

Meter ______ ft. above bottom of weight.

Spin before meas. ______ after ______

Meas. plots ____ % diff. from rating ______

Wading, cable, ice, boat, upstr., downstr., side bridge ______ feet, mile, above, below gage, and ______

Check-bar, found ______ changed to ______ at ______

Correct ______

Levels obtained ______

Measurement rated excellent (2%), good (5%), fair (8%), poor (over 8%), based on following conditions: Cross section ______

Flow ______ Weather Clear warm

Other ______ Air 21 °C °F@ 1PM

Gage ______ Water 13° °F@ 12:47

______ Record removed ______ Intake flushed ______

Observer ______

E Conductivity 240 us/cm
Litmus pH 7.5

Control ______

Remarks WATER High & Turbid

MACRO & Chemical sample Taken

G. H. of zero flow ______ ft.

River at—

Angle coefficient	Dist. from initial point	Width	Depth	Observation depth	Revolutions	Time in seconds	Velocity At point	Velocity Mean in vertical	Adjusted for hor. angle or ______	Area	
LEW	9.4										
	10.5	1.05	0.1		40	44	.916			.11	.101
	11.5	1	0.1		31	40	1.50			.1	.15
	12.5	1	0.25		28	40	.71			.25	.18
	13.5	1	0.1		41	40	1.0278			.1	.12
	14.5	1	0.5		84	40	2.078			.5	1.04
	15.5	1	0.55		97	40	2.3965			.55	1.32
	16.5	1	0.50		87	40	1.6615			.5	.83
	17.5	1	0.80		40	40	1.0			.8	.8
	18.5	1	0.70		60	40	1.49			.7	1.04
	19.5	1	0.90		70	40	1.735			.9	1.56
	20.5	1	0.80		81	40	2.0045			.8	1.60
	21.5	1	0.80		89	41	1.954			.8	1.56
	22.5	1	0.80		80	50	1.59			.8	1.27
⊙	23.5	1	0.60		60	44	1.36			.6	.82
	24.5	1.55	0.40		33	41	.8144			.62	.50
							0				
REW	26.6	15.6								8.13	12.89
			.527								

.0 .10 .20 .30 .40 .50 .60 .70 .75

9-275-F
(May 1971)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WATER RESOURCES DIVISION

DISCHARGE MEASUREMENT NOTES

Meas. No. .....
Comp. by .....
Checked by .....

Sta. No. MONITOR CREEK 10674275 082 R00151
Date 5/25/04, 19 Party CLAPP, JOHNSON
Width ..... Area ..... Vel. ..... G. H. ..... Disch. 2.32 2.36
Method ..... No. secs. ..... G. H. change ..... in ..... hrs. Susp. .....
Method coef. ..... Hor. angle coef. ..... Susp. coef. ..... Meter No. .....
Type of meter MARSH-MCBIRNEY
Date rated ..... for rod, other.
Meter ..... ft. above bottom of weight.
Spin before meas. ..... after .....
Meas. plots .... % diff. from rating .....
Wading, cable, ice, boat, upstr., downstr., side bridge ..... feet, mile, above, below gage, and .....
Check-bar, found .....
changed to ..... at .....
Correct .....
Levels obtained .....

GAGE READINGS

Time		Recorder	Inside	Outside
Weighted M. G. H.				
G. H. correction				
Correct M. G. H.				

Measurement rated excellent (2%) (good (5%)) fair (8%), poor (over 8%), based on following conditions: Cross section .....
Flow ..... Weather .....
Other ..... Air 27 °F@ 3:30 P
Gage ..... Water 22.5 °F@ 4:45 P
..... Record removed ..... Intake flushed U .....
Observer .....
Control COND. 547 PH 8.5
Remarks WARM DRY WINDY MCR FLOWS BANKFULL HAS BEEN MUCH HIGHER RECENTLY
G. H. of zero flow ..... ft.

River at—

Angle coefficient	Dist. from initial point	Width	Depth	Observation depth	Revolutions	Time in seconds	VELOCITY At point	VELOCITY Mean in vertical	Adjusted for hor. angle or	Area
LEW	6.5									
	6.9		.20					.25		
	7.35		.20					.29		
	7.8		.35					.55		
			feet							
LEW	6.5									
	6.8		.2					.12		
	7.25		.25					.32		
	7.8		.37					.69		
	8.1		.4					.93		
	8.65		.39					1.84		
	9.0		.3					1.82		
	9.3		.3					.72		
	9.8		.5					1.02		
⊙	10.3		.47					.85		
	10.8		.5					1.85		
	11.3		.45					1.07		
	12.0		.4					.64		
	12.35		.4					0		
	12.9		.3					.37		
	13.6		.3					.1		
	13.8		.2					-.04		
REW	14.3									

.0 .10 .20 .30 .40 .50 .60 .70 .75

.85 .90 .92 .94 .96 .97 .98 .99 1.00 .99 .98 .97 .96 .94 .92 .90 .85 .80

COLORADO WATER CONSERVATION BOARD

FIELD DATA FOR INSTREAM FLOW DETERMINATIONS

COLORADO DIVISION OF WILDLIFE

LOCATION INFORMATION

STREAM NAME: Monitor Creek – Colorado Ash / Log Tree						CROSS-SECTION NO.: 1	
CROSS-SECTION LOCATION: 1/3 mile above confluence w/ Potter Creek							
DATE: 6-12-14	OBSERVERS: R. Smith, J. Soudergard						
LEGAL DESCRIPTION	¼ SECTION: NE	SECTION: 9	TOWNSHIP: 50 N/S	RANGE: 12 E/W	PM: NM		
COUNTY: Montrose	WATERSHED: Gunnison R	WATER DIVISION: 4	DOW WATER CODE: 41727				
MAP(S): USGS:						742462	
USFS:						427878	

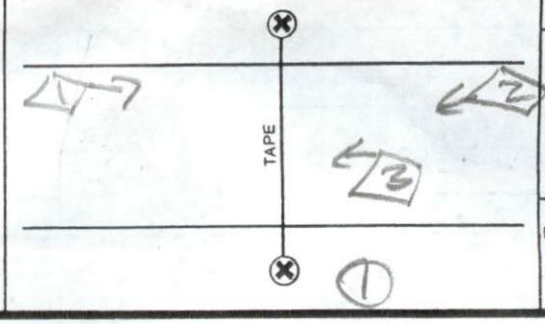
SUPPLEMENTAL DATA

SAG TAPE SECTION SAME AS DISCHARGE SECTION: YES / NO	METER TYPE: M-M			
METER NUMBER:	DATE RATED:	CALIB/SPIN: ____ sec	TAPE WEIGHT: surveyed ____ lbs/foot	TAPE TENSION: surveyed ____ lbs
CHANNEL BED MATERIAL SIZE RANGE: gravel to 2-foot boulders	PHOTOGRAPHS TAKEN: YES/NO	NUMBER OF PHOTOGRAPHS: 3		

CHANNEL PROFILE DATA

STATION	DISTANCE FROM TAPE (ft)	ROD READING (ft)
Tape @ Stake LB	0.0	surveyed
Tape @ Stake RB	0.0	surveyed
(1) WS @ Tape LB/RB	0.0	13.95/13.95
(2) WS Upstream	61.0	12.76
(3) WS Downstream	57.5	14.82
SLOPE		

SKETCH



LEGEND:
Stake ⊗
Station (1)
Photo ◇1→
Direction of Flow

AQUATIC SAMPLING SUMMARY

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

LENGTH - FREQUENCY DISTRIBUTION BY ONE-INCH SIZE GROUPS (1.0-1.9, 2.0-2.9, ETC.)

SPECIES (FILL IN)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	>15	TOTAL

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

COMMENTS

FORM #105-ER 4-85

DISCHARGE/CROSS SECTION NOTES

STREAM NAME: Monitor Creek | CROSS-SECTION NO.: 1 | DATE: 6-12-14 | SHEET ___ OF ___

BEGINNING OF MEASUREMENT | EDGE OF WATER LOOKING DOWNSTREAM: (0.0 AT STAKE) LEFT / RIGHT | Gage Reading: _____ ft | TIME: 12:20 pm

Features: Stake (S) Grassline (G) Waterline (W) Rock (R)	Distance From Initial Point (ft)	Width (ft)	Total Vertical Depth From Tape/Inst (ft)	Water Depth (ft)	Depth of Observation (ft)	Revolutions	Time (sec)	Velocity (ft/sec) At Point	Velocity (ft/sec) Mean in Vertical	Area (ft²)	Discharge (cfs)
RS	0.0		8.40								
G	3.5		11.30								
	7.0		12.68	-active channel							
W	12.0		13.95					Ø			
	13.0		14.20	.25				.18			
	13.5		14.20	.25				.15			
	14.0		14.25	.30				.35			
	14.5		14.40	.45		thalweg		.64			
	15		14.45	.50				1.33			
	15.5		14.40	.45				0.57			
	16		14.30	.35				Ø			
	16.5		14.32	.35				Ø			
	17		14.28	.30				.54			
	17.5		14.37	.40				.13			
	18		14.32	.35				Ø			
	19		13.96	Ø				Ø			
	20		14.09	.15				Ø			
W	20.5		13.98	Ø				Ø			
	22		13.00	-active channel							
G	29		11.30								
LS	38		6.90								
Benchmark = 4.28											
TOTALS:											

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

Pebble Count - Mendon

22.6	128	64	>180	64
32	64	<2	128	45
22.6	45	90	>180	128
<2	32	64	>180	90
>180	128	90	>180	64
128	45	64	64	<2
22.6	128	64	<2	11
2.8	45	64	>180	128
64	>180	>180	90	<2
22.6	32	90	<2	45
<2	<2	<2	128	90
90	45	<2	180	45
>180	90	<2	128	90
64	128	11	45	90
2.8	64	>180	90	64
<2	32	128	128	22.6
4	>180	128	90	2
128	>90	>180	90	90
90	64	>180	64	32
2.8	90	64	>180	32.6

As long as there are young men with the light of adventure in their eyes or a touch of wildness in their souls, rapids will be run.

Sigurd F. Olson, conservation writer and wilderness advocate, 1899-1982

Stream Discharge Calculator

Note: grassline(bankfull, REW, LEW, rock, eddy, behind obstruction, etc.)

Monitor Creek abv Potter Creek
04082015 1100
UTM: 12S 742462 4277878 (NAD 83)
x-section @ dead colorado ash tree downstream of cottonwood with debris stacke
LEW and REW looking downsteam to conform to state ISF measurements

Note	Distance ft.	Section width ft.	Depth ft.	Velocity fps	Area sq. ft.	Discharge cfs
REW	11.80		0.00	0.00		
	12.40	0.50	0.10	1.31	0.05	0.07
	12.80	0.40	0.20	1.83	0.08	0.15
	13.20	0.40	0.20	1.96	0.08	0.16
	13.60	0.40	0.20	1.41	0.08	0.11
	14.00	0.40	0.20	2.26	0.08	0.18
	14.40	0.40	0.40	3.31	0.16	0.53
	14.80	0.40	0.38	4.29	0.15	0.65
	15.20	0.40	0.30	4.33	0.12	0.52
	15.60	0.40	0.35	4.69	0.14	0.66
	16.00	0.40	0.30	0.29	0.12	0.03
	16.40	0.40	0.30	0.00	0.12	0.00
	16.80	0.40	0.30	1.61	0.12	0.19
	17.20	0.40	0.40	0.72	0.16	0.12
	17.60	0.40	0.40	1.11	0.16	0.18
	18.00	0.40	0.00	0.00	0.00	0.00
	18.40	0.40	0.00	0.00	0.00	0.00
	18.80	0.40	0.00	0.00	0.00	0.00
	19.20	0.40	0.00	0.00	0.00	0.00
	19.60	0.50	0.05	0.19	0.03	0.00
LEW	20.20	0.00	0.00	0.00	0.00	0.00
					Total	3.55

Cond - 728µS/cm
Temp - 14.4^0 C

Form 9-275G
(Sep. 2000)

U.S. DEPARTMENT OF THE INTERIOR
U.S. Geological Survey
WATER RESOURCES DIVISION
DISCHARGE MEASUREMENT AND GAGE INSPECTION NOTES

Meas. No. _____

Comp. by _____

Checked by _____

Sta. No. _____

Sta. Name Monitor Creek div. Potter Conf @ IST X-SEC

Date 4/8/15 , 20___ Party Sondergard, Tooley

Width _____ Area _____ Vel. _____ G. H. _____ Disch. _____

Method _____ No. secs. _____ G. H. change _____ in 1180 hrs.

Method coef. _____ Horiz. angle coef. _____ Susp. _____ Tags checked _____

Meter Type _____ Meter No. _____ Meter _____ ft. above bottom of wt.

Rating used _____ Spin test before meas. _____ ; after _____

Meas. plots _____ % diff. from rating no. _____ Indicated shift _____

GAGE READINGS						
Time					Inside	Outside
	Start					
	Finish					
Weighted MGH						
GH correction						
Correct MGH						

Samples collected: water quality, sediment, biological, other _____

Measurements documented on separate sheets: water quality, aux./base gage, other _____

Rain gage serviced/calibrated ____

Weather: _____

Air Temp. _____ °C at _____

Water Temp. _____ °C at _____

Check bar/chain found _____

Changed to _____ at _____

Correct _____

Wading, cable, ice, boat, upstr., downstr., side bridge, _____ ft., mi. upstr., downstr. of gage.

Measurement rated excellent (2%), good (5%), fair (8%), poor (> 8%); based on following conditions: Flow: _____

Cross section: Rebar found @ Dead Colorado Ash Tree just downstream of Cottonwood w/ debris stacked high

Gage operating: _____ Record Removed _____

Battery voltage: _____ Intake/Orifice cleaned/purged: _____

Bubble-gage pressure, psi: Tank _____ , Line _____ ; Bubble-rate _____ /min.

Extreme-GH indicators: max _____ , min _____ .

CSG checked: _____ HWM height on stick _____ Ref. elev. _____ HWM elev. _____

HWM inside/outside: _____

Control: _____

Remarks: Cond 728 µS/cm
Temp 14.4° C

GH of zero flow = GH _____ - depth at control _____ = _____ ft., rated _____

Sheet No. _____ of _____ sheets

5″x 8″
TO BE PRINTED
ON RITE-AS-RAIN
PAPER DUPLEX -
HEAD-TO-FOOT

R+L Look downstream

River at -

ANGLE COEFFICIENT	DIST. FROM INITIAL POINT	WIDTH	DEPTH	OBSERVATION DEPTH	REVOLUTIONS	TIME IN SECONDS	VELOCITY AT POINT	VELOCITY MEAN IN VERTICAL	ADJUSTED FOR HOR. ANGLE OR	AREA	DISCHARGE
	RS		9.08								
	W	11.8	14.61				0				.85
		12.4	0.10				0.40				
		12.8	0.20				0.56				
		13.2	0.20				0.60				.90
		13.6	0.20				0.43				.92
		14.0	0.20				0.69				
		14.4	0.40				1.01				.94
		14.8	0.38				1.31				.96
		15.2	0.30				1.32				.97
		15.6	0.35				1.43				.98
		16.0	0.30				0.09				.99
		16.4	0.30				0				
	W	–	14.61				–				
⊙	LS	–	7.60				–				1.00
		16.8	0.30				0.49				
		17.2	0.40				0.22				
		17.6	0.40				0.34				.99
		18.0	0				0				.98
		18.4	0				0				.97
		18.8	0				0				.96
		19.2	0				0				
		19.6	0.05				0.06				.94
		20.2	edge of water								.92
											.90
											.85
											.80

.0 .10 .20 .30 .40 .50 .60 .70 .75

Water Surface 14.61

Middle

5"x 8"
TO BE PRINTED
ON RITE-AS-RAIN
PAPER DUPLEX -
HEAD-TO-FOOT

Stream Discharge Calculator

Note: grassline(bankfull, REW, LEW, rock, eddy, behind obstruction, etc.

Monitor Creek above Potter
7/23/2015
UTM: 12S 742954 4278277(NAD 83)

Note	Distance ft	Section wi	Depth ft.	Velocity fp	Area sq. ft.	Discharge cfs
REW	7.80		0.00	0.00		
	8.50	0.60	0.00	0.00	0.00	0.00
	9.00	0.45	0.15	0.33	0.07	0.02
	9.40	0.40	0.30	0.47	0.12	0.06
	9.80	0.40	0.30	0.39	0.12	0.05
	10.20	0.40	0.10	0.40	0.04	0.02
	10.60	0.40	0.30	0.37	0.12	0.04
	11.00	0.40	0.20	0.00	0.08	0.00
	11.40	0.40	0.15	0.28	0.06	0.02
	11.80	0.40	0.05	0.00	0.02	0.00
	12.20	0.40	0.25	0.53	0.10	0.05
	12.60	0.40	0.10	0.96	0.04	0.04
	13.00	0.40	0.20	0.36	0.08	0.03
	13.40	0.40	0.30	1.25	0.12	0.15
	13.80	0.40	0.30	0.09	0.12	0.01
	14.20	0.40	0.00	0.00	0.00	0.00
	14.60	0.40	0.00	0.00	0.00	0.00
	15.00	0.40	0.50	0.30	0.20	0.06
	15.40	0.40	0.35	0.20	0.14	0.03
	15.80	0.40	0.40	0.07	0.16	0.01
	16.20	0.40	0.40	1.43	0.16	0.23
	16.60	0.40	0.30	0.66	0.12	0.08
	17.00	0.70	0.15	0.00	0.11	0.00
	18.00	0.70	0.00	0.00	0.00	0.00
	18.40	0.50	0.25	0.62	0.13	0.08
	19.00	0.95	0.10	0.00	0.10	0.00
LEW	20.30		0.00			
			Avg	0.35	Total	0.97

COLORADO WATER CONSERVATION BOARD

FIELD DATA FOR INSTREAM FLOW DETERMINATIONS

LOCATION INFORMATION

STREAM NAME: Monitor Creek - at Colorado Ash Tree					CROSS-SECTION NO.: 1
CROSS-SECTION LOCATION: discharge and water surface elevation only					
DATE: 5-4-16	OBSERVERS: R. Smith, J. Sondergard				
LEGAL DESCRIPTION	¼ SECTION:	SECTION:	TOWNSHIP: N/S	RANGE: E/W	PM:
COUNTY:	WATERSHED:	WATER DIVISION:	DOW WATER CODE:		
MAP(S): USGS:					
USFS:					

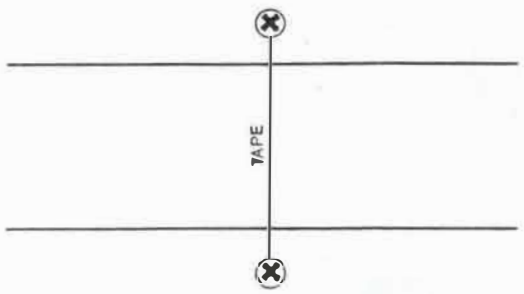
SUPPLEMENTAL DATA

SAG TAPE SECTION SAME AS DISCHARGE SECTION YES / NO	METER TYPE:			
METER NUMBER:	DATE RATED:	CALIB/SPIN: ____ sec	TAPE WEIGHT: ____ lbs/foot	TAPE TENSION: ____ lbs
CHANNEL BED MATERIAL SIZE RANGE:	PHOTOGRAPHS TAKEN: YES/NO	NUMBER OF PHOTOGRAPHS:		

CHANNEL PROFILE DATA

STATION	DISTANCE FROM TAPE (ft)	ROD READING (ft)
⊗ Tape @ Stake LB	0.0	
⊗ Tape @ Stake RB	0.0	
① WS @ Tape LB/RB	0.0	
② WS Upstream		
③ WS Downstream		
SLOPE		

SKETCH



LEGEND:
- Stake ⊗
- Station ①
- Photo ◇①→
- Direction of Flow ← →

AQUATIC SAMPLING SUMMARY

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

LENGTH - FREQUENCY DISTRIBUTION BY ONE-INCH SIZE GROUPS (1.0-1.9, 2.0-2.9, ETC.)

SPECIES (FILL IN)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	>15	TOTAL

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

COMMENTS

FORM #USFFD 1-85

DISCHARGE/CROSS SECTION NOTES

STREAM NAME: Monitor Creek	CROSS-SECTION NO.: 1	DATE: 5-4-16	SHEET ___ OF ___
BEGINNING OF MEASUREMENT	EDGE OF WATER LOOKING DOWNSTREAM: (0.0 AT STAKE) LEFT / RIGHT	Gage Reading: ____ ft	TIME: 9:45 am

Features: Stake (S) Grassline (G) Waterline (W) Rock (R)	Distance From Initial Point (ft)	Width (ft)	Total Vertical Depth From Tape/Inst (ft)	Water Depth (ft)	Depth of Obser-vation (ft)	Revolutions	Time (sec)	Velocity (ft/sec) At Point	Velocity (ft/sec) Mean in Vertical	Area (ft^2)	Discharge (cfs)
Benchmarks: (RS) - 8.62 feet below instrument											
RW - 13.30 feet below instrument - 9.1 feet on tape											
LW - 13.44 feet below instrument - 22 feet on tape											
(LS) - 7.16 feet below instrument											
RW	9.0			Ø							
	10.0			Ø							
	10.5			0.4				1.97			
	11.0			0.5				2.43			
	11.5			0.5				1.87			
	12.0			0.8				2.95			
	12.5			0.9				2.73			
	13.0			1.05				3.16			
	13.5			1.10				3.41			
	14.0			1.00				3.62			
	14.5			1.20				3.44			
	15.0			1.40				4.25			
16.0 >	15.5		1.00 >	1.40			4.04 >	4.10			
	16.5			1.20				2.85			
	17.0			1.20				2.98			
	17.5			1.30				2.23			
	18.0			1.10				3.75			
	18.5			0.80				2.82			
	19.0			0.80				3.01			
	19.5			0.70				3.15			
	20.0			0.90				1.19			
	20.5			0.60				0.64			
	21.0			0.30				Ø			
	21.5			Ø				Ø			
LW	22.0			Ø				Ø			
TOTALS:											

Original Calculation Q =29.317 cfs

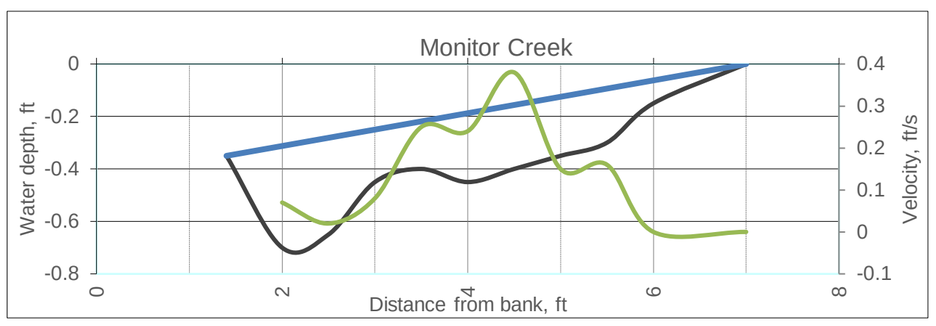
Calculated in WinXpro and ERAMs as: Q= 30.32cfs

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

Flow Measurement Calculations

Stream: **Monitor Creek**
Date: 3/10/2017 **Time:** 4:20 PM
Observers: Baessler & Viehl
County:
Water Division: 7
Latitude: 38 37 13.88
Longitude: 108 12 31.13
Location Description: Just above confluence with Potter Creek
Comments: Sunny Warm Clear Blue Skies
Other: Photos taken of stream, measurement location

Distance from bank	Width, ft	Depth, ft	Velocity, ft/s	Area, ft2	Discharge, cfs	%
1.4	water line	0.35	0			
2	0.55	0.7	0.07	0.385	0.02695	9.6%
2.5	0.5	0.65	0.02	0.325	0.0065	2.3%
3	0.5	0.45	0.08	0.225	0.018	6.4%
3.5	0.5	0.4	0.25	0.2	0.05	17.7%
4	0.5	0.45	0.24	0.225	0.054	19.2%
4.5	0.5	0.4	0.38	0.2	0.076	27.0%
5	0.5	0.35	0.15	0.175	0.02625	9.3%
5.5	0.5	0.3	0.16	0.15	0.024	8.5%
6	0.75	0.15	0	0.1125	0	0.0%
7	water line	0	0	0	0	0.0%
				FLOW =	**0.28**	



Graph Data

Bed elevation		Waterline	
1.4	-0.35	1.4	-0.35
2	-0.7	7	0
2.5	-0.65		
3	-0.45		
3.5	-0.4		
4	-0.45		
4.5	-0.4		
5	-0.35		
5.5	-0.3		
6	-0.15		
7	0		

Stream Discharge Calculator

Note: grassline(bankfull, REW, LEW, rock, eddy, behind obstruction, etc.)

Monitor Creek abv Potter Creek
04132017 1220
UTM: 12S 742462 4277878 (NAD 83)
x-section @ dead colorado ash tree downstream of cottonwood with debris stacked high
LEW and REW looking downsteam

Note	Distance ft.	Section width ft.	Depth ft.	Velocity fps	Area sq. ft.	Discharge cfs
LEW	5.30		0.00	0.00		
	6.00	0.60	0.50	0.58	0.30	0.17
	6.50	0.50	0.70	1.16	0.35	0.41
	7.00	0.50	0.80	2.02	0.40	0.81
	7.50	0.50	1.20	3.15	0.60	1.89
	8.00	0.75	1.20	2.48	0.90	2.23
	9.00	0.75	1.20	1.90	0.90	1.71
	9.50	0.50	1.30	1.54	0.65	1.00
	10.00	0.50	1.35	2.89	0.68	1.95
	10.50	0.50	1.35	3.65	0.68	2.46
	11.00	0.50	1.40	3.69	0.70	2.58
	11.50	0.50	1.10	2.45	0.55	1.35
	12.00	0.75	1.10	2.80	0.83	2.31
	13.00	1.00	1.10	3.59	1.10	3.95
	14.00	1.00	1.10	2.69	1.10	2.96
	15.00	1.00	1.00	1.96	1.00	1.96
	16.00	1.00	1.00	1.61	1.00	1.61
	17.00	1.00	0.70	2.08	0.70	1.46
	18.00	1.00	0.70	1.03	0.70	0.72
	19.00	1.00	0.50	1.15	0.50	0.58
	20.00	0.50	0.30	0.26	0.15	0.04
REW	20.00		0.00	0.00	0.00	0.00
					Total	32.15

Cond - 728µS/cm
Temp - 14.4º C

Discharge Measurement Summary

Site name	MONITER NR CFL POTR
Site number	
Operator(s)	BJE
File name	MONCNCPC.001.FlowTracker2.ft
Comment	

Start time	4/19/2017 6:23 PM
End time	4/19/2017 6:47 PM
Start location latitude	-
Start location longitude	-
Calculations engine	FlowTracker2

Sensor type	Unknown
Handheld serial number	n/a
Probe serial number	P2355
Probe firmware	3.90
Handheld software	n/a

# Stations	Avg interval (s)	Total discharge (ft³/s)
18	40	57.6936

Total width (ft)	Total area (ft²)	Wetted Perimeter (ft)
15.100	15.0271	15.785

Mean SNR (dB)	Mean depth (ft)	Mean velocity (ft/s)
52	0.995	3.8393

Mean temp (°F)	Max depth (ft)	Max velocity (ft/s)
48.384	1.450	4.8854

Discharge Uncertainty		
Category	**ISO**	**IVE**
Accuracy	1.0%	1.0%
Depth	0.2%	1.6%
Velocity	0.9%	3.4%
Width	0.1%	0.1%
Method	2.1%	
# Stations	2.8%	
Overall	**3.7%**	**3.9%**

Discharge equation	Mid Section
Discharge uncertainty	ISO
Discharge reference	Measured

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

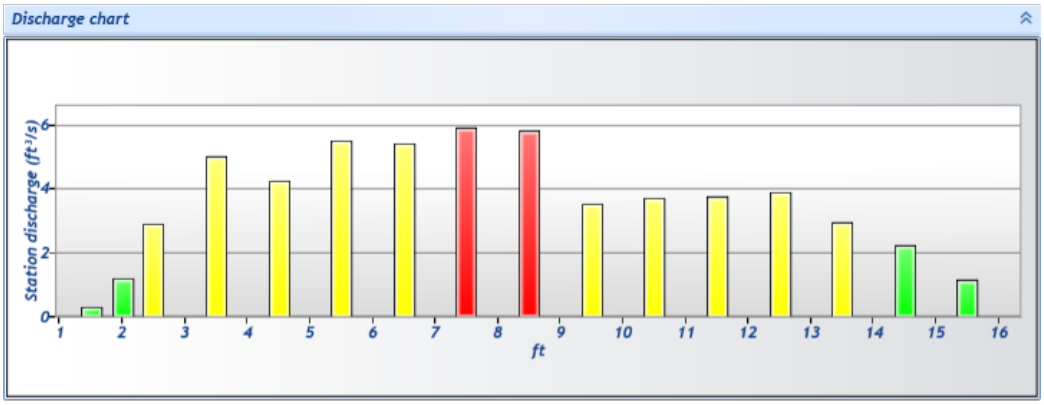
Summary overview

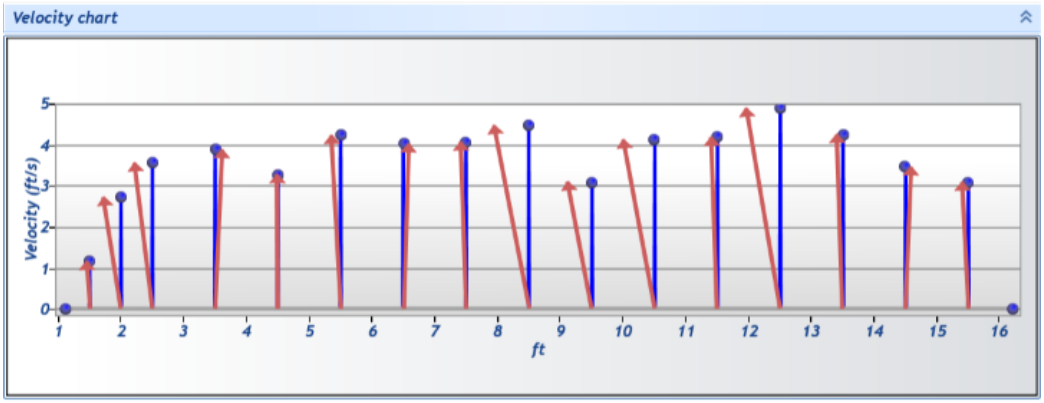
No changes were made to this file
Quality control warnings

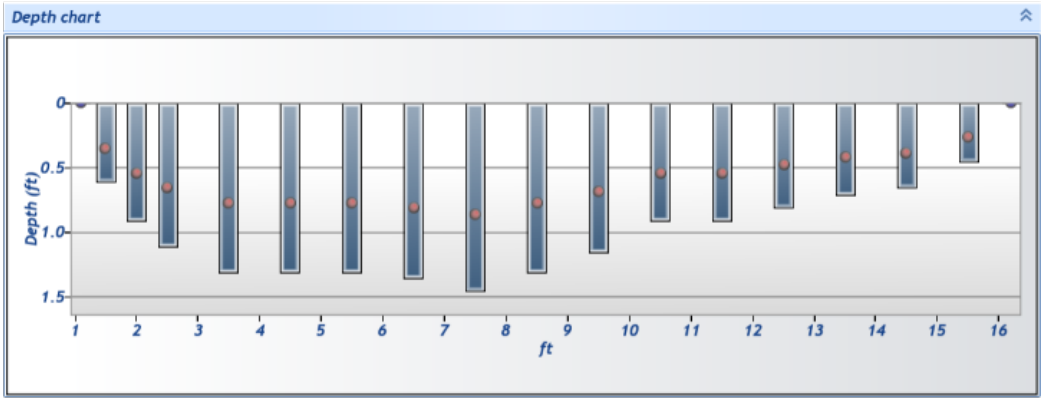
Discharge Measurement Summary

Site name	MONITER NR CFL POTR
Site number	
Operator(s)	BJE
File name	MONCNCPC.001.FlowTracker2.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	MONITER NR CFL POTR
Site number	
Operator(s)	BJE
File name	MONCNCPC.001.FlowTracker2.ft
Comment	

Measurement results

St#	Time	Location (ft)	Method	Depth (ft)	%Depth	Measured Depth (ft)	Samples	Velocity (ft/s)	Correction	Mean Velocity (ft/s)	Area (ft²)	Flow (ft³/s)	%Q	
0	6:23 PM	1.100	None	0.000	0.0000	0.000	0	0.0000	1.0000	1.1551	0.0000	0.0000	0.00	✓
1	6:25 PM	1.500	0.6	0.600	0.6000	0.360	40	1.1551	1.0000	1.1551	0.2700	0.3119	0.54	✓
2	6:27 PM	2.000	0.6	0.900	0.6000	0.540	40	2.7185	1.0000	2.7185	0.4500	1.2232	2.12	✓
3	6:29 PM	2.500	0.6	1.100	0.6000	0.660	40	3.5521	1.0000	3.5521	0.8250	2.9307	5.08	✓
4	6:31 PM	3.500	0.6	1.300	0.6000	0.780	40	3.8692	1.0000	3.8692	1.2999	5.0295	8.72	✓
5	6:32 PM	4.500	0.6	1.300	0.6000	0.780	40	3.2691	1.0000	3.2691	1.2999	4.2494	7.37	✓
6	6:33 PM	5.500	0.6	1.300	0.6000	0.780	40	4.2245	1.0000	4.2245	1.2999	5.4912	9.52	✓
7	6:34 PM	6.500	0.6	1.350	0.6000	0.810	40	4.0232	1.0000	4.0232	1.3501	5.4316	9.41	✓
8	6:36 PM	7.500	0.6	1.450	0.6000	0.870	40	4.0647	1.0000	4.0647	1.4501	5.8944	10.22	✓
9	6:37 PM	8.500	0.6	1.300	0.6000	0.780	40	4.4623	1.0000	4.4623	1.2999	5.8004	10.05	✓
10	6:38 PM	9.500	0.6	1.150	0.6000	0.690	40	3.0947	1.0000	3.0947	1.1499	3.5588	6.17	✓
11	6:41 PM	10.500	0.6	0.900	0.6000	0.540	40	4.1215	1.0000	4.1215	0.8999	3.7091	6.43	✓
12	6:42 PM	11.500	0.6	0.900	0.6000	0.540	40	4.1836	1.0000	4.1836	0.8999	3.7650	6.53	✓
13	6:43 PM	12.500	0.6	0.800	0.6000	0.480	40	4.8854	1.0000	4.8854	0.7999	3.9077	6.77	✓
14	6:44 PM	13.500	0.6	0.700	0.6000	0.420	40	4.2374	1.0000	4.2374	0.7001	2.9667	5.14	✓
15	6:46 PM	14.500	0.6	0.650	0.6000	0.390	40	3.4503	1.0000	3.4503	0.6499	2.2425	3.89	✓
16	6:47 PM	15.500	0.6	0.450	0.6000	0.270	40	3.0881	1.0000	3.0881	0.3826	1.1816	2.05	✓
17	6:47 PM	16.200	None	0.000	0.0000	0.000	0	0.0000	1.0000	3.0881	0.0000	0.0000	0.00	✓

Discharge Measurement Summary

Site name	MONITER NR CFL POTR
Site number	
Operator(s)	BJE
File name	MONCNCPC.001.FlowTracker2.ft
Comment	

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

Quality control warnings

St#	Time	Location (ft)	Method	Depth (ft)	%Depth	Measured Depth (ft)	Warnings	
1	6:25 PM	1.500	0.6	0.600	0.6000	0.360	Standard Error > QC	
2	6:27 PM	2.000	0.6	0.900	0.6000	0.540	Standard Error > QC	
3	6:29 PM	2.500	0.6	1.100	0.6000	0.660	Standard Error > QC	
4	6:31 PM	3.500	0.6	1.300	0.6000	0.780	Standard Error > QC	
5	6:32 PM	4.500	0.6	1.300	0.6000	0.780	Standard Error > QC	
6	6:33 PM	5.500	0.6	1.300	0.6000	0.780	Standard Error > QC	
7	6:34 PM	6.500	0.6	1.350	0.6000	0.810	Standard Error > QC	
8	6:36 PM	7.500	0.6	1.450	0.6000	0.870	Standard Error > QC,High Stn % Discharge	
9	6:37 PM	8.500	0.6	1.300	0.6000	0.780	Standard Error > QC,High Stn % Discharge	
10	6:38 PM	9.500	0.6	1.150	0.6000	0.690	Standard Error > QC	
11	6:41 PM	10.500	0.6	0.900	0.6000	0.540	Standard Error > QC	
12	6:42 PM	11.500	0.6	0.900	0.6000	0.540	Standard Error > QC	
13	6:43 PM	12.500	0.6	0.800	0.6000	0.480	Standard Error > QC	
14	6:44 PM	13.500	0.6	0.700	0.6000	0.420	Standard Error > QC	
15	6:46 PM	14.500	0.6	0.650	0.6000	0.390	Standard Error > QC	
16	6:47 PM	15.500	0.6	0.450	0.6000	0.270	Standard Error > QC	

DISCHARGE/CROSS SECTION NOTES

STREAM NAME: Monitor Creek	CROSS-SECTION NO.: 1	DATE: 5-22-17	SHEET ___ OF ___
BEGINNING OF MEASUREMENT	EDGE OF WATER LOOKING DOWNSTREAM: (0.0 AT STAKE) LEFT / RIGHT	Gage Reading: _____ ft	TIME: 11:25 am

Features: Stake (S) Grassline (G) Waterline (W) Rock (R)	Distance From Initial Point (ft)	Width (ft)	Total Vertical Depth From Tape/Inst (ft)	Water Depth (ft)	Depth of Observation (ft)	Revolutions	Time (sec)	Velocity (ft/sec) At Point	Velocity (ft/sec) Mean in Vertical	Area (ft^2)	Discharge (cfs)
LW	6.2			0				0		0	0
	6.8	.8		.15				0		.12	0
	7.2	.35		.20				.09		.07	.006
	7.5	.40		.60				.82		.24	.197
	8.0	.5		.70				2.04		.35	.714
	8.5	.5		.60				1.52		.3	.456
	9.0	.5		.50				0		.25	0
	9.5	.5		.45				2.30		.225	.518
	10.0	.5		.80				2.14		.4	.856
	10.5	.5		.70				2.73		.35	.956
	11.0	.5		.90				2.94		.45	1.323
	11.5	.5	.25	.90				0.33		.45	.148
	12.0	.5		.90				1.72		.45	.774
12.75 >	12.5	.375	1.1 >	1.0			3.17 >	3.22	.275 >	.375	1.208 (.972)
	13.0	.375		1.0				2.80		.375	1.05
	13.5	.5		1.1				2.90		.55	1.595
	14.0	.5		0.8				3.12		.4	1.248
	14.5	.5		0.7				2.60		.35	.91
	15.0	.5		0.7				2.16		.35	.756
	15.5	.5		0.5				1.59		.25	.398
	16.0	.5		0.5				1.73		.25	.433
	16.5	.5		0.3				0.40		.15	.06
	17.0	.65		0.2				0		.325	0
RW	17.4			0				0			
TOTALS:										14.48	cfs

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

Discharge Measurement Summary

Site name	MONITOR CR NR POTTER
Site number	
Operator(s)	JACK LANDERS
File name	MONCNCPC.002.FlowTracker2.ft
Comment	

Start time	6/8/2017 12:07 PM
End time	6/8/2017 12:32 PM
Start location latitude	-
Start location longitude	-
Calculations engine	FlowTracker2

Sensor type	Unknown
Handheld serial number	n/a
Probe serial number	P2355
Probe firmware	3.90
Handheld software	n/a

# Stations	Avg interval (s)	Total discharge (ft³/s)
22	40	1.5332

Total width (ft)	Total area (ft²)	Wetted Perimeter (ft)
6.900	3.2507	7.384

Mean SNR (dB)	Mean depth (ft)	Mean velocity (ft/s)
32	0.471	0.4717

Mean temp (°F)	Max depth (ft)	Max velocity (ft/s)
72.668	0.620	0.8497

Discharge Uncertainty		
Category	**ISO**	**IVE**
Accuracy	1.0%	1.0%
Depth	0.4%	2.9%
Velocity	0.8%	7.4%
Width	0.1%	0.1%
Method	1.9%	
# Stations	2.3%	
Overall	**3.2%**	**8.0%**

Discharge equation	Mid Section
Discharge uncertainty	ISO
Discharge reference	Measured

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

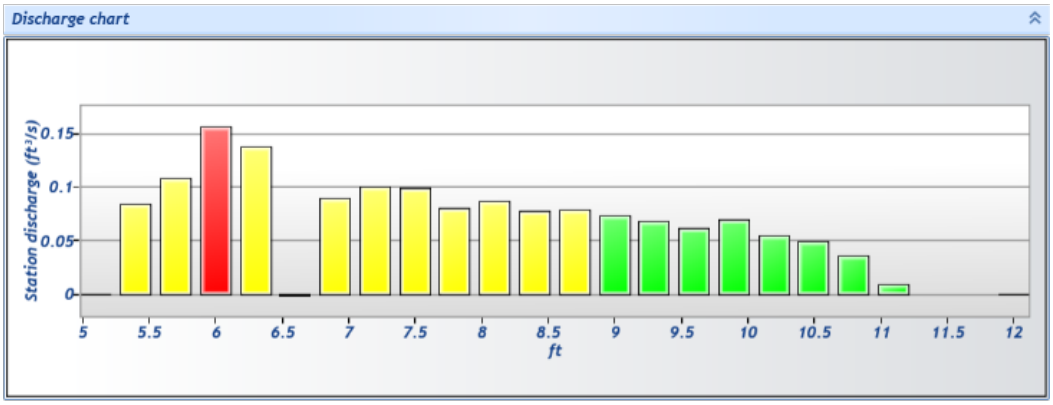
Summary overview

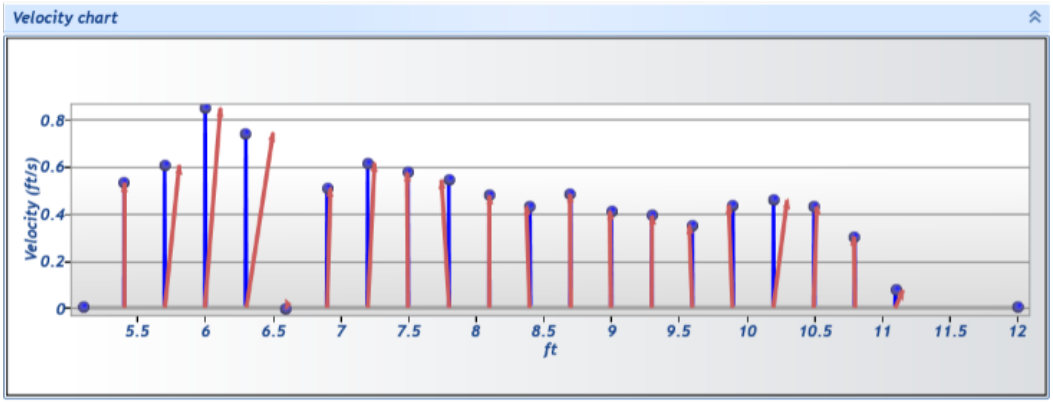
No changes were made to this file
Quality control warnings

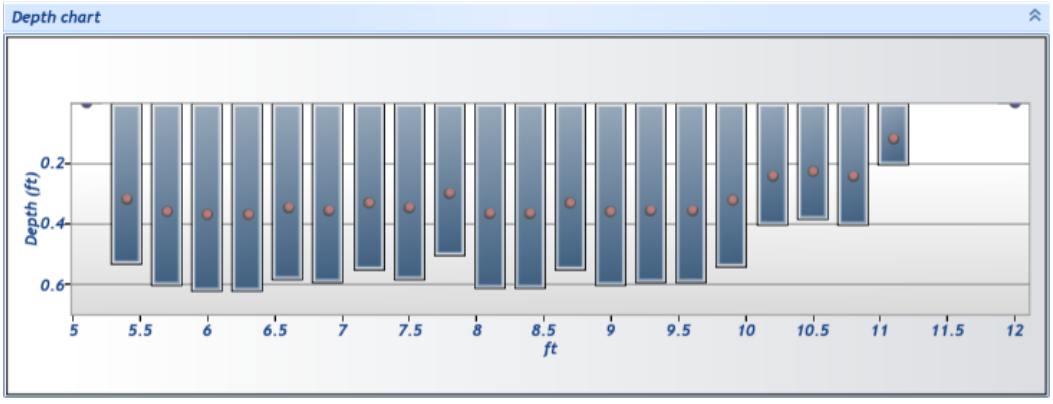
Discharge Measurement Summary

Site name	MONITOR CR NR POTTER
Site number	
Operator(s)	JACK LANDERS
File name	MONCNCPC.002.FlowTracker2.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	MONITOR CR NR POTTER
Site number	
Operator(s)	JACK LANDERS
File name	MONCNCPC.002.FlowTracker2.ft
Comment	

Measurement results

St#	Time	Location (ft)	Method	Depth (ft)	%Depth	Measured Depth (ft)	Samples	Velocity (ft/s)	Correction	Mean Velocity (ft/s)	Area (ft²)	Flow (ft³/s)	%Q	
0	12:07 PM	5.100	None	0.000	0.0000	0.000	0	0.0000	1.0000	0.5310	0.0000	0.0000	0.00	✓
1	12:09 PM	5.400	0.6	0.530	0.6000	0.318	40	0.5310	1.0000	0.5310	0.1589	0.0844	5.50	✓
2	12:10 PM	5.700	0.6	0.600	0.6000	0.360	40	0.6066	1.0000	0.6066	0.1799	0.1091	7.12	✓
3	12:11 PM	6.000	0.6	0.620	0.6000	0.372	40	0.8497	1.0000	0.8497	0.1859	0.1580	10.30	✓
4	12:13 PM	6.300	0.6	0.620	0.6000	0.372	40	0.7442	1.0000	0.7442	0.1859	0.1384	9.03	✓
5	12:14 PM	6.599	0.6	0.580	0.6000	0.348	40	-0.0049	1.0000	-0.0049	0.1739	-0.0009	-0.06	✓
6	12:15 PM	6.899	0.6	0.590	0.6000	0.354	40	0.5087	1.0000	0.5087	0.1769	0.0900	5.87	✓
7	12:16 PM	7.199	0.6	0.550	0.6000	0.330	40	0.6154	1.0000	0.6154	0.1649	0.1015	6.62	✓
8	12:18 PM	7.499	0.6	0.580	0.6000	0.348	40	0.5738	1.0000	0.5738	0.1739	0.0998	6.51	✓
9	12:19 PM	7.799	0.6	0.500	0.6000	0.300	40	0.5437	1.0000	0.5437	0.1499	0.0815	5.32	✓
10	12:20 PM	8.099	0.6	0.610	0.6000	0.366	40	0.4782	1.0000	0.4782	0.1829	0.0875	5.70	✓
11	12:21 PM	8.399	0.6	0.610	0.6000	0.366	40	0.4308	1.0000	0.4308	0.1829	0.0788	5.14	✓
12	12:22 PM	8.698	0.6	0.550	0.6000	0.330	40	0.4831	1.0000	0.4831	0.1649	0.0797	5.19	✓
13	12:23 PM	8.998	0.6	0.600	0.6000	0.360	40	0.4107	1.0000	0.4107	0.1799	0.0739	4.82	✓
14	12:24 PM	9.298	0.6	0.590	0.6000	0.354	40	0.3913	1.0000	0.3913	0.1769	0.0692	4.51	✓
15	12:25 PM	9.598	0.6	0.590	0.6000	0.354	40	0.3510	1.0000	0.3510	0.1769	0.0621	4.05	✓
16	12:27 PM	9.898	0.6	0.540	0.6000	0.324	40	0.4357	1.0000	0.4357	0.1619	0.0705	4.60	✓
17	12:28 PM	10.198	0.6	0.400	0.6000	0.240	40	0.4583	1.0000	0.4583	0.1199	0.0550	3.58	✓
18	12:29 PM	10.498	0.6	0.380	0.6000	0.228	40	0.4325	1.0000	0.4325	0.1139	0.0493	3.21	✓
19	12:30 PM	10.798	0.6	0.400	0.6000	0.240	40	0.3034	1.0000	0.3034	0.1199	0.0364	2.37	✓
20	12:32 PM	11.097	0.6	0.200	0.6000	0.120	40	0.0759	1.0000	0.0759	0.1203	0.0091	0.60	✓
21	12:32 PM	12.000	None	0.000	0.0000	0.000	0	0.0000	1.0000	0.0759	0.0000	0.0000	0.00	✓

Discharge Measurement Summary

Site name	MONITOR CR NR POTTER
Site number	
Operator(s)	JACK LANDERS
File name	MONCNCPC.002.FlowTracker2.ft
Comment	

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

Quality control warnings

St#	Time	Location (ft)	Method	Depth (ft)	%Depth	Measured Depth (ft)	Warnings
3	12:11 PM	6.000	0.6	0.620	0.6000	0.372	High Stn % Discharge
5	12:14 PM	6.599	0.6	0.580	0.6000	0.348	Beam SNRs Not Similar,SNR Threshold Variation
18	12:29 PM	10.498	0.6	0.380	0.6000	0.228	SNR Threshold Variation
19	12:30 PM	10.798	0.6	0.400	0.6000	0.240	Boundary Interference
20	12:32 PM	11.097	0.6	0.200	0.6000	0.120	Boundary Interference,Beam SNRs Not Similar,Large SNR Variation,Standard Error > QC,Velocity Angle > QC
21	12:32 PM	12.000	None	0.000	0.0000	0.000	Stn Spacing > QC

Discharge Measurement Summary

Site name	MONITOR CR N POTTER
Site number	
Operator(s)	JACK LANDERS
File name	MONCNCPC.003.FlowTracker2.ft
Comment	

Start time	6/22/2017 9:12 AM
End time	6/22/2017 9:37 AM
Start location latitude	-
Start location longitude	-
Calculations engine	FlowTracker2

Sensor type	Unknown
Handheld serial number	n/a
Probe serial number	P2355
Probe firmware	3.90
Handheld software	n/a

# Stations	Avg interval (s)	Total discharge (ft³/s)
19	40	0.3648

Total width (ft)	Total area (ft²)	Wetted Perimeter (ft)
6.800	2.1324	7.042

Mean SNR (dB)	Mean depth (ft)	Mean velocity (ft/s)
20	0.314	0.1711

Mean temp (°F)	Max depth (ft)	Max velocity (ft/s)
65.086	0.490	0.2227

Discharge Uncertainty		
Category	**ISO**	**IVE**
Accuracy	1.0%	1.0%
Depth	0.4%	4.9%
Velocity	0.5%	6.7%
Width	0.1%	0.1%
Method	1.9%	
# Stations	2.6%	
Overall	**3.5%**	**8.4%**

Discharge equation	Mid Section
Discharge uncertainty	ISO
Discharge reference	Measured

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

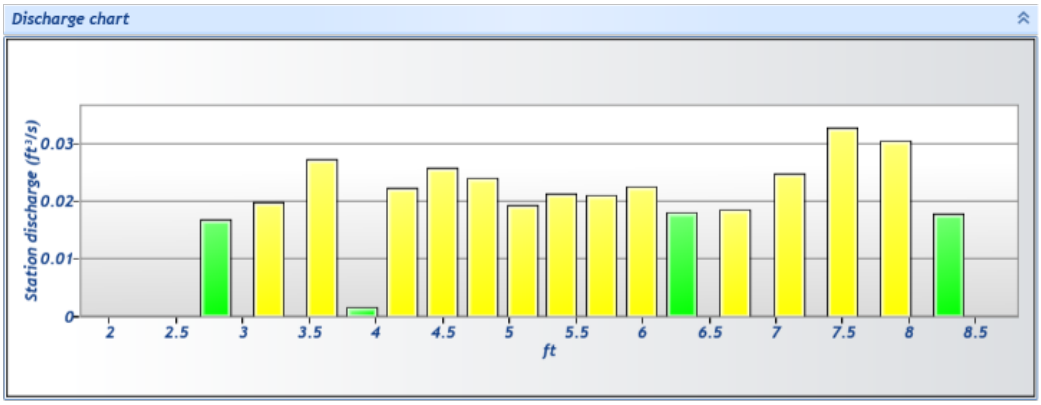
Summary overview

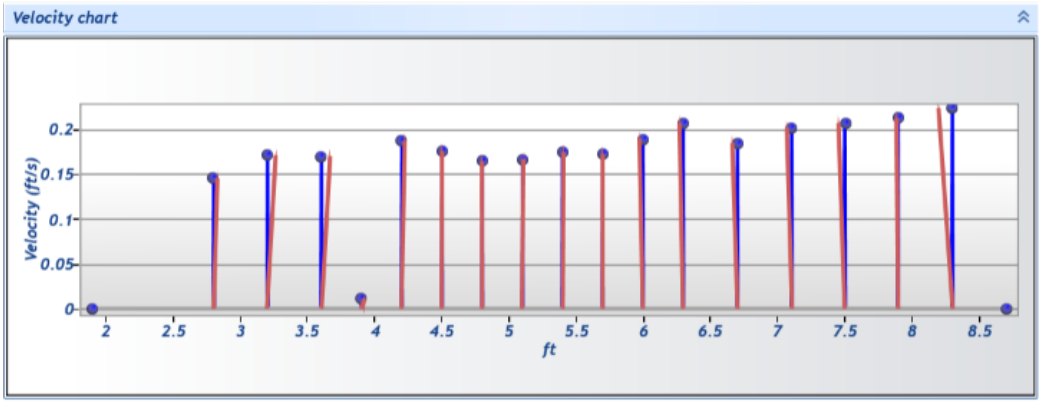
No changes were made to this file
Quality control warnings

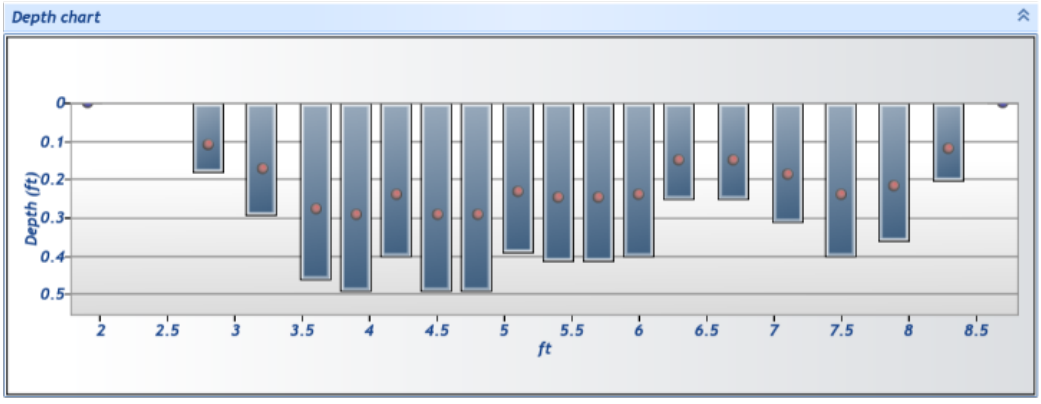
Discharge Measurement Summary

Site name	MONITOR CR N POTTER
Site number	
Operator(s)	JACK LANDERS
File name	MONCNCPC.003.FlowTracker2.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	MONITOR CR N POTTER
Site number	
Operator(s)	JACK LANDERS
File name	MONCNCPC.003.FlowTracker2.ft
Comment	

Measurement results

St#	Time	Location (ft)	Method	Depth (ft)	%Depth	Measured Depth (ft)	Samples	Velocity (ft/s)	Correction	Mean Velocity (ft/s)	Area (ft²)	Flow (ft³/s)	%Q	
0	9:12 AM	1.900	None	0.000	0.0000	0.000	0	0.0000	1.0000	0.1449	0.0000	0.0000	0.00	✓
1	9:15 AM	2.800	0.6	0.180	0.6000	0.108	40	0.1449	1.0000	0.1449	0.1171	0.0170	4.65	✓
2	9:17 AM	3.200	0.6	0.290	0.6000	0.174	40	0.1704	1.0000	0.1704	0.1161	0.0198	5.42	✓
3	9:19 AM	3.600	0.6	0.460	0.6000	0.276	40	0.1695	1.0000	0.1695	0.1609	0.0273	7.48	✓
4	9:21 AM	3.900	0.6	0.490	0.6000	0.294	40	0.0118	1.0000	0.0118	0.1468	0.0017	0.48	✓
5	9:22 AM	4.199	0.6	0.400	0.6000	0.240	40	0.1862	1.0000	0.1862	0.1198	0.0223	6.11	✓
6	9:24 AM	4.499	0.6	0.490	0.6000	0.294	40	0.1748	1.0000	0.1748	0.1468	0.0257	7.03	✓
7	9:25 AM	4.799	0.6	0.490	0.6000	0.294	40	0.1636	1.0000	0.1636	0.1468	0.0240	6.58	✓
8	9:26 AM	5.098	0.6	0.390	0.6000	0.234	40	0.1660	1.0000	0.1660	0.1168	0.0194	5.32	✓
9	9:27 AM	5.398	0.6	0.410	0.6000	0.246	40	0.1738	1.0000	0.1738	0.1228	0.0213	5.85	✓
10	9:28 AM	5.697	0.6	0.410	0.6000	0.246	40	0.1716	1.0000	0.1716	0.1228	0.0211	5.78	✓
11	9:29 AM	5.997	0.6	0.400	0.6000	0.240	40	0.1887	1.0000	0.1887	0.1198	0.0226	6.20	✓
12	9:31 AM	6.296	0.6	0.250	0.6000	0.150	40	0.2063	1.0000	0.2063	0.0879	0.0181	4.97	✓
13	9:32 AM	6.700	0.6	0.250	0.6000	0.150	40	0.1840	1.0000	0.1840	0.1010	0.0186	5.09	✓
14	9:33 AM	7.104	0.6	0.310	0.6000	0.186	40	0.2008	1.0000	0.2008	0.1240	0.0249	6.82	✓
15	9:34 AM	7.500	0.6	0.400	0.6000	0.240	40	0.2061	1.0000	0.2061	0.1584	0.0326	8.95	✓
16	9:36 AM	7.896	0.6	0.360	0.6000	0.216	40	0.2117	1.0000	0.2117	0.1439	0.0305	8.35	✓
17	9:37 AM	8.300	0.6	0.200	0.6000	0.120	40	0.2227	1.0000	0.2227	0.0805	0.0179	4.91	✓
18	9:37 AM	8.700	None	0.000	0.0000	0.000	0	0.0000	1.0000	0.2227	0.0000	0.0000	0.00	✓

Discharge Measurement Summary

Site name	MONITOR CR N POTTER
Site number	
Operator(s)	JACK LANDERS
File name	MONCNCPC.003.FlowTracker2.ft
Comment	

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

Quality control warnings

St#	Time	Location (ft)	Method	Depth (ft)	%Depth	Measured Depth (ft)	Warnings
2	9:17 AM	3.200	0.6	0.290	0.6000	0.174	Boundary Interference,Velocity Angle > QC
3	9:19 AM	3.600	0.6	0.460	0.6000	0.276	Velocity Angle > QC
17	9:37 AM	8.300	0.6	0.200	0.6000	0.120	Velocity Angle > QC

COLORADO WATER CONSERVATION BOARD

FIELD DATA FOR INSTREAM FLOW DETERMINATIONS

COLORADO DIVISION OF WILDLIFE

LOCATION INFORMATION

STREAM NAME: Monitor Creek - Colorado Ash/Log Tree | CROSS-SECTION NO.: 1

CROSS-SECTION LOCATION: x-Section

DATE: 6-26-17 | OBSERVERS: R. Smith, J. Sondergard

LEGAL DESCRIPTION	¼ SECTION:	SECTION:	TOWNSHIP: N/S	RANGE: E/W	PM:

COUNTY:	WATERSHED:	WATER DIVISION:	DOW WATER CODE:

MAP(S): USGS:

USFS:

SUPPLEMENTAL DATA

TAG TAPE SECTION SAME AS DISCHARGE SECTION: YES / NO | METER TYPE:

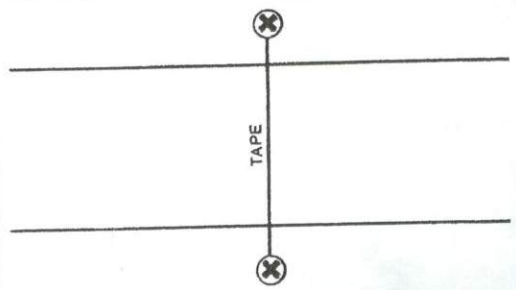
METER NUMBER:	DATE RATED:	CALIB/SPIN: _____ sec	TAPE WEIGHT: _____ lbs/foot	TAPE TENSION: _____ lbs

CHANNEL BED MATERIAL SIZE RANGE: | PHOTOGRAPHS TAKEN: YES/NO | NUMBER OF PHOTOGRAPHS:

CHANNEL PROFILE DATA

STATION	DISTANCE FROM TAPE (ft)	ROD READING (ft)
⊗ Tape @ Stake LB	0.0	
⊗ Tape @ Stake RB	0.0	
① WS @ Tape LB/RB	0.0	
② WS Upstream		
③ WS Downstream		
SLOPE		

SKETCH



LEGEND:

Stake ⊗

Station ①

Photo ①→

Direction of Flow ←→

AQUATIC SAMPLING SUMMARY

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

LENGTH - FREQUENCY DISTRIBUTION BY ONE-INCH SIZE GROUPS (1.0-1.9, 2.0-2.9, ETC.)

SPECIES (FILL IN)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	>15	TOTAL

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

COMMENTS

Extraordinarily clear water - likely 100% groundwater discharge.
Stream is loaded with fish in every riffle & pool; appear to be flannelmouth.

DISCHARGE/CROSS SECTION NOTES

STREAM NAME: Monidor Creek | CROSS-SECTION NO.: 1 | DATE: 6-26-17 | SHEET ___ OF ___

BEGINNING OF MEASUREMENT | EDGE OF WATER LOOKING DOWNSTREAM: (0.0 AT STAKE) LEFT / RIGHT | Gage Reading: _____ ft | TIME: 9:40 am

Features (Stake (S), Grassline (G), Waterline (W), Rock (R))	Distance From Initial Point (ft)	Width (ft)	Total Vertical Depth From Tape/Inst (ft)	Water Depth (ft)	Depth of Observation (ft)	Revolutions	Time (sec)	Velocity (ft/sec) At Point	Velocity (ft/sec) Mean in Vertical	Area (ft^2)	Discharge (cfs)
RW	13.1		0					0	velocities		
	14.0		.15					0	below		
	14.3		.13					0	accuracy		
	14.6		.15					0	threshold		
	14.9		.25					0	for		
	15.2		.18					0	Marsh-		
	15.5		.15					0	McBirney		
	15.8		.10					0			
	16.1		.10					0			
	16.4		.20					0			
LW	17.9		0					0			
Alternative Discharge Measurement 25' upstream.											
RW	4.6		0					0			
	4.9	.5	.20					.17		.1	.017
	5.1	.2	.20					.83		.04	.033
	5.3	.2	.20					.77		.04	.031
	5.5	.2	.20					.49		.04	.002
	5.7	.4	.13					.07		.052	.004
LW	6.0		0					0			
											.09 cfs
TOTALS:											

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

Discharge Measurement Summary

Site name	MONITER C A POTTER C
Site number	
Operator(s)	JEL
File name	MONCACPC.004.FlowTracker2.ft
Comment	

Start time	7/13/2017 11:28 AM
End time	7/13/2017 11:56 AM
Start location latitude	-
Start location longitude	-
Calculations engine	FlowTracker2

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

# Stations	Avg interval (s)	Total discharge (ft³/s)
26	40	0.7478

Total width (ft)	Total area (ft²)	Wetted Perimeter (ft)
7.705	2.9600	8.001

Mean SNR (dB)	Mean depth (ft)	Mean velocity (ft/s)
30	0.384	0.2526

Mean temp (°F)	Max depth (ft)	Max velocity (ft/s)
76.052	0.610	0.4093

Discharge Uncertainty		
Category	**ISO**	**IVE**
Accuracy	1.0%	1.0%
Depth	0.3%	3.5%
Velocity	0.6%	5.5%
Width	0.1%	0.1%
Method	1.7%	
# Stations	2.0%	
Overall	**2.9%**	**6.6%**

Discharge equation	Mid Section
Discharge uncertainty	ISO
Discharge reference	Measured

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

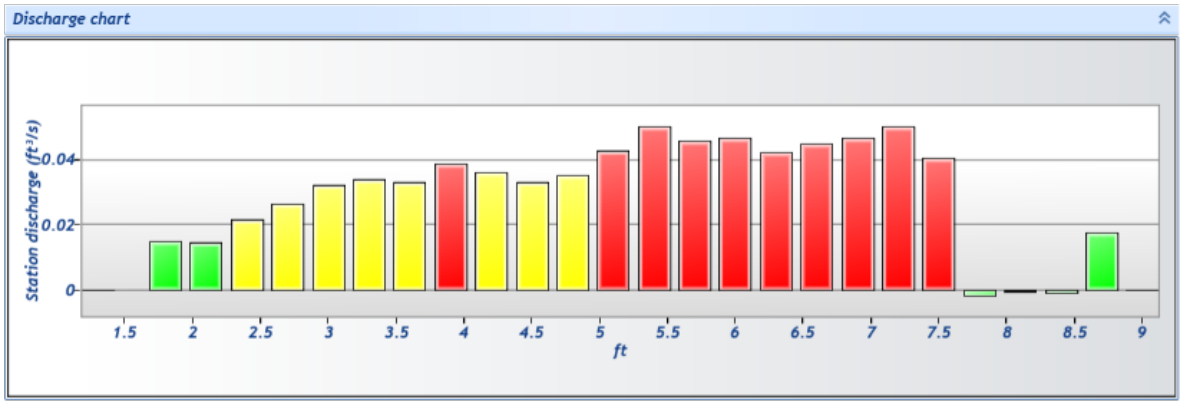
Summary overview

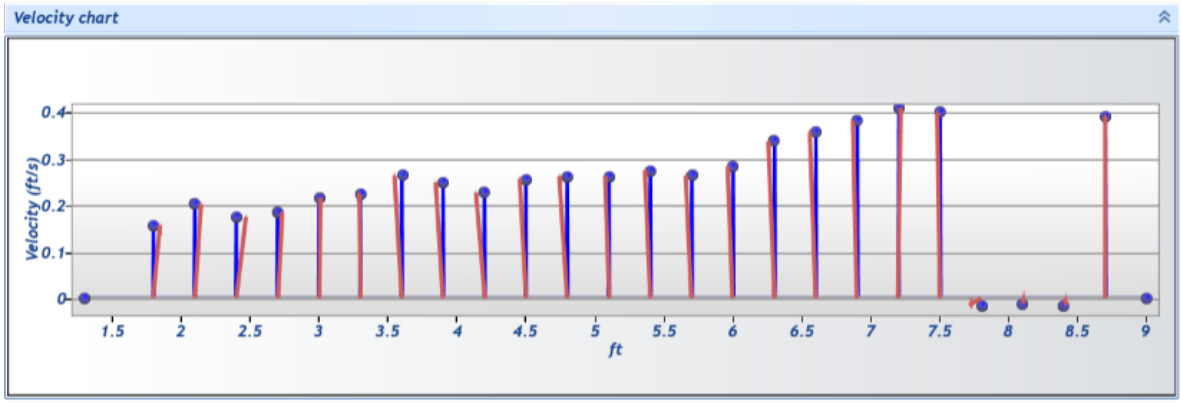
No changes were made to this file
Quality control warnings

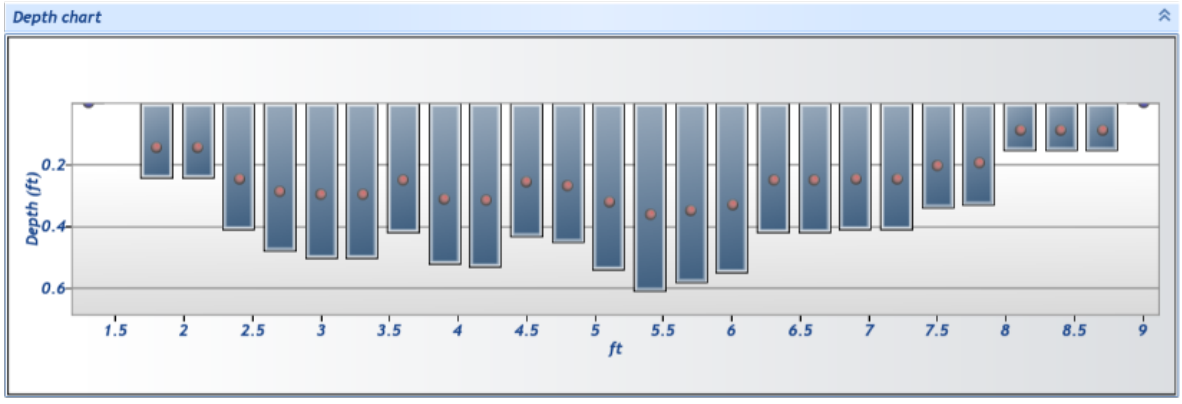
Discharge Measurement Summary

Site name	MONITER C A POTTER C
Site number	
Operator(s)	JEL
File name	MONCACPC.004.FlowTracker2.ft
Comment	

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







Discharge Measurement Summary

Site name	MONITER C A POTTER C
Site number	
Operator(s)	JEL
File name	MONCACPC.004.FlowTracker2.ft
Comment	

Measurement results

St#	Time	Location (ft)	Method	Depth (ft)	%Depth	Measured Depth (ft)	Samples	Velocity (ft/s)	Correction	Mean Velocity (ft/s)	Area (ft²)	Flow (ft³/s)	%Q	
0	11:28 AM	1.300	None	0.000	0.0000	0.000	0	0.0000	1.0000	0.1570	0.0000	0.0000	0.00	✓
1	11:31 AM	1.800	0.6	0.240	0.6000	0.144	40	0.1570	1.0000	0.1570	0.0961	0.0151	2.02	✓
2	11:33 AM	2.100	0.6	0.240	0.6000	0.144	40	0.2030	1.0000	0.2030	0.0721	0.0146	1.96	✓
3	11:34 AM	2.400	0.6	0.410	0.6000	0.246	40	0.1748	1.0000	0.1748	0.1231	0.0215	2.88	✓
4	11:35 AM	2.700	0.6	0.480	0.6000	0.288	40	0.1848	1.0000	0.1848	0.1441	0.0266	3.56	✓
5	11:36 AM	3.001	0.6	0.500	0.6000	0.300	40	0.2161	1.0000	0.2161	0.1501	0.0324	4.34	✓
6	11:37 AM	3.301	0.6	0.500	0.6000	0.300	40	0.2258	1.0000	0.2258	0.1501	0.0339	4.53	✓
7	11:38 AM	3.601	0.6	0.420	0.6000	0.252	40	0.2640	1.0000	0.2640	0.1261	0.0333	4.45	✓
8	11:39 AM	3.901	0.6	0.520	0.6000	0.312	40	0.2491	1.0000	0.2491	0.1561	0.0389	5.20	✓
9	11:40 AM	4.201	0.6	0.530	0.6000	0.318	40	0.2272	1.0000	0.2272	0.1591	0.0361	4.83	✓
10	11:41 AM	4.502	0.6	0.430	0.6000	0.258	40	0.2570	1.0000	0.2570	0.1291	0.0332	4.44	✓
11	11:42 AM	4.802	0.6	0.450	0.6000	0.270	40	0.2625	1.0000	0.2625	0.1351	0.0355	4.74	✓
12	11:43 AM	5.102	0.6	0.540	0.6000	0.324	40	0.2630	1.0000	0.2630	0.1621	0.0426	5.70	✓
13	11:44 AM	5.402	0.6	0.610	0.6000	0.366	40	0.2754	1.0000	0.2754	0.1831	0.0504	6.74	✓
14	11:45 AM	5.702	0.6	0.580	0.6000	0.348	40	0.2640	1.0000	0.2640	0.1741	0.0460	6.15	✓
15	11:46 AM	6.003	0.6	0.550	0.6000	0.330	40	0.2837	1.0000	0.2837	0.1651	0.0468	6.26	✓
16	11:47 AM	6.303	0.6	0.420	0.6000	0.252	40	0.3378	1.0000	0.3378	0.1261	0.0426	5.69	✓
17	11:48 AM	6.603	0.6	0.420	0.6000	0.252	40	0.3573	1.0000	0.3573	0.1261	0.0450	6.02	✓
18	11:50 AM	6.903	0.6	0.410	0.6000	0.246	40	0.3814	1.0000	0.3814	0.1231	0.0470	6.28	✓
19	11:51 AM	7.203	0.6	0.410	0.6000	0.246	40	0.4093	1.0000	0.4093	0.1231	0.0504	6.74	✓
20	11:52 AM	7.504	0.6	0.340	0.6000	0.204	40	0.3997	1.0000	0.3997	0.1020	0.0408	5.45	✓
21	11:53 AM	7.804	0.6	0.330	0.6000	0.198	40	-0.0152	1.0000	-0.0152	0.0991	-0.0015	-0.20	✓
22	11:54 AM	8.104	0.6	0.150	0.6000	0.090	40	-0.0112	1.0000	-0.0112	0.0450	-0.0005	-0.07	✓
23	11:55 AM	8.404	0.6	0.150	0.6000	0.090	40	-0.0143	1.0000	-0.0143	0.0450	-0.0006	-0.09	✓
24	11:56 AM	8.704	0.6	0.150	0.6000	0.090	40	0.3923	1.0000	0.3923	0.0450	0.0177	2.36	✓
25	11:56 AM	9.005	None	0.000	0.0000	0.000	0	0.0000	1.0000	0.3923	0.0000	0.0000	0.00	✓

Discharge Measurement Summary

Site name	MONITER C A POTTER C
Site number	
Operator(s)	JEL
File name	MONCACPC.004.FlowTracker2.ft
Comment	

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

Quality control warnings

St#	Time	Location (ft)	Method	Depth (ft)	%Depth	Measured Depth (ft)	Warnings
1	11:31 AM	1.800	0.6	0.240	0.6000	0.144	Boundary Interference
3	11:34 AM	2.400	0.6	0.410	0.6000	0.246	Velocity Angle > QC
8	11:39 AM	3.901	0.6	0.520	0.6000	0.312	High Stn % Discharge
12	11:43 AM	5.102	0.6	0.540	0.6000	0.324	High Stn % Discharge
13	11:44 AM	5.402	0.6	0.610	0.6000	0.366	High Stn % Discharge
14	11:45 AM	5.702	0.6	0.580	0.6000	0.348	High Stn % Discharge
15	11:46 AM	6.003	0.6	0.550	0.6000	0.330	High Stn % Discharge
16	11:47 AM	6.303	0.6	0.420	0.6000	0.252	High Stn % Discharge
17	11:48 AM	6.603	0.6	0.420	0.6000	0.252	High Stn % Discharge
18	11:50 AM	6.903	0.6	0.410	0.6000	0.246	High Stn % Discharge
19	11:51 AM	7.203	0.6	0.410	0.6000	0.246	High Stn % Discharge
20	11:52 AM	7.504	0.6	0.340	0.6000	0.204	High Stn % Discharge
22	11:54 AM	8.104	0.6	0.150	0.6000	0.090	Boundary Interference

Discharge Measurement Summary

Site name	MONITER C A POTTER C
Site number	
Operator(s)	JEL
File name	MONCACPC.004.FlowTracker2.ft
Comment	

Supplemental data summary

Gauge height time	Gauge height (ft)	Rated discharge (ft³/s)	Temperature (°F)	Salinity (PSS-78)	Gauge height comments
7/13/2017 11:29 AM	1.410	0.0000			

Discharge Measurement Summary

Site name	MONITOR NR CFL POTER
Site number	
Operator(s)	BRIAN EPSTEIN
File name	MONCNCPC.005.FlowTracker2.ft
Comment	

Start time	8/24/2017 6:50 PM
End time	8/24/2017 7:15 PM
Start location latitude	-
Start location longitude	-
Calculations engine	FlowTracker2

Sensor type	Unknown
Handheld serial number	n/a
Probe serial number	P2355
Probe firmware	3.90
Handheld software	n/a

# Stations	Avg interval (s)	Total discharge (ft³/s)
21	40	0.1210

Total width (ft)	Total area (ft²)	Wetted Perimeter (ft)
6.100	1.2349	6.360

Mean SNR (dB)	Mean depth (ft)	Mean velocity (ft/s)
24	0.202	0.0979

Mean temp (°F)	Max depth (ft)	Max velocity (ft/s)
71.544	0.290	0.1557

Discharge Uncertainty		
Category	**ISO**	**IVE**
Accuracy	1.0%	1.0%
Depth	0.4%	7.5%
Velocity	0.9%	5.8%
Width	0.1%	0.1%
Method	1.8%	
# Stations	2.4%	
Overall	**3.3%**	**9.5%**

Discharge equation	Mid Section
Discharge uncertainty	ISO
Discharge reference	Measured

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

Summary overview

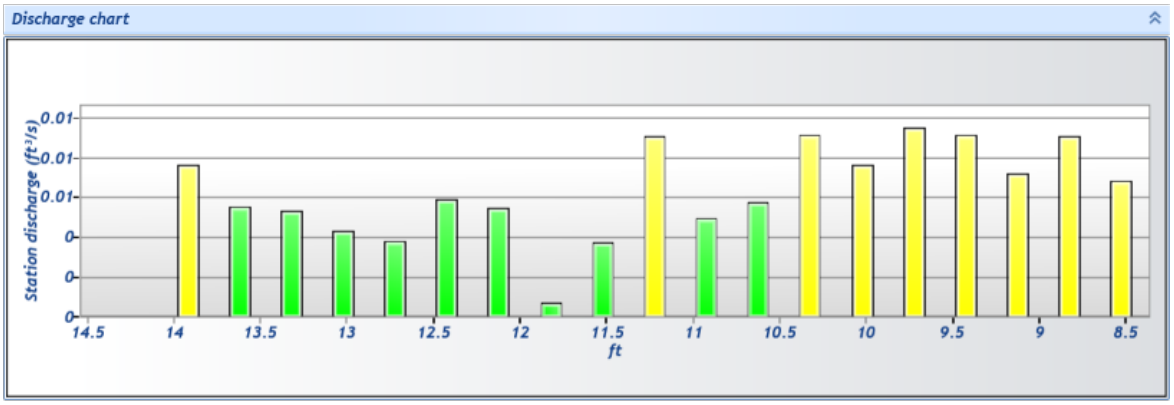
No changes were made to this file
Quality control warnings

Discharge Measurement Summary

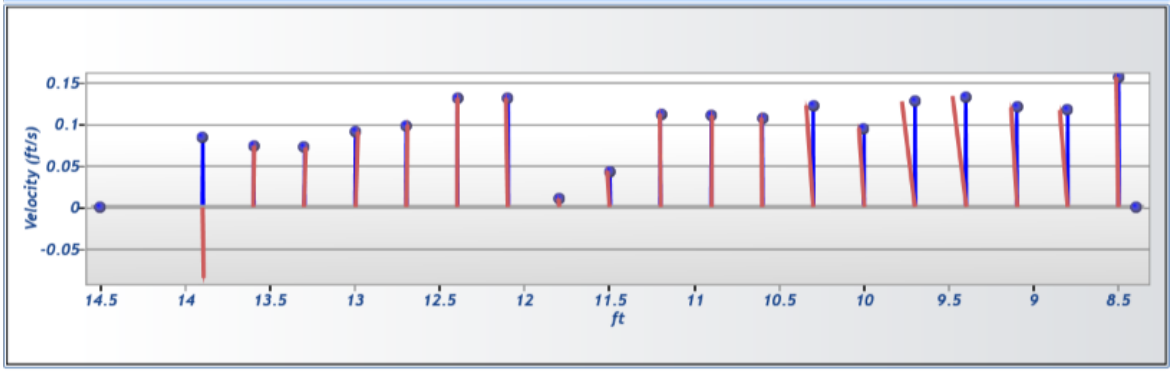
Site name	MONITOR NR CFL POTER
Site number	
Operator(s)	BRIAN EPSTEIN
File name	MONCNCPC.005.FlowTracker2.ft
Comment	

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%

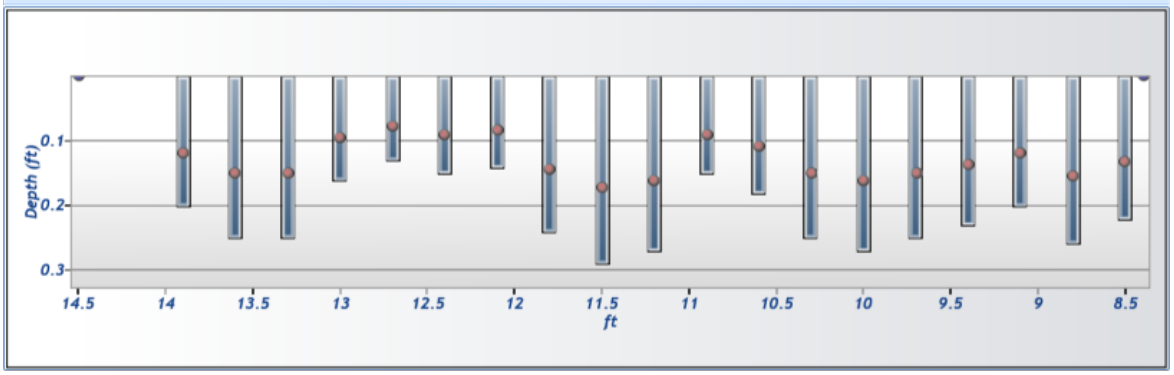
Discharge chart



Velocity chart



Depth chart



Discharge Measurement Summary

Site name	MONITOR NR CFL POTER
Site number	
Operator(s)	BRIAN EPSTEIN
File name	MONCNCPC.005.FlowTracker2.ft
Comment	

Measurement results

St#	Time	Location (ft)	Method	Depth (ft)	%Depth	Measured Depth (ft)	Samples	Velocity (ft/s)	Correction	Mean Velocity (ft/s)	Area (ft²)	Flow (ft³/s)	%Q	
0	6:50 PM	8.400	None	0.000	0.0000	0.000	0	0.0000	1.0000	0.1557	0.0000	0.0000	0.00	✓
1	6:53 PM	8.500	0.6	0.220	0.6000	0.132	40	0.1557	1.0000	0.1557	0.0440	0.0069	5.67	✓
2	6:54 PM	8.800	0.6	0.260	0.6000	0.156	40	0.1164	1.0000	0.1164	0.0779	0.0091	7.50	✓
3	6:55 PM	9.100	0.6	0.200	0.6000	0.120	40	0.1196	1.0000	0.1196	0.0600	0.0072	5.94	✓
4	6:56 PM	9.400	0.6	0.230	0.6000	0.138	40	0.1329	1.0000	0.1329	0.0690	0.0092	7.58	✓
5	6:58 PM	9.699	0.6	0.250	0.6000	0.150	40	0.1266	1.0000	0.1266	0.0750	0.0095	7.85	✓
6	6:59 PM	9.999	0.6	0.270	0.6000	0.162	40	0.0948	1.0000	0.0948	0.0810	0.0077	6.34	✓
7	7:00 PM	10.299	0.6	0.250	0.6000	0.150	40	0.1218	1.0000	0.1218	0.0750	0.0091	7.55	✓
8	7:02 PM	10.599	0.6	0.180	0.6000	0.108	40	0.1073	1.0000	0.1073	0.0540	0.0058	4.79	✓
9	7:03 PM	10.899	0.6	0.150	0.6000	0.090	40	0.1100	1.0000	0.1100	0.0450	0.0049	4.09	✓
10	7:04 PM	11.199	0.6	0.270	0.6000	0.162	40	0.1119	1.0000	0.1119	0.0810	0.0091	7.49	✓
11	7:05 PM	11.499	0.6	0.290	0.6000	0.174	40	0.0435	1.0000	0.0435	0.0870	0.0038	3.13	✓
12	7:07 PM	11.799	0.6	0.240	0.6000	0.144	40	0.0103	1.0000	0.0103	0.0720	0.0007	0.61	✓
13	7:08 PM	12.098	0.6	0.140	0.6000	0.084	40	0.1308	1.0000	0.1308	0.0420	0.0055	4.54	✓
14	7:09 PM	12.398	0.6	0.150	0.6000	0.090	40	0.1309	1.0000	0.1309	0.0450	0.0059	4.86	✓
15	7:10 PM	12.698	0.6	0.130	0.6000	0.078	40	0.0985	1.0000	0.0985	0.0390	0.0038	3.17	✓
16	7:12 PM	12.998	0.6	0.160	0.6000	0.096	40	0.0904	1.0000	0.0904	0.0480	0.0043	3.59	✓
17	7:13 PM	13.298	0.6	0.250	0.6000	0.150	40	0.0714	1.0000	0.0714	0.0750	0.0054	4.43	✓
18	7:14 PM	13.598	0.6	0.250	0.6000	0.150	40	0.0737	1.0000	0.0737	0.0750	0.0055	4.57	✓
19	7:15 PM	13.898	0.6	0.200	0.6000	0.120	40	-0.0844	-1.0000	0.0844	0.0903	0.0076	6.30	✓
20	7:15 PM	14.500	None	0.000	0.0000	0.000	0	0.0000	1.0000	0.0844	0.0000	0.0000	0.00	✓

Discharge Measurement Summary

Site name	MONITOR NR CFL POTER
Site number	
Operator(s)	BRIAN EPSTEIN
File name	MONCNCPC.005.FlowTracker2.ft
Comment	

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

Quality control warnings

St#	Time	Location (ft)	Method	Depth (ft)	%Depth	Measured Depth (ft)	Warnings
2	6:54 PM	8.800	0.6	0.260	0.6000	0.156	SNR Threshold Variation,Velocity Angle > QC
4	6:56 PM	9.400	0.6	0.230	0.6000	0.138	Velocity Angle > QC
5	6:58 PM	9.699	0.6	0.250	0.6000	0.150	Velocity Angle > QC
12	7:07 PM	11.799	0.6	0.240	0.6000	0.144	Large SNR Variation,SNR Threshold Variation
15	7:10 PM	12.698	0.6	0.130	0.6000	0.078	SNR Threshold Variation
18	7:14 PM	13.598	0.6	0.250	0.6000	0.150	SNR Threshold Variation
19	7:15 PM	13.898	0.6	0.200	0.6000	0.120	Velocity Angle > QC
20	7:15 PM	14.500	None	0.000	0.0000	0.000	Stn Spacing > QC

Discharge Measurement Summary

Site name	MONITOR NR CFL POTER
Site number	
Operator(s)	BRIAN EPSTEIN
File name	MONCNCPC.005.FlowTracker2.ft
Comment	

Supplemental data summary

Gauge height time	Gauge height (ft)	Rated discharge (ft³/s)	Temperature (°F)	Salinity (PSS-78)	Gauge height comments
8/24/2017 7:18 PM	0.000	0.0000			826986

Discharge Measurement Summary

Site name	Monitor Creek - D4
Site number	0320
Operator(s)	Jack Landers
File name	20180320_Monitor Creek - D4.ft
Comment	Temp gage

Start time	3/20/2018 6:52 PM
End time	3/20/2018 7:05 PM
Start location latitude	38.620
Start location longitude	-108.209
Calculations engine	FlowTracker2

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

# Stations	Avg interval (s)	Total discharge (ft³/s)
11	40	0.0393

Total width (ft)	Total area (ft²)	Wetted Perimeter (ft)
3.300	0.6775	3.450

Mean SNR (dB)	Mean depth (ft)	Mean velocity (ft/s)
24	0.205	0.0581

Mean temp (°F)	Max depth (ft)	Max velocity (ft/s)
49.107	0.400	0.1701

Discharge Uncertainty		
Category	**ISO**	**IVE**
Accuracy	1.0%	1.0%
Depth	0.7%	17.6%
Velocity	1.9%	36.9%
Width	0.2%	0.2%
Method	3.3%	
# Stations	4.6%	
Overall	**6.1%**	**40.9%**

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 %

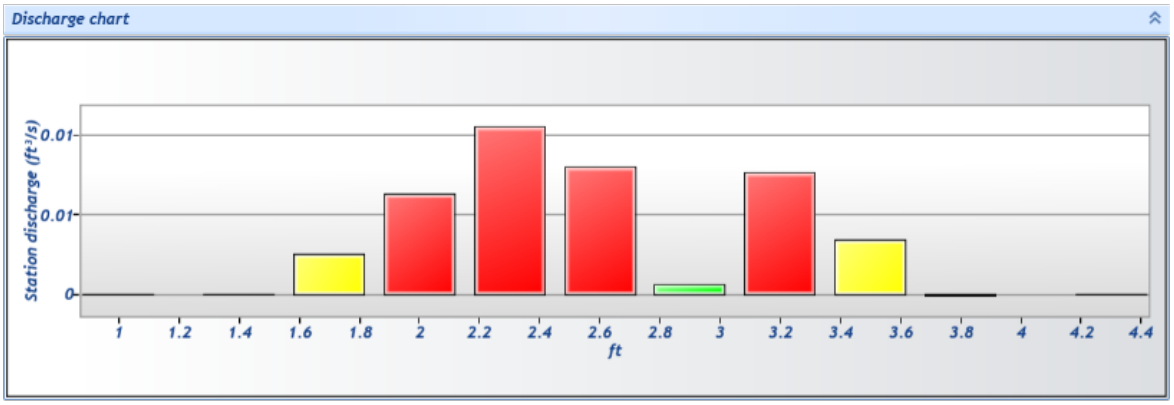
Summary overview

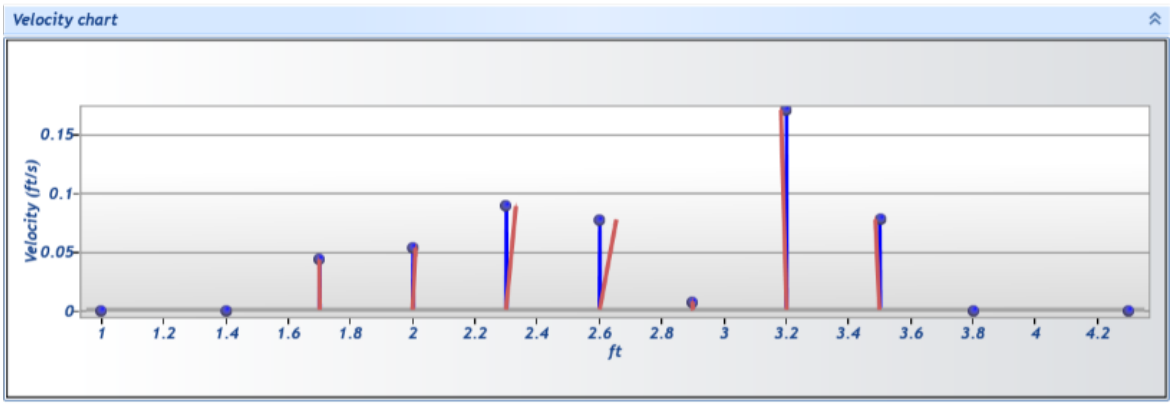
No changes were made to this file
Quality control warnings

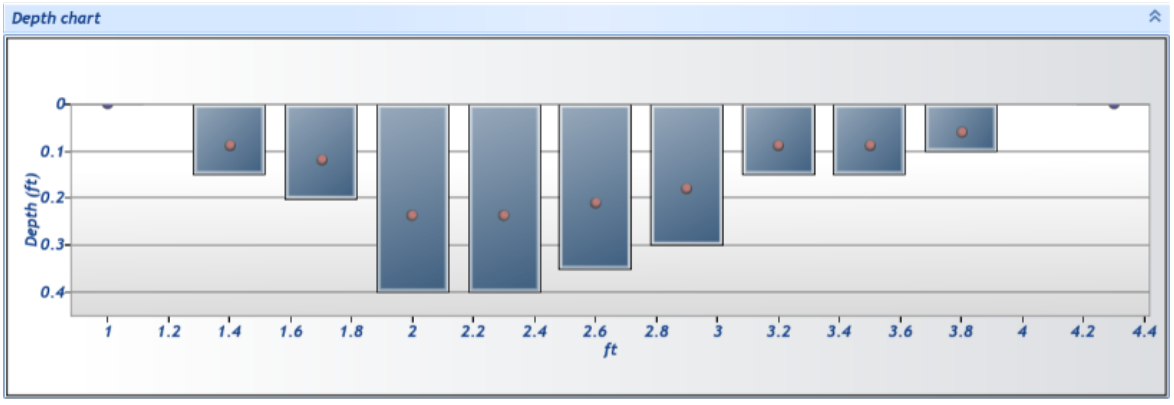
Discharge Measurement Summary

Site name	Monitor Creek - D4
Site number	0320
Operator(s)	Jack Landers
File name	20180320_Monitor Creek - D4.ft
Comment	Temp gage

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







Discharge Measurement Summary

Site name	Monitor Creek - D4
Site number	0320
Operator(s)	Jack Landers
File name	20180320_Monitor Creek - D4.ft
Comment	Temp gage

Measurement results

St#	Time	Location (ft)	Method	Depth (ft)	%Depth	Measured Depth (ft)	Samples	Velocity (ft/s)	Correction	Mean Velocity (ft/s)	Area (ft²)	Flow (ft³/s)	%Q	
0	6:52 PM	1.000	None	0.000	0.0000	0.000	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.00	✓
1	6:53 PM	1.400	0.6	0.150	0.6000	0.090	80	-0.0003	1.0000	-0.0003	0.0525	0.0000	-0.03	✓
2	6:54 PM	1.700	0.6	0.200	0.6000	0.120	80	0.0429	1.0000	0.0429	0.0600	0.0026	6.54	✓
3	6:56 PM	2.000	0.6	0.400	0.6000	0.240	80	0.0531	1.0000	0.0531	0.1200	0.0064	16.20	✓
4	6:57 PM	2.300	0.6	0.400	0.6000	0.240	80	0.0883	1.0000	0.0883	0.1200	0.0106	26.95	✓
5	6:58 PM	2.600	0.6	0.350	0.6000	0.210	80	0.0768	1.0000	0.0768	0.1050	0.0081	20.49	✓
6	7:00 PM	2.900	0.6	0.300	0.6000	0.180	80	0.0073	1.0000	0.0073	0.0900	0.0007	1.67	✓
7	7:01 PM	3.200	0.6	0.150	0.6000	0.090	80	0.1701	1.0000	0.1701	0.0450	0.0077	19.46	✓
8	7:03 PM	3.500	0.6	0.150	0.6000	0.090	80	0.0771	1.0000	0.0771	0.0450	0.0035	8.82	✓
9	7:04 PM	3.800	0.6	0.100	0.6000	0.060	80	-0.0008	1.0000	-0.0008	0.0400	0.0000	-0.09	✓
10	7:05 PM	4.300	None	0.000	0.0000	0.000	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.00	✓

Discharge Measurement Summary

Site name	Monitor Creek - D4
Site number	0320
Operator(s)	Jack Landers
File name	20180320_Monitor Creek - D4.ft
Comment	Temp gage

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

Quality control warnings

St#	Time	Location (ft)	Method	Depth (ft)	%Depth	Measured Depth (ft)	Warnings
1	6:53 PM	1.400	0.6	0.150	0.6000	0.090	Boundary Interference
2	6:54 PM	1.700	0.6	0.200	0.6000	0.120	Boundary Interference
3	6:56 PM	2.000	0.6	0.400	0.6000	0.240	High Stn % Discharge
4	6:57 PM	2.300	0.6	0.400	0.6000	0.240	High Stn % Discharge
5	6:58 PM	2.600	0.6	0.350	0.6000	0.210	Velocity Angle > QC,High Stn % Discharge
6	7:00 PM	2.900	0.6	0.300	0.6000	0.180	Boundary Interference,Low SNR,Approaching Low SNR,SNR Threshold Variation
7	7:01 PM	3.200	0.6	0.150	0.6000	0.090	High Stn % Discharge
9	7:04 PM	3.800	0.6	0.100	0.6000	0.060	Boundary Interference,Beam SNRs Not Similar

Discharge Measurement Summary

Site name	Monitor Creek - D4
Site number	0320
Operator(s)	Jack Landers
File name	20180320_Monitor Creek - D4.ft
Comment	Temp gage

Supplemental data summary

Gauge height time	Gauge height (ft)	Rated discharge (ft³/s)	Temperature (°F)	Salinity (PSS-78)	Gauge height comments
3/20/2018 7:06 PM	1.010				

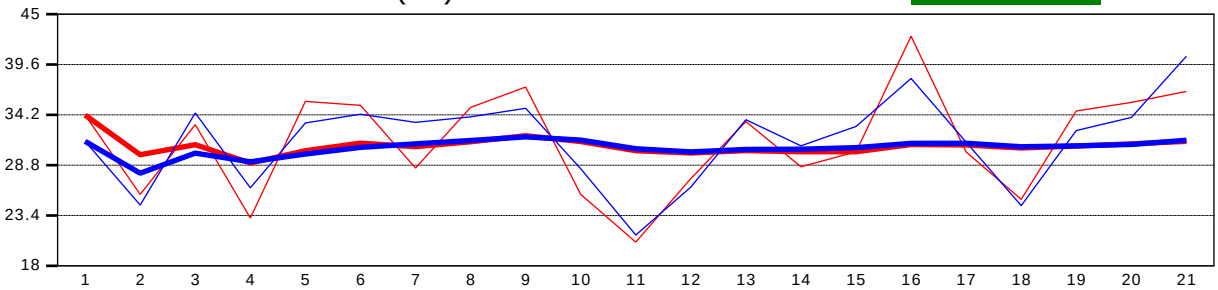
Discharge Measurement Summary

Site name	Monitor Creek - D4
Site number	0320
Operator(s)	Jack Landers
File name	20180320_Monitor Creek - D4.ft
Comment	Temp gage

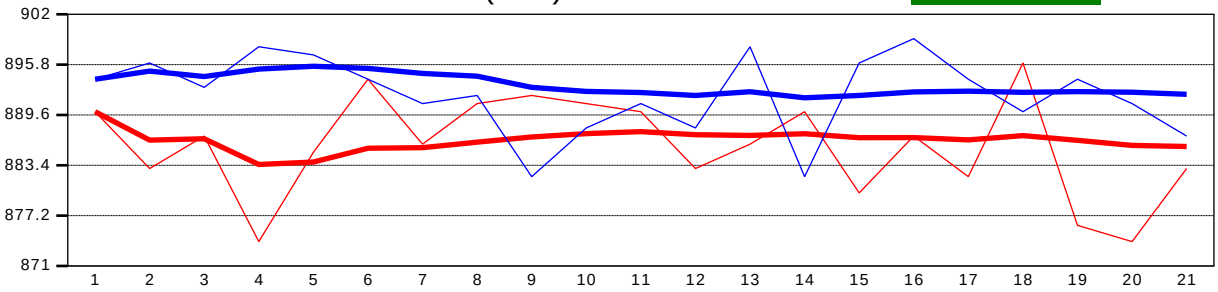
Beam 1	
Beam 2	

Automated beam check Start time 3/20/2018 6:52:02 PM

Automated beam check SNR(dB) PASS



Automated beam check Noise level(cnts) PASS



Automated beam check Quality control warnings

No quality control warnings

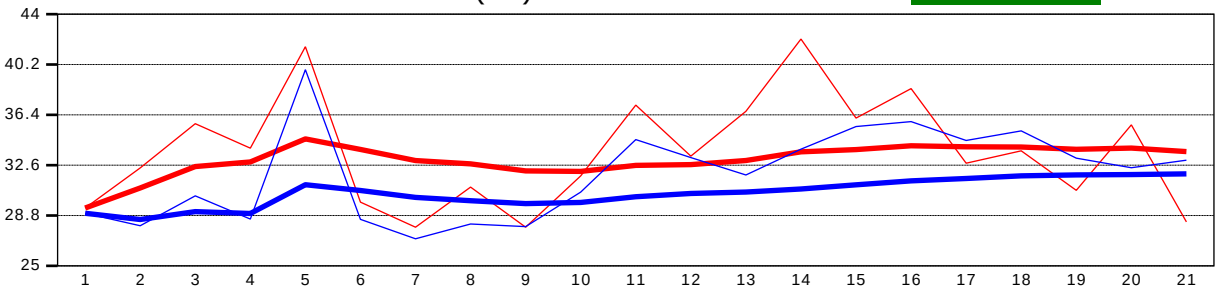
Discharge Measurement Summary

Site name	Monitor Creek - D4
Site number	0320
Operator(s)	Jack Landers
File name	20180320_Monitor Creek - D4.ft
Comment	Temp gage

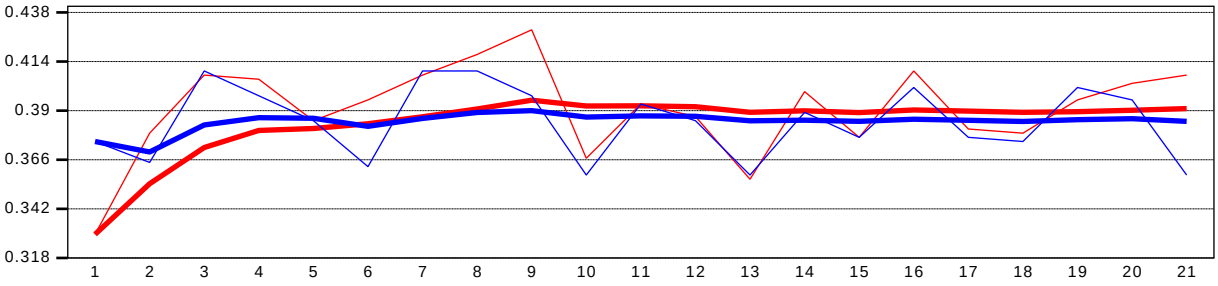
Beam 1	
Beam 2	

Automated beam check Start time 3/20/2018 6:52:02 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	Monitor Creek - D4
Site number	0321
Operator(s)	Jack Landers
File name	20180321_Monitor Creek - D4.ft
Comment	Temp gage

Start time	3/21/2018 9:44 AM
End time	3/21/2018 10:10 AM
Start location latitude	38.620
Start location longitude	-108.209
Calculations engine	FlowTracker2

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

# Stations	Avg interval (s)	Total discharge (ft³/s)
21	40	0.0822

Total width (ft)	Total area (ft²)	Wetted Perimeter (ft)
7.500	2.1175	7.786

Mean SNR (dB)	Mean depth (ft)	Mean velocity (ft/s)
23	0.282	0.0388

Mean temp (°F)	Max depth (ft)	Max velocity (ft/s)
39.927	0.500	0.0996

Discharge Uncertainty		
Category	**ISO**	**IVE**
Accuracy	1.0%	1.0%
Depth	0.4%	8.6%
Velocity	4.8%	11.7%
Width	0.1%	0.1%
Method	2.2%	
# Stations	2.4%	
Overall	**5.9%**	**14.6%**

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

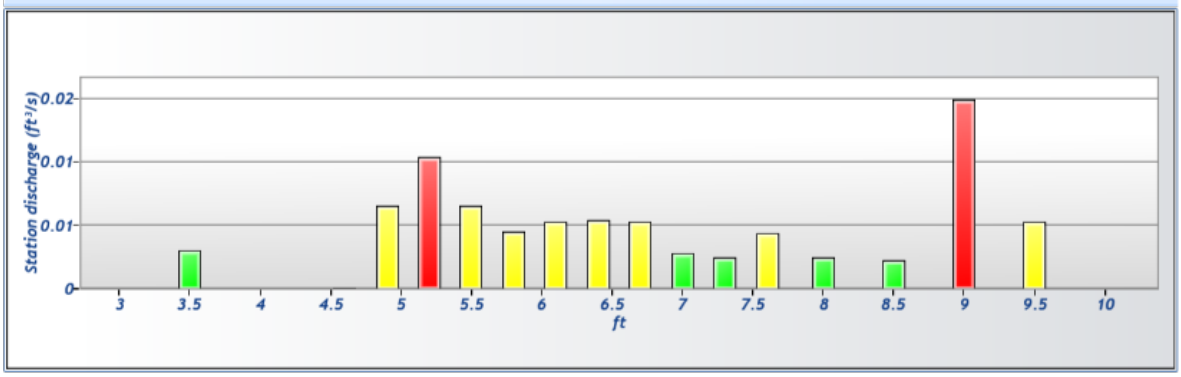
No changes were made to this file
Quality control warnings

Discharge Measurement Summary

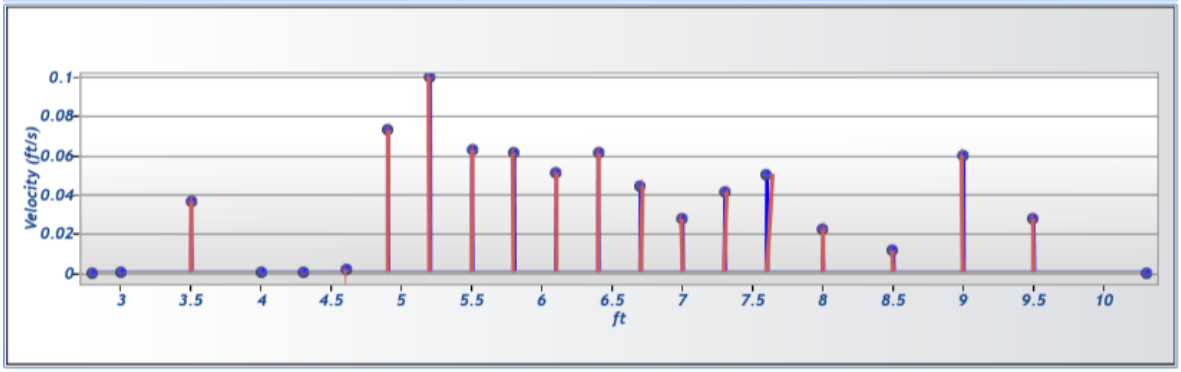
Site name	Monitor Creek - D4
Site number	0321
Operator(s)	Jack Landers
File name	20180321_Monitor Creek - D4.ft
Comment	Temp gage

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

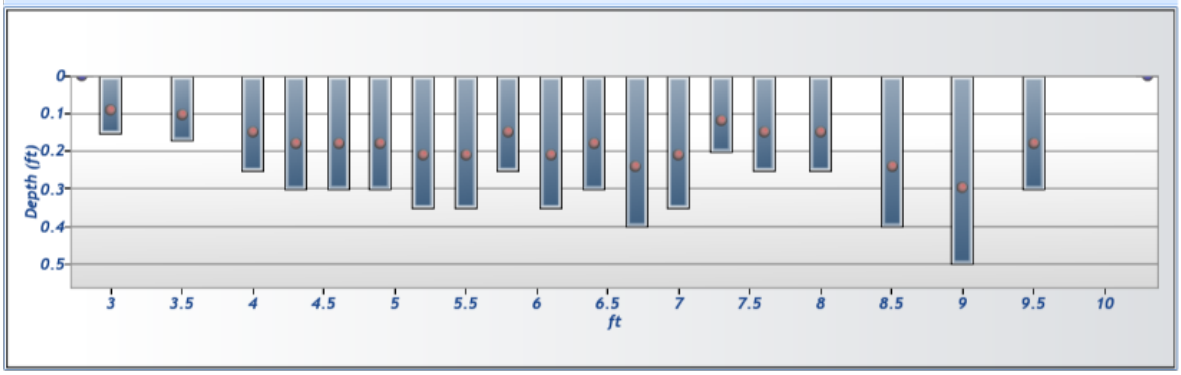
Discharge chart



Velocity chart



Depth chart



Discharge Measurement Summary

Site name	Monitor Creek - D4
Site number	0321
Operator(s)	Jack Landers
File name	20180321_Monitor Creek - D4.ft
Comment	Temp gage

Measurement results

St#	Time	Location (ft)	Method	Depth (ft)	%Depth	Measured Depth (ft)	Samples	Velocity (ft/s)	Correction	Mean Velocity (ft/s)	Area (ft²)	Flow (ft³/s)	%Q	
0	9:44 AM	2.800	None	0.000	0.0000	0.000	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.00	✓
1	9:44 AM	3.000	0.6	0.150	0.6000	0.090	80	0.0002	1.0000	0.0002	0.0525	0.0000	0.01	✓
2	9:46 AM	3.500	0.6	0.170	0.6000	0.102	80	0.0363	1.0000	0.0363	0.0850	0.0031	3.75	✓
3	9:47 AM	4.000	0.6	0.250	0.6000	0.150	80	0.0003	1.0000	0.0003	0.1000	0.0000	0.03	✓
4	9:49 AM	4.300	0.6	0.300	0.6000	0.180	80	0.0001	1.0000	0.0001	0.0900	0.0000	0.01	✓
5	9:50 AM	4.600	0.6	0.300	0.6000	0.180	80	0.0017	1.0000	0.0017	0.0900	0.0002	0.19	✓
6	9:52 AM	4.900	0.6	0.300	0.6000	0.180	80	0.0726	1.0000	0.0726	0.0900	0.0065	7.95	✓
7	9:53 AM	5.200	0.6	0.350	0.6000	0.210	80	0.0996	1.0000	0.0996	0.1050	0.0105	12.72	✓
8	9:54 AM	5.500	0.6	0.350	0.6000	0.210	80	0.0627	1.0000	0.0627	0.1050	0.0066	8.01	✓
9	9:55 AM	5.800	0.6	0.250	0.6000	0.150	80	0.0607	1.0000	0.0607	0.0750	0.0046	5.54	✓
10	9:56 AM	6.100	0.6	0.350	0.6000	0.210	80	0.0506	1.0000	0.0506	0.1050	0.0053	6.47	✓
11	9:58 AM	6.400	0.6	0.300	0.6000	0.180	80	0.0609	1.0000	0.0609	0.0900	0.0055	6.67	✓
12	9:59 AM	6.700	0.6	0.400	0.6000	0.240	80	0.0441	1.0000	0.0441	0.1200	0.0053	6.44	✓
13	10:00 AM	7.000	0.6	0.350	0.6000	0.210	80	0.0272	1.0000	0.0272	0.1050	0.0029	3.48	✓
14	10:02 AM	7.300	0.6	0.200	0.6000	0.120	80	0.0412	1.0000	0.0412	0.0600	0.0025	3.01	✓
15	10:03 AM	7.600	0.6	0.250	0.6000	0.150	80	0.0501	1.0000	0.0501	0.0875	0.0044	5.33	✓
16	10:04 AM	8.000	0.6	0.250	0.6000	0.150	80	0.0222	1.0000	0.0222	0.1125	0.0025	3.03	✓
17	10:06 AM	8.500	0.6	0.400	0.6000	0.240	80	0.0114	1.0000	0.0114	0.2000	0.0023	2.77	✓
18	10:07 AM	9.000	0.6	0.500	0.6000	0.300	80	0.0597	1.0000	0.0597	0.2500	0.0149	18.15	✓
19	10:09 AM	9.500	0.6	0.300	0.6000	0.180	80	0.0272	1.0000	0.0272	0.1950	0.0053	6.44	✓
20	10:10 AM	10.300	None	0.000	0.0000	0.000	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.00	✓

Discharge Measurement Summary

Site name	Monitor Creek - D4
Site number	0321
Operator(s)	Jack Landers
File name	20180321_Monitor Creek - D4.ft
Comment	Temp gage

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

Quality control warnings

St#	Time	Location (ft)	Method	Depth (ft)	%Depth	Measured Depth (ft)	Warnings
1	9:44 AM	3.000	0.6	0.150	0.6000	0.090	SNR Threshold Variation
3	9:47 AM	4.000	0.6	0.250	0.6000	0.150	Boundary Interference,Beam SNRs Not Similar,SNR Threshold Variation
5	9:50 AM	4.600	0.6	0.300	0.6000	0.180	Boundary Interference,Approaching Low SNR,Beam SNRs Not Similar,SNR Threshold Variation
7	9:53 AM	5.200	0.6	0.350	0.6000	0.210	Boundary Interference,Standard Error > QC,High Stn % Discharge
13	10:00 AM	7.000	0.6	0.350	0.6000	0.210	Boundary Interference,Large SNR Variation
15	10:03 AM	7.600	0.6	0.250	0.6000	0.150	Large SNR Variation
16	10:04 AM	8.000	0.6	0.250	0.6000	0.150	Large SNR Variation
17	10:06 AM	8.500	0.6	0.400	0.6000	0.240	Boundary Interference
18	10:07 AM	9.000	0.6	0.500	0.6000	0.300	High Stn % Discharge
19	10:09 AM	9.500	0.6	0.300	0.6000	0.180	Large SNR Variation,SNR Threshold Variation

Discharge Measurement Summary

Site name	Monitor Creek - D4
Site number	0321
Operator(s)	Jack Landers
File name	20180321_Monitor Creek - D4.ft
Comment	Temp gage

Supplemental data summary

Gauge height time	Gauge height (ft)	Rated discharge (ft³/s)	Temperature (°F)	Salinity (PSS-78)	Gauge height comments
3/21/2018 10:10 AM	1.010				

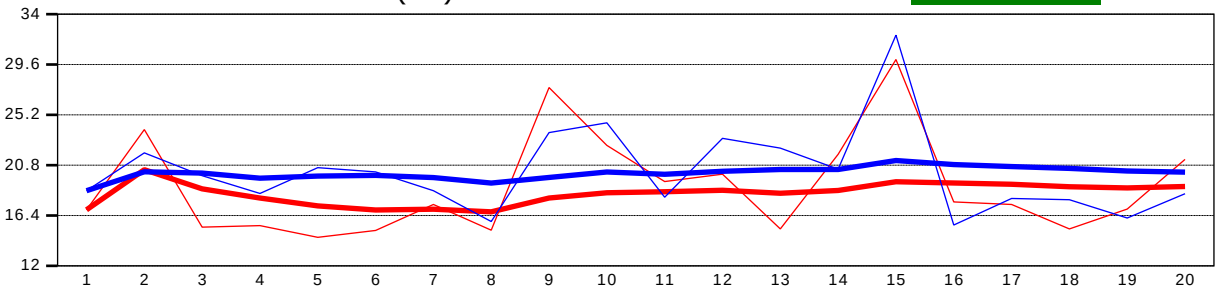
Discharge Measurement Summary

Site name	Monitor Creek - D4
Site number	0321
Operator(s)	Jack Landers
File name	20180321_Monitor Creek - D4.ft
Comment	Temp gage

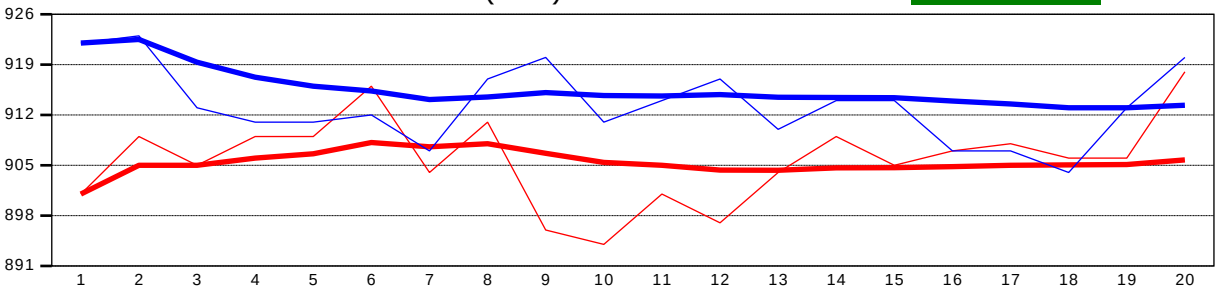
Beam 1	
Beam 2	

Automated beam check Start time 3/21/2018 9:43:27 AM

Automated beam check SNR(dB) PASS



Automated beam check Noise level(cnts) PASS



Automated beam check Quality control warnings

No quality control warnings

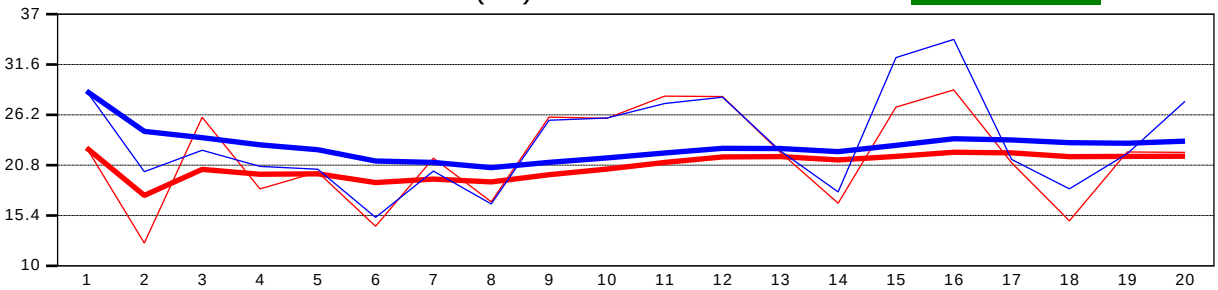
Discharge Measurement Summary

Site name	Monitor Creek - D4
Site number	0321
Operator(s)	Jack Landers
File name	20180321_Monitor Creek - D4.ft
Comment	Temp gage

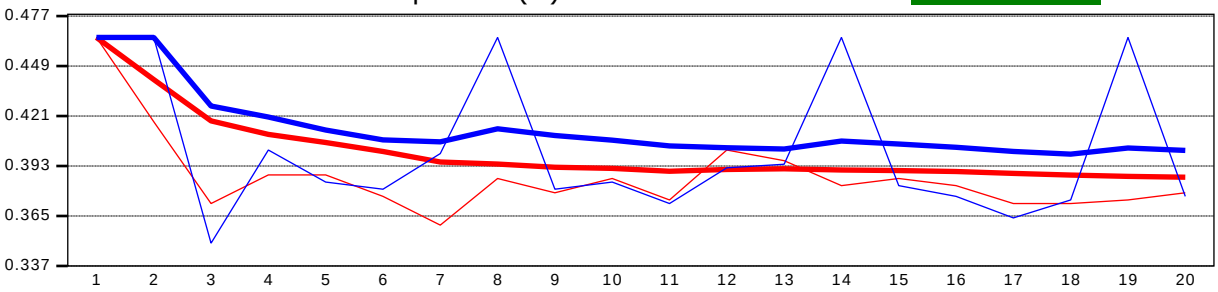
Beam 1	
Beam 2	

Automated beam check Start time 3/21/2018 9:43:27 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	Monitor Creek - D4
Site number	0403
Operator(s)	Jack Landers
File name	20180403_Monitor Creek - D4.ft
Comment	Temp gage

Start time	4/3/2018 2:40 PM
End time	4/3/2018 3:08 PM
Start location latitude	38.620
Start location longitude	-108.209
Calculations engine	FlowTracker2

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

# Stations	Avg interval (s)	Total discharge (ft³/s)
23	40	0.0898

Total width (ft)	Total area (ft²)	Wetted Perimeter (ft)
7.500	2.0685	7.702

Mean SNR (dB)	Mean depth (ft)	Mean velocity (ft/s)
33	0.276	0.0434

Mean temp (°F)	Max depth (ft)	Max velocity (ft/s)
60.508	0.400	0.2751

Discharge Uncertainty		
Category	**ISO**	**IVE**
Accuracy	1.0%	1.0%
Depth	0.6%	11.0%
Velocity	12.3%	25.3%
Width	0.2%	0.2%
Method	2.8%	
# Stations	2.2%	
Overall	**12.9%**	**27.6%**

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 %

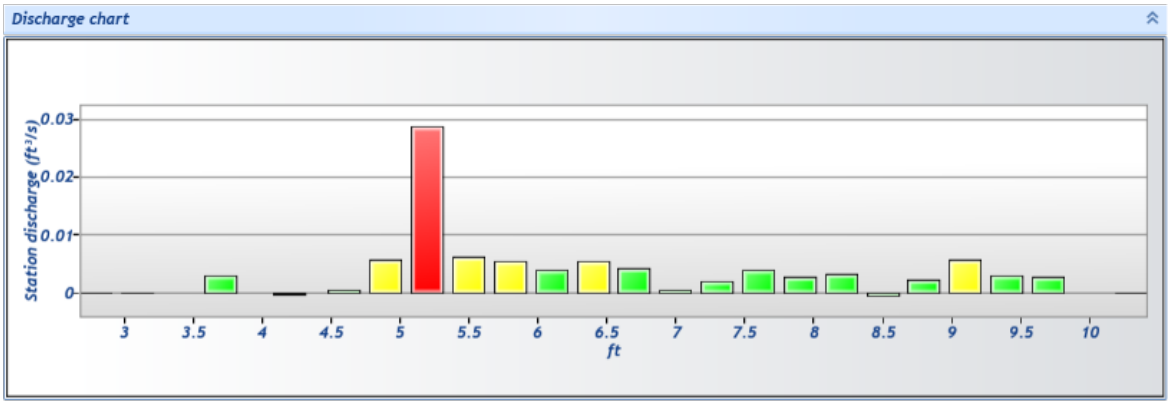
Summary overview

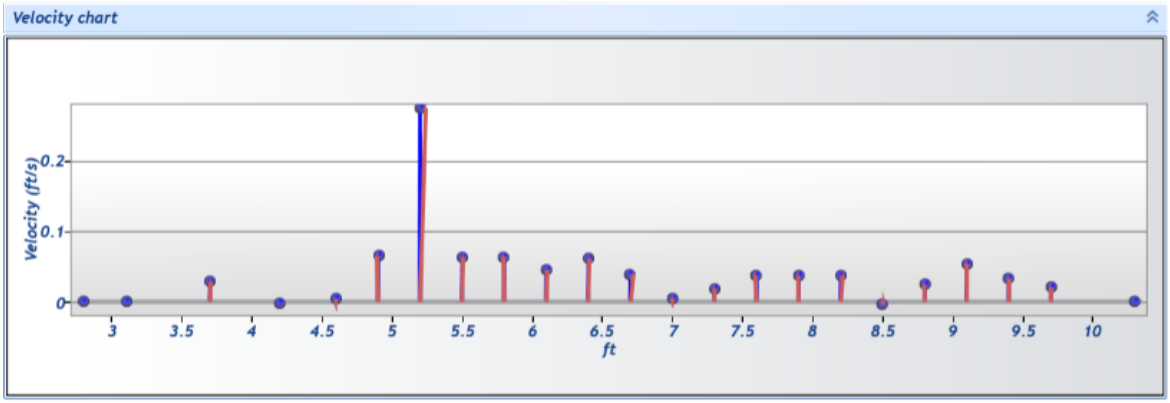
No changes were made to this file
Quality control warnings

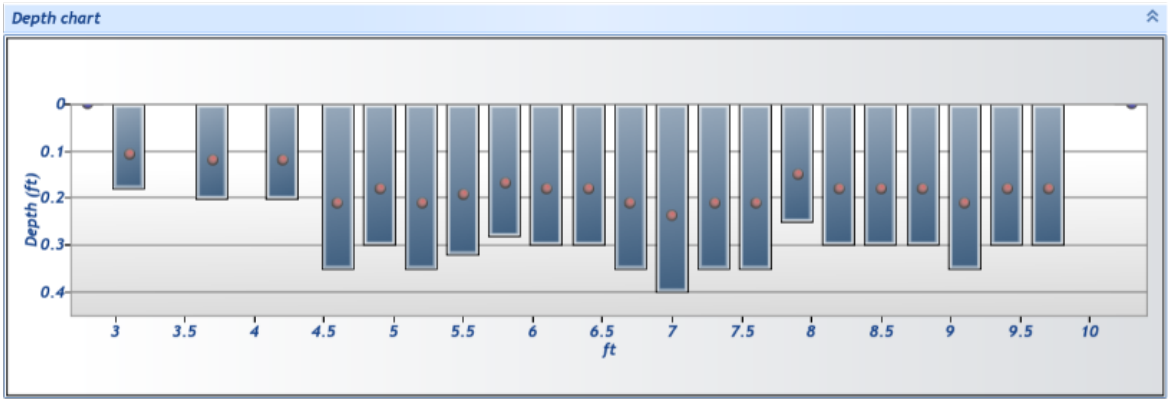
Discharge Measurement Summary

Site name	Monitor Creek - D4
Site number	0403
Operator(s)	Jack Landers
File name	20180403_Monitor Creek - D4.ft
Comment	Temp gage

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







Discharge Measurement Summary

Site name	Monitor Creek - D4
Site number	0403
Operator(s)	Jack Landers
File name	20180403_Monitor Creek - D4.ft
Comment	Temp gage

Measurement results

St#	Time	Location (ft)	Method	Depth (ft)	%Depth	Measured Depth (ft)	Samples	Velocity (ft/s)	Correction	Mean Velocity (ft/s)	Area (ft²)	Flow (ft³/s)	%Q	
0	2:40 PM	2.800	None	0.000	0.0000	0.000	0	0.0000	1.0000	0.0000	0.0000	0.0000	0.00	✓
1	2:41 PM	3.100	0.6	0.180	0.6000	0.108	80	0.0000	1.0000	0.0000	0.0810	0.0000	0.00	✓
2	2:42 PM	3.700	0.6	0.200	0.6000	0.120	80	0.0284	1.0000	0.0284	0.1100	0.0031	3.48	✓
3	2:44 PM	4.200	0.6	0.200	0.6000	0.120	80	-0.0009	1.0000	-0.0009	0.0900	-0.0001	-0.09	✓
4	2:46 PM	4.600	0.6	0.350	0.6000	0.210	80	0.0041	1.0000	0.0041	0.1225	0.0005	0.56	✓
5	2:47 PM	4.900	0.6	0.300	0.6000	0.180	80	0.0653	1.0000	0.0653	0.0900	0.0059	6.55	✓
6	2:48 PM	5.200	0.6	0.350	0.6000	0.210	80	0.2751	1.0000	0.2751	0.1050	0.0289	32.19	✓
7	2:50 PM	5.500	0.6	0.320	0.6000	0.192	80	0.0639	1.0000	0.0639	0.0960	0.0061	6.84	✓
8	2:51 PM	5.800	0.6	0.280	0.6000	0.168	80	0.0647	1.0000	0.0647	0.0840	0.0054	6.06	✓
9	2:53 PM	6.100	0.6	0.300	0.6000	0.180	80	0.0455	1.0000	0.0455	0.0900	0.0041	4.56	✓
10	2:54 PM	6.400	0.6	0.300	0.6000	0.180	80	0.0610	1.0000	0.0610	0.0900	0.0055	6.12	✓
11	2:55 PM	6.700	0.6	0.350	0.6000	0.210	80	0.0396	1.0000	0.0396	0.1050	0.0042	4.63	✓
12	2:56 PM	7.000	0.6	0.400	0.6000	0.240	80	0.0047	1.0000	0.0047	0.1200	0.0006	0.63	✓
13	2:57 PM	7.300	0.6	0.350	0.6000	0.210	80	0.0197	1.0000	0.0197	0.1050	0.0021	2.30	✓
14	2:59 PM	7.600	0.6	0.350	0.6000	0.210	80	0.0382	1.0000	0.0382	0.1050	0.0040	4.47	✓
15	3:00 PM	7.900	0.6	0.250	0.6000	0.150	80	0.0371	1.0000	0.0371	0.0750	0.0028	3.10	✓
16	3:01 PM	8.200	0.6	0.300	0.6000	0.180	80	0.0377	1.0000	0.0377	0.0900	0.0034	3.78	✓
17	3:02 PM	8.500	0.6	0.300	0.6000	0.180	80	-0.0041	1.0000	-0.0041	0.0900	-0.0004	-0.42	✓
18	3:04 PM	8.800	0.6	0.300	0.6000	0.180	80	0.0243	1.0000	0.0243	0.0900	0.0022	2.43	✓
19	3:05 PM	9.100	0.6	0.350	0.6000	0.210	80	0.0545	1.0000	0.0545	0.1050	0.0057	6.38	✓
20	3:06 PM	9.400	0.6	0.300	0.6000	0.180	80	0.0336	1.0000	0.0336	0.0900	0.0030	3.36	✓
21	3:07 PM	9.700	0.6	0.300	0.6000	0.180	80	0.0205	1.0000	0.0205	0.1350	0.0028	3.08	✓
22	3:08 PM	10.300	None	0.000	0.0000	0.000	0	0.0000	1.0000	0.0205	0.0000	0.0000	0.00	✓

Discharge Measurement Summary

Site name	Monitor Creek - D4
Site number	0403
Operator(s)	Jack Landers
File name	20180403_Monitor Creek - D4.ft
Comment	Temp gage

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

Quality control warnings

St#	Time	Location (ft)	Method	Depth (ft)	%Depth	Measured Depth (ft)	Warnings
1	2:41 PM	3.100	0.6	0.180	0.6000	0.108	SNR Threshold Variation
4	2:46 PM	4.600	0.6	0.350	0.6000	0.210	Boundary Interference
6	2:48 PM	5.200	0.6	0.350	0.6000	0.210	Boundary Interference,Standard Error > QC,High Stn % Discharge
17	3:02 PM	8.500	0.6	0.300	0.6000	0.180	Boundary Interference
18	3:04 PM	8.800	0.6	0.300	0.6000	0.180	Boundary Interference

Discharge Measurement Summary

Site name	Monitor Creek - D4
Site number	0403
Operator(s)	Jack Landers
File name	20180403_Monitor Creek - D4.ft
Comment	Temp gage

Supplemental data summary

Gauge height time	Gauge height (ft)	Rated discharge (ft³/s)	Temperature (°F)	Salinity (PSS-78)	Gauge height comments
4/3/2018 3:09 PM	1.010				

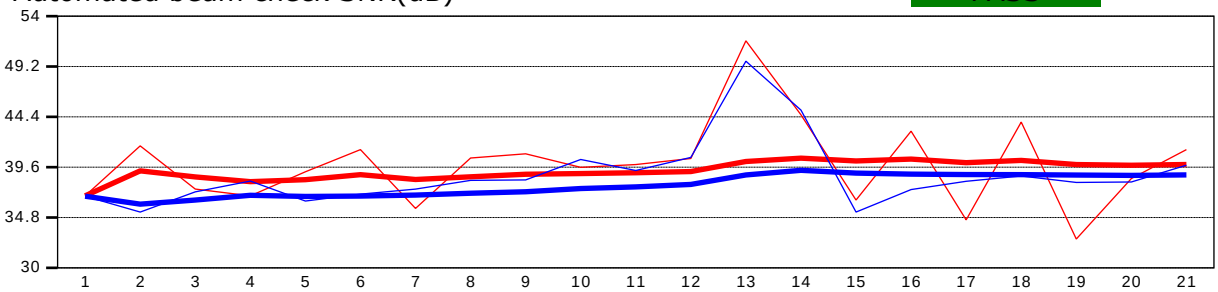
Discharge Measurement Summary

Site name	Monitor Creek - D4
Site number	0403
Operator(s)	Jack Landers
File name	20180403_Monitor Creek - D4.ft
Comment	Temp gage

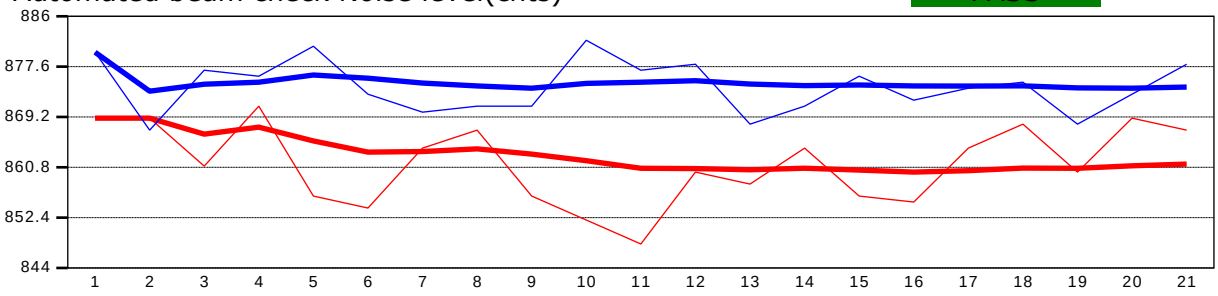
Beam 1	
Beam 2	

Automated beam check Start time 4/3/2018 2:39:42 PM

Automated beam check SNR(dB) PASS



Automated beam check Noise level(cnts) PASS



Automated beam check Quality control warnings

No quality control warnings

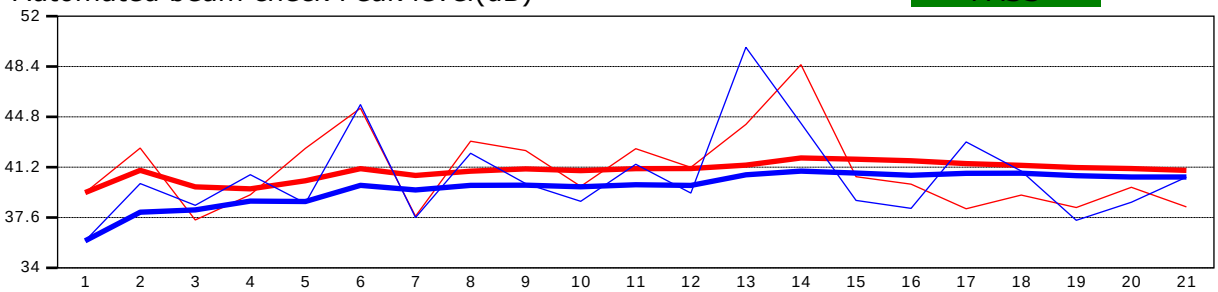
Discharge Measurement Summary

Site name	Monitor Creek - D4
Site number	0403
Operator(s)	Jack Landers
File name	20180403_Monitor Creek - D4.ft
Comment	Temp gage

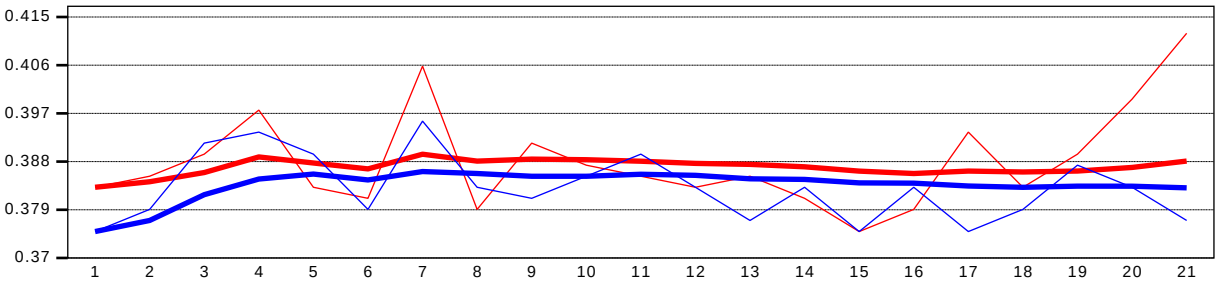
Beam 1	
Beam 2	

Automated beam check Start time 4/3/2018 2:39:42 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	MONITOR AB POTTER
Site number	
Operator(s)	JACK LANDERS
File name	MONCAPOT.004.FlowTracker2.ft
Comment	Measured with Flowtracker1 and recalculated with Flowtracker2 algorithms

Start time	5/10/2018 4:59 PM
End time	5/10/2018 5:17 PM
Start location latitude	-
Start location longitude	-
Calculations engine	FlowTracker2

Sensor type	Unknown
Handheld serial number	n/a
Probe serial number	P2355
Probe firmware	3.90
Handheld software	n/a

# Stations	Avg interval (s)	Total discharge (ft³/s)
18	40	0.0930

Total width (ft)	Total area (ft²)	Wetted Perimeter (ft)
5.500	1.9396	5.684

Mean SNR (dB)	Mean depth (ft)	Mean velocity (ft/s)
29	0.353	0.0479

Mean temp (°F)	Max depth (ft)	Max velocity (ft/s)
70.880	0.510	0.0750

Discharge Uncertainty		
Category	**ISO**	**IVE**
Accuracy	1.0%	1.0%
Depth	0.4%	4.2%
Velocity	1.1%	4.5%
Width	0.1%	0.1%
Method	2.0%	
# Stations	2.8%	
Overall	**3.8%**	**6.2%**

Discharge equation	Mid Section
Discharge uncertainty	ISO
Discharge reference	Measured

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

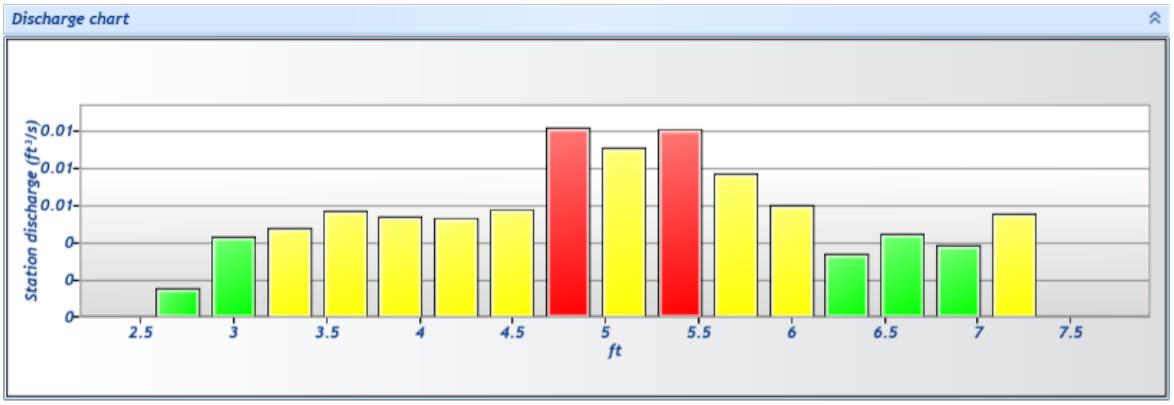
Summary overview

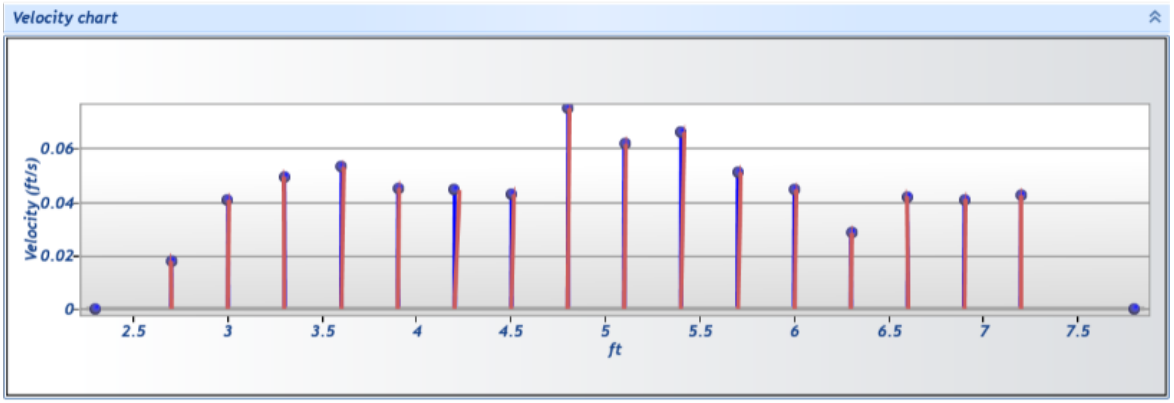
No changes were made to this file
Quality control warnings

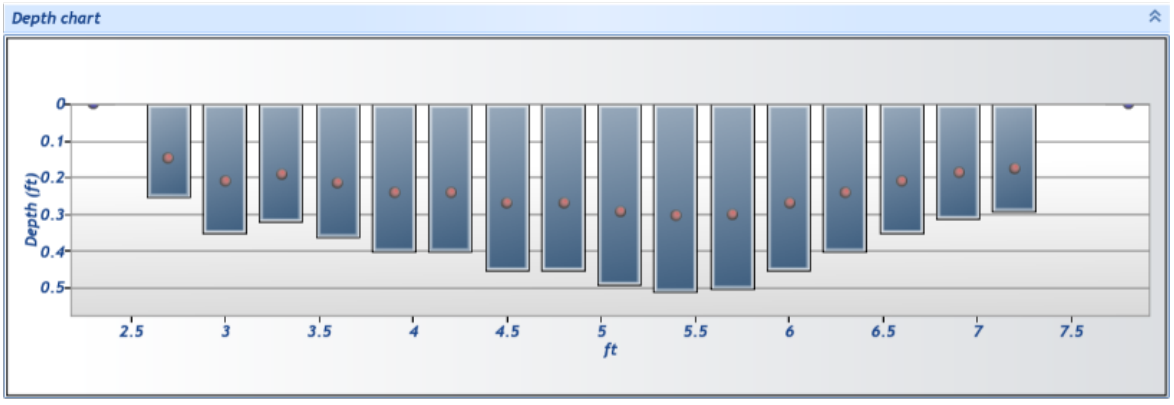
Discharge Measurement Summary

Site name	MONITOR AB POTTER
Site number	
Operator(s)	JACK LANDERS
File name	MONCAPOT.004.FlowTracker2.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	MONITOR AB POTTER
Site number	
Operator(s)	JACK LANDERS
File name	MONCAPOT.004.FlowTracker2.ft
Comment	

Measurement results

St#	Time	Location (ft)	Method	Depth (ft)	%Depth	Measured Depth (ft)	Samples	Velocity (ft/s)	Correction	Mean Velocity (ft/s)	Area (ft²)	Flow (ft³/s)	%Q	
0	4:59 PM	2.300	None	0.000	0.0000	0.000	0	0.0000	1.0000	0.0180	0.0000	0.0000	0.00	✓
1	5:01 PM	2.700	0.6	0.250	0.6000	0.150	40	0.0180	1.0000	0.0180	0.0875	0.0016	1.69	✓
2	5:02 PM	3.000	0.6	0.350	0.6000	0.210	40	0.0407	1.0000	0.0407	0.1050	0.0043	4.59	✓
3	5:04 PM	3.300	0.6	0.320	0.6000	0.192	40	0.0494	1.0000	0.0494	0.0959	0.0047	5.09	✓
4	5:05 PM	3.600	0.6	0.360	0.6000	0.216	40	0.0530	1.0000	0.0530	0.1079	0.0057	6.15	✓
5	5:06 PM	3.900	0.6	0.400	0.6000	0.240	40	0.0452	1.0000	0.0452	0.1199	0.0054	5.83	✓
6	5:07 PM	4.199	0.6	0.400	0.6000	0.240	40	0.0444	1.0000	0.0444	0.1199	0.0053	5.73	✓
7	5:08 PM	4.499	0.6	0.450	0.6000	0.270	40	0.0428	1.0000	0.0428	0.1350	0.0058	6.22	✓
8	5:09 PM	4.799	0.6	0.450	0.6000	0.270	40	0.0750	1.0000	0.0750	0.1350	0.0101	10.89	✓
9	5:10 PM	5.099	0.6	0.490	0.6000	0.294	40	0.0616	1.0000	0.0616	0.1470	0.0091	9.74	✓
10	5:11 PM	5.399	0.6	0.510	0.6000	0.306	40	0.0661	1.0000	0.0661	0.1529	0.0101	10.87	✓
11	5:12 PM	5.699	0.6	0.500	0.6000	0.300	40	0.0511	1.0000	0.0511	0.1499	0.0077	8.23	✓
12	5:13 PM	5.999	0.6	0.450	0.6000	0.270	40	0.0447	1.0000	0.0447	0.1350	0.0060	6.48	✓
13	5:14 PM	6.299	0.6	0.400	0.6000	0.240	40	0.0284	1.0000	0.0284	0.1199	0.0034	3.66	✓
14	5:15 PM	6.598	0.6	0.350	0.6000	0.210	40	0.0421	1.0000	0.0421	0.1050	0.0044	4.76	✓
15	5:16 PM	6.898	0.6	0.310	0.6000	0.186	40	0.0411	1.0000	0.0411	0.0930	0.0038	4.11	✓
16	5:17 PM	7.198	0.6	0.290	0.6000	0.174	40	0.0424	1.0000	0.0424	0.1307	0.0055	5.96	✓
17	5:17 PM	7.800	None	0.000	0.0000	0.000	0	0.0000	1.0000	0.0424	0.0000	0.0000	0.00	✓

Discharge Measurement Summary

Site name	MONITOR AB POTTER
Site number	
Operator(s)	JACK LANDERS
File name	MONCAPOT.004.FlowTracker2.ft
Comment	

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

Quality control warnings

St#	Time	Location (ft)	Method	Depth (ft)	%Depth	Measured Depth (ft)	Warnings
1	5:01 PM	2.700	0.6	0.250	0.6000	0.150	Boundary Interference
8	5:09 PM	4.799	0.6	0.450	0.6000	0.270	High Stn % Discharge
10	5:11 PM	5.399	0.6	0.510	0.6000	0.306	High Stn % Discharge
17	5:17 PM	7.800	None	0.000	0.0000	0.000	Stn Spacing > QC

Discharge Measurement Summary

Site name	MONITOR AB POTTER
Site number	
Operator(s)	JACK LANDERS
File name	MONCAPOT.004.FlowTracker2.ft
Comment	

Supplemental data summary

Gauge height time	Gauge height (ft)	Rated discharge (ft³/s)	Temperature (°F)	Salinity (PSS-78)	Gauge height comments
5/10/2018 5:00 PM	1.010	0.0000			

Discharge Measurement Summary

Site name	Monitor Creek - D4
Site number	5
Operator(s)	Jack Landers
File name	Monitor Creek - D4_20180703-172821.ft
Comment	Temp gage

Start time	7/3/2018 5:05 PM
End time	7/3/2018 5:25 PM
Start location latitude	38.620
Start location longitude	-108.209
Calculations engine	FlowTracker2

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

# Stations	Avg interval (s)	Total discharge (ft³/s)
19	40	0.0224

Total width (ft)	Total area (ft²)	Wetted Perimeter (ft)
7.300	1.6200	7.455

Mean SNR (dB)	Mean depth (ft)	Mean velocity (ft/s)
41	0.222	0.0138

Mean temp (°F)	Max depth (ft)	Max velocity (ft/s)
75.931	0.400	0.0842

Discharge Uncertainty		
Category	**ISO**	**IVE**
Accuracy	1.0%	1.0%
Depth	0.6%	14.7%
Velocity	32.7%	38.9%
Width	0.2%	0.2%
Method	2.9%	
# Stations	2.6%	
Overall	**33.0%**	**41.6%**

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 %

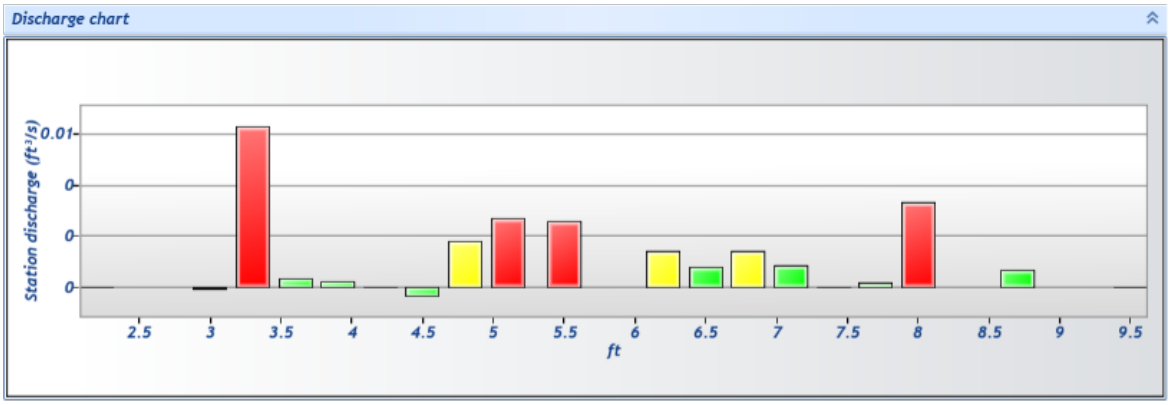
Summary overview

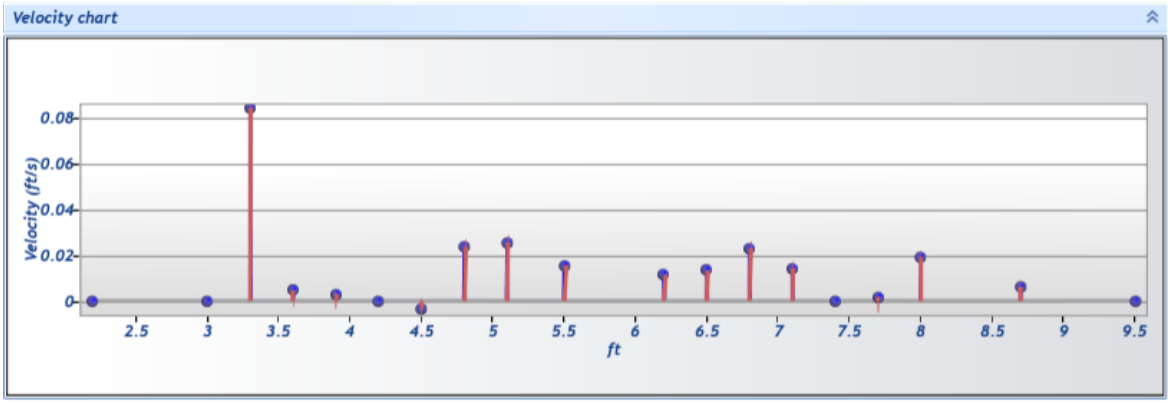
No changes were made to this file
Quality control warnings

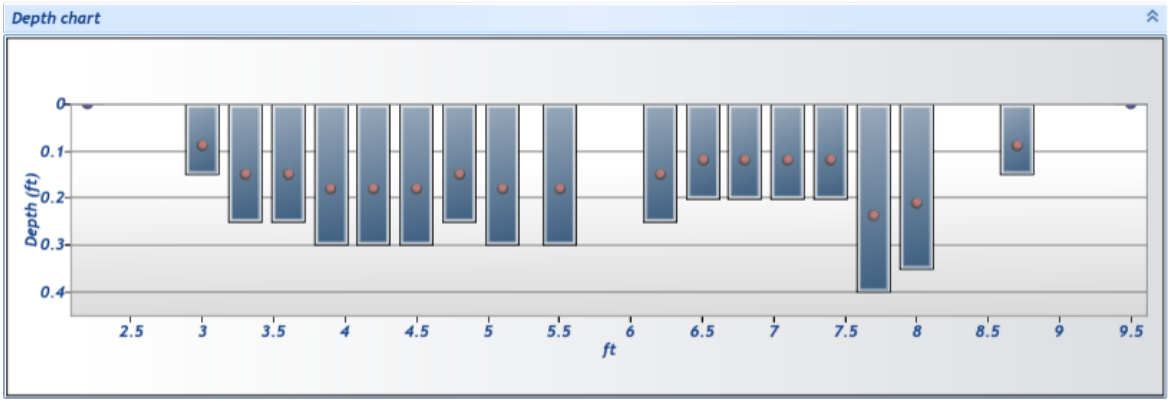
Discharge Measurement Summary

Site name	Monitor Creek - D4
Site number	5
Operator(s)	Jack Landers
File name	Monitor Creek - D4_20180703-172821.ft
Comment	Temp gage

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







Discharge Measurement Summary

Site name	Monitor Creek - D4
Site number	5
Operator(s)	Jack Landers
File name	Monitor Creek - D4_20180703-172821.ft
Comment	Temp gage

Measurement results

St#	Time	Location (ft)	Method	Depth (ft)	%Depth	Measured Depth (ft)	Samples	Velocity (ft/s)	Correction	Mean Velocity (ft/s)	Area (ft²)	Flow (ft³/s)	%Q	
0	5:05 PM	2.200	None	0.000	0.0000	0.000	0	0.0000	1.0000	-0.0002	0.0000	0.0000	0.00	✓
1	5:06 PM	3.000	0.6	0.150	0.6000	0.090	80	-0.0002	1.0000	-0.0002	0.0825	0.0000	-0.09	✓
2	5:07 PM	3.300	0.6	0.250	0.6000	0.150	80	0.0842	1.0000	0.0842	0.0750	0.0063	28.20	✓
3	5:08 PM	3.600	0.6	0.250	0.6000	0.150	80	0.0047	1.0000	0.0047	0.0750	0.0004	1.58	✓
4	5:09 PM	3.900	0.6	0.300	0.6000	0.180	80	0.0029	1.0000	0.0029	0.0900	0.0003	1.17	✓
5	5:10 PM	4.200	0.6	0.300	0.6000	0.180	80	0.0000	1.0000	0.0000	0.0900	0.0000	0.00	✓
6	5:11 PM	4.500	0.6	0.300	0.6000	0.180	80	-0.0034	1.0000	-0.0034	0.0900	-0.0003	-1.36	✓
7	5:13 PM	4.800	0.6	0.250	0.6000	0.150	80	0.0239	1.0000	0.0239	0.0750	0.0018	8.00	✓
8	5:14 PM	5.100	0.6	0.300	0.6000	0.180	80	0.0256	1.0000	0.0256	0.1050	0.0027	12.01	✓
9	5:15 PM	5.500	0.6	0.300	0.6000	0.180	80	0.0156	1.0000	0.0156	0.1650	0.0026	11.50	✓
10	5:16 PM	6.200	0.6	0.250	0.6000	0.150	80	0.0115	1.0000	0.0115	0.1250	0.0014	6.44	✓
11	5:17 PM	6.500	0.6	0.200	0.6000	0.120	80	0.0134	1.0000	0.0134	0.0600	0.0008	3.58	✓
12	5:19 PM	6.800	0.6	0.200	0.6000	0.120	80	0.0232	1.0000	0.0232	0.0600	0.0014	6.21	✓
13	5:20 PM	7.100	0.6	0.200	0.6000	0.120	80	0.0144	1.0000	0.0144	0.0600	0.0009	3.86	✓
14	5:21 PM	7.400	0.6	0.200	0.6000	0.120	80	-0.0002	1.0000	-0.0002	0.0600	0.0000	-0.04	✓
15	5:22 PM	7.700	0.6	0.400	0.6000	0.240	80	0.0017	1.0000	0.0017	0.1200	0.0002	0.92	✓
16	5:23 PM	8.000	0.6	0.350	0.6000	0.210	80	0.0190	1.0000	0.0190	0.1750	0.0033	14.85	✓
17	5:24 PM	8.700	0.6	0.150	0.6000	0.090	80	0.0063	1.0000	0.0063	0.1125	0.0007	3.16	✓
18	5:25 PM	9.500	None	0.000	0.0000	0.000	0	0.0000	1.0000	0.0063	0.0000	0.0000	0.00	✓

Discharge Measurement Summary

Site name	Monitor Creek - D4
Site number	5
Operator(s)	Jack Landers
File name	Monitor Creek - D4_20180703-172821.ft
Comment	Temp gage

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

Quality control warnings

St#	Time	Location (ft)	Method	Depth (ft)	%Depth	Measured Depth (ft)	Warnings
1	5:06 PM	3.000	0.6	0.150	0.6000	0.090	SNR Threshold Variation
2	5:07 PM	3.300	0.6	0.250	0.6000	0.150	Boundary Interference,Standard Error > QC,High Stn % Discharge
5	5:10 PM	4.200	0.6	0.300	0.6000	0.180	SNR Threshold Variation
8	5:14 PM	5.100	0.6	0.300	0.6000	0.180	High Stn % Discharge
9	5:15 PM	5.500	0.6	0.300	0.6000	0.180	High Stn % Discharge
12	5:19 PM	6.800	0.6	0.200	0.6000	0.120	Stn Spacing > QC
14	5:21 PM	7.400	0.6	0.200	0.6000	0.120	SNR Threshold Variation
15	5:22 PM	7.700	0.6	0.400	0.6000	0.240	Large SNR Variation
16	5:23 PM	8.000	0.6	0.350	0.6000	0.210	High Stn % Discharge

Discharge Measurement Summary

Site name	Monitor Creek - D4
Site number	5
Operator(s)	Jack Landers
File name	Monitor Creek - D4_20180703-172821.ft
Comment	Temp gage

Supplemental data summary

Gauge height time	Gauge height (ft)	Rated discharge (ft³/s)	Temperature (°F)	Salinity (PSS-78)	Gauge height comments
7/3/2018 5:27 PM	0.980				

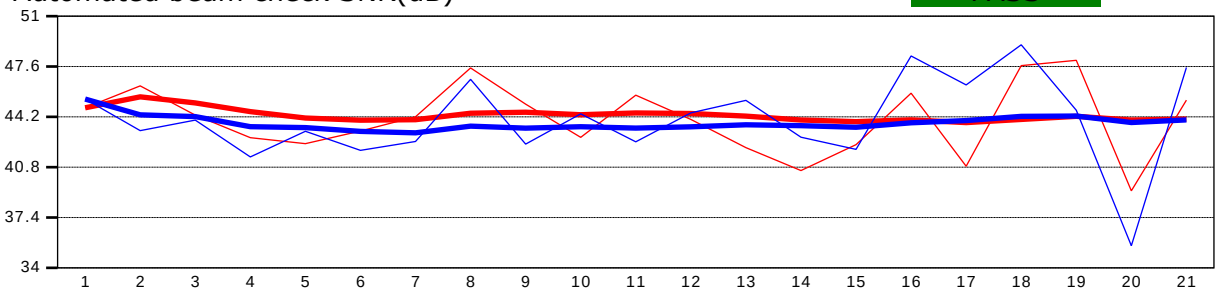
Discharge Measurement Summary

Site name	Monitor Creek - D4
Site number	5
Operator(s)	Jack Landers
File name	Monitor Creek - D4_20180703-172821.ft
Comment	Temp gage

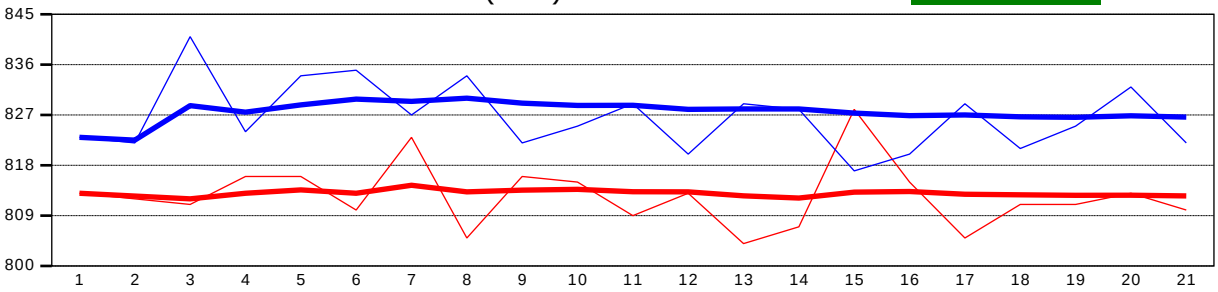
Beam 1	
Beam 2	

Automated beam check Start time 7/3/2018 5:05:23 PM

Automated beam check SNR(dB) PASS



Automated beam check Noise level(cnts) PASS



Automated beam check Quality control warnings

No quality control warnings

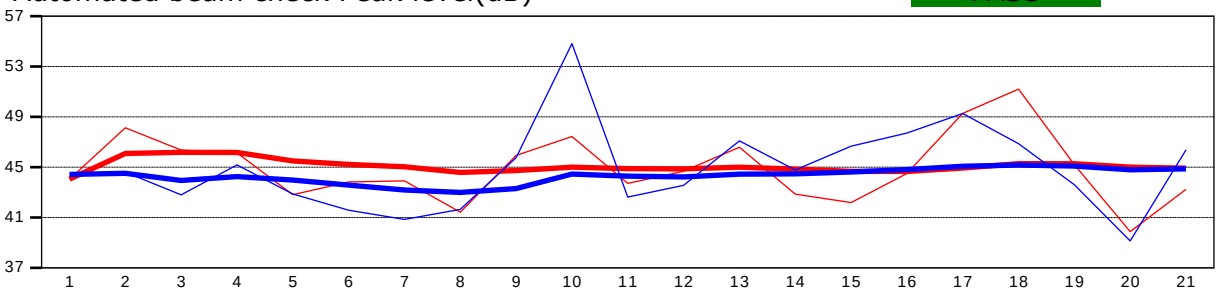
Discharge Measurement Summary

Site name	Monitor Creek - D4
Site number	5
Operator(s)	Jack Landers
File name	Monitor Creek - D4_20180703-172821.ft
Comment	Temp gage

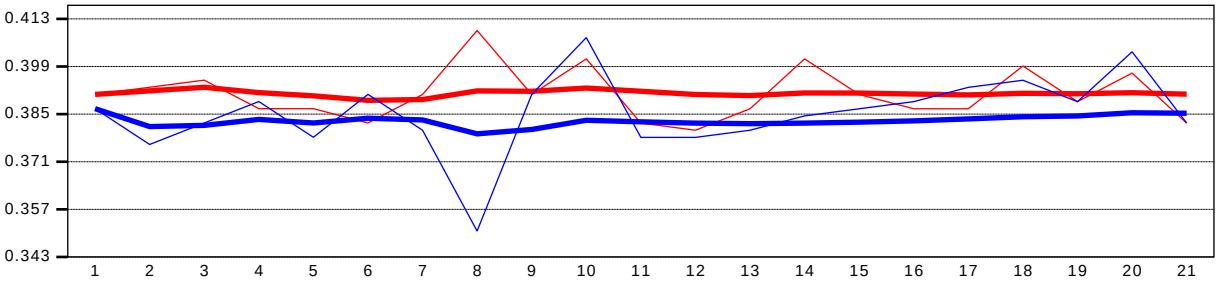
Beam 1	
Beam 2	

Automated beam check Start time 7/3/2018 5:05:23 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	Monitor Creek - D4
Site number	822
Operator(s)	Jack Landers
File name	Monitor Creek - D4_20180822-154849.ft
Comment	Temp gage

Start time	8/22/2018 3:22 PM
End time	8/22/2018 3:45 PM
Start location latitude	38.620
Start location longitude	-108.209
Calculations engine	FlowTracker2

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

# Stations	Avg interval (s)	Total discharge (ft³/s)
20	40	0.0333

Total width (ft)	Total area (ft²)	Wetted Perimeter (ft)
7.300	1.6100	7.519

Mean SNR (dB)	Mean depth (ft)	Mean velocity (ft/s)
37	0.221	0.0207

Mean temp (°F)	Max depth (ft)	Max velocity (ft/s)
75.453	0.350	0.0619

Discharge Uncertainty		
Category	**ISO**	**IVE**
Accuracy	1.0%	1.0%
Depth	0.5%	14.6%
Velocity	1.3%	32.7%
Width	0.2%	0.2%
Method	2.4%	
# Stations	2.5%	
Overall	**3.9%**	**35.8%**

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 %

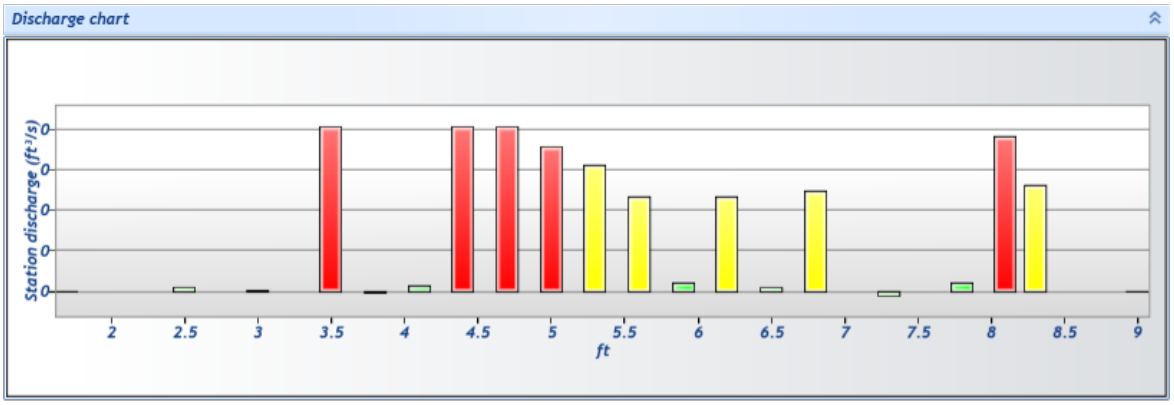
Summary overview

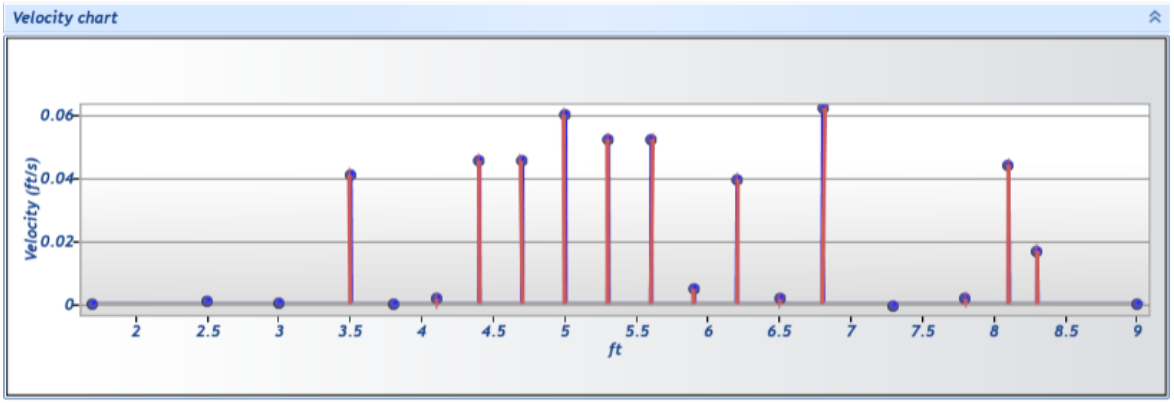
No changes were made to this file
Quality control warnings

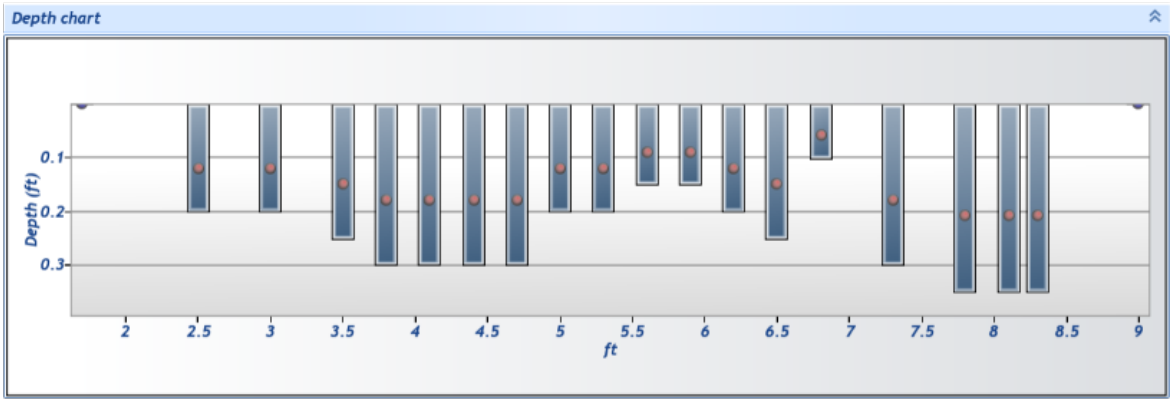
Discharge Measurement Summary

Site name	Monitor Creek - D4
Site number	822
Operator(s)	Jack Landers
File name	Monitor Creek - D4_20180822-154849.ft
Comment	Temp gage

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







Discharge Measurement Summary

Site name	Monitor Creek - D4
Site number	822
Operator(s)	Jack Landers
File name	Monitor Creek - D4_20180822-154849.ft
Comment	Temp gage

Measurement results

St#	Time	Location (ft)	Method	Depth (ft)	%Depth	Measured Depth (ft)	Samples	Velocity (ft/s)	Correction	Mean Velocity (ft/s)	Area (ft²)	Flow (ft³/s)	%Q	
0	3:22 PM	1.700	None	0.000	0.0000	0.000	0	0.0000	1.0000	0.0007	0.0000	0.0000	0.00	✓
1	3:22 PM	2.500	0.6	0.200	0.6000	0.120	80	0.0007	1.0000	0.0007	0.1300	0.0001	0.28	✓
2	3:24 PM	3.000	0.6	0.200	0.6000	0.120	80	0.0005	1.0000	0.0005	0.1000	0.0001	0.16	✓
3	3:25 PM	3.500	0.6	0.250	0.6000	0.150	80	0.0409	1.0000	0.0409	0.1000	0.0041	12.28	✓
4	3:26 PM	3.800	0.6	0.300	0.6000	0.180	80	-0.0003	1.0000	-0.0003	0.0900	0.0000	-0.08	✓
5	3:27 PM	4.100	0.6	0.300	0.6000	0.180	80	0.0015	1.0000	0.0015	0.0900	0.0001	0.40	✓
6	3:29 PM	4.400	0.6	0.300	0.6000	0.180	80	0.0453	1.0000	0.0453	0.0900	0.0041	12.25	✓
7	3:31 PM	4.700	0.6	0.300	0.6000	0.180	80	0.0453	1.0000	0.0453	0.0900	0.0041	12.24	✓
8	3:32 PM	5.000	0.6	0.200	0.6000	0.120	80	0.0599	1.0000	0.0599	0.0600	0.0036	10.79	✓
9	3:34 PM	5.300	0.6	0.200	0.6000	0.120	80	0.0520	1.0000	0.0520	0.0600	0.0031	9.38	✓
10	3:35 PM	5.600	0.6	0.150	0.6000	0.090	80	0.0520	1.0000	0.0520	0.0450	0.0023	7.02	✓
11	3:36 PM	5.900	0.6	0.150	0.6000	0.090	80	0.0047	1.0000	0.0047	0.0450	0.0002	0.63	✓
12	3:37 PM	6.200	0.6	0.200	0.6000	0.120	80	0.0393	1.0000	0.0393	0.0600	0.0024	7.08	✓
13	3:38 PM	6.500	0.6	0.250	0.6000	0.150	80	0.0015	1.0000	0.0015	0.0750	0.0001	0.34	✓
14	3:39 PM	6.800	0.6	0.100	0.6000	0.060	80	0.0619	1.0000	0.0619	0.0400	0.0025	7.44	✓
15	3:41 PM	7.300	0.6	0.300	0.6000	0.180	80	-0.0006	1.0000	-0.0006	0.1500	-0.0001	-0.28	✓
16	3:42 PM	7.800	0.6	0.350	0.6000	0.210	80	0.0015	1.0000	0.0015	0.1400	0.0002	0.61	✓
17	3:45 PM	8.100	0.6	0.350	0.6000	0.210	80	0.0439	1.0000	0.0439	0.0875	0.0038	11.54	✓
18	3:43 PM	8.300	0.6	0.350	0.6000	0.210	80	0.0168	1.0000	0.0168	0.1575	0.0026	7.93	✓
19	3:44 PM	9.000	None	0.000	0.0000	0.000	0	0.0000	1.0000	0.0168	0.0000	0.0000	0.00	✓

Discharge Measurement Summary

Site name	Monitor Creek - D4
Site number	822
Operator(s)	Jack Landers
File name	Monitor Creek - D4_20180822-154849.ft
Comment	Temp gage

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

Quality control warnings

St#	Time	Location (ft)	Method	Depth (ft)	%Depth	Measured Depth (ft)	Warnings
1	3:22 PM	2.500	0.6	0.200	0.6000	0.120	Boundary Interference
2	3:24 PM	3.000	0.6	0.200	0.6000	0.120	SNR Threshold Variation
3	3:25 PM	3.500	0.6	0.250	0.6000	0.150	High Stn % Discharge
6	3:29 PM	4.400	0.6	0.300	0.6000	0.180	High Stn % Discharge
7	3:31 PM	4.700	0.6	0.300	0.6000	0.180	High Stn % Discharge
8	3:32 PM	5.000	0.6	0.200	0.6000	0.120	High Stn % Discharge
13	3:38 PM	6.500	0.6	0.250	0.6000	0.150	Beam SNRs Not Similar,Large SNR Variation
15	3:41 PM	7.300	0.6	0.300	0.6000	0.180	SNR Threshold Variation
16	3:42 PM	7.800	0.6	0.350	0.6000	0.210	Boundary Interference,Large SNR Variation
17	3:45 PM	8.100	0.6	0.350	0.6000	0.210	High Stn % Discharge
19	3:44 PM	9.000	None	0.000	0.0000	0.000	Stn Spacing > QC

Discharge Measurement Summary

Site name	Monitor Creek - D4
Site number	822
Operator(s)	Jack Landers
File name	Monitor Creek - D4_20180822-154849.ft
Comment	Temp gage

Supplemental data summary

Gauge height time	Gauge height (ft)	Rated discharge (ft³/s)	Temperature (°F)	Salinity (PSS-78)	Gauge height comments
8/22/2018 3:45 PM	0.980				

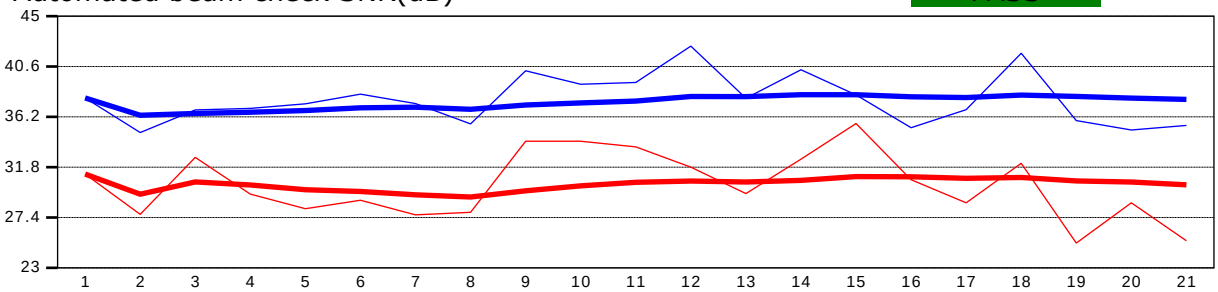
Discharge Measurement Summary

Site name	Monitor Creek - D4
Site number	822
Operator(s)	Jack Landers
File name	Monitor Creek - D4_20180822-154849.ft
Comment	Temp gage

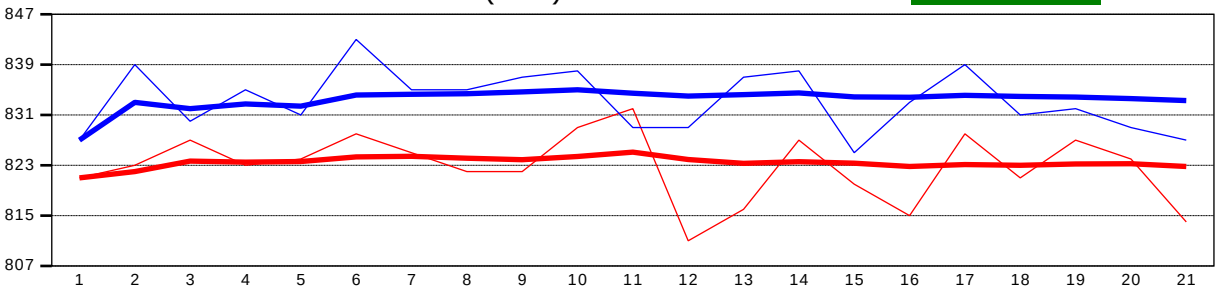
Beam 1	
Beam 2	

Automated beam check Start time 8/22/2018 3:21:20 PM

Automated beam check SNR(dB) PASS



Automated beam check Noise level(cnts) PASS



Automated beam check Quality control warnings

No quality control warnings

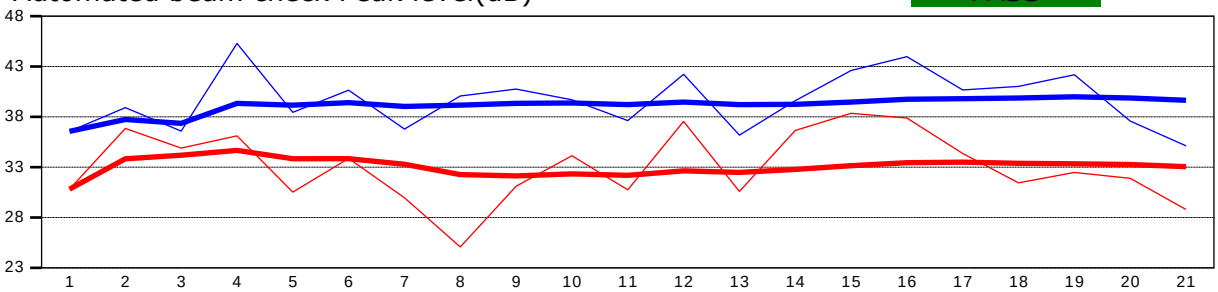
Discharge Measurement Summary

Site name	Monitor Creek - D4
Site number	822
Operator(s)	Jack Landers
File name	Monitor Creek - D4_20180822-154849.ft
Comment	Temp gage

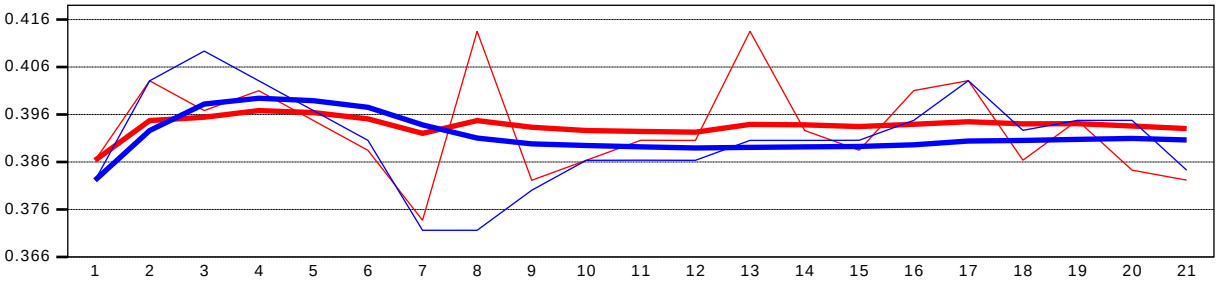
Beam 1	
Beam 2	

Automated beam check Start time 8/22/2018 3:21:20 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	Monitor Creek - D4
Site number	001
Operator(s)	Jack Landers
File name	Monitor Creek - D4_20190408-173409.ft
Comment	Temp gage

Start time	4/8/2019 5:10 PM
End time	4/8/2019 5:33 PM
Start location latitude	38.620
Start location longitude	-108.209
Calculations engine	FlowTracker2

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

# Stations	Avg interval (s)	Total discharge (ft³/s)
21	40	3.3537

Total width (ft)	Total area (ft²)	Wetted Perimeter (ft)
8.600	6.3775	9.655

Mean SNR (dB)	Mean depth (ft)	Mean velocity (ft/s)
46	0.742	0.5259

Mean temp (°F)	Max depth (ft)	Max velocity (ft/s)
63.666	1.000	0.8486

Discharge Uncertainty		
Category	**ISO**	**IVE**
Accuracy	1.0%	1.0%
Depth	0.3%	3.2%
Velocity	4.4%	7.2%
Width	0.1%	0.1%
Method	2.1%	
# Stations	2.4%	
Overall	**5.5%**	**7.9%**

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 %

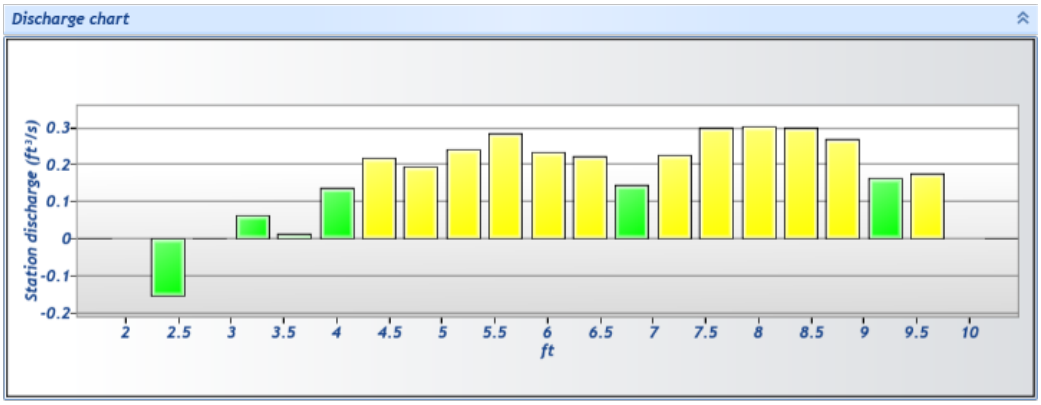
Summary overview

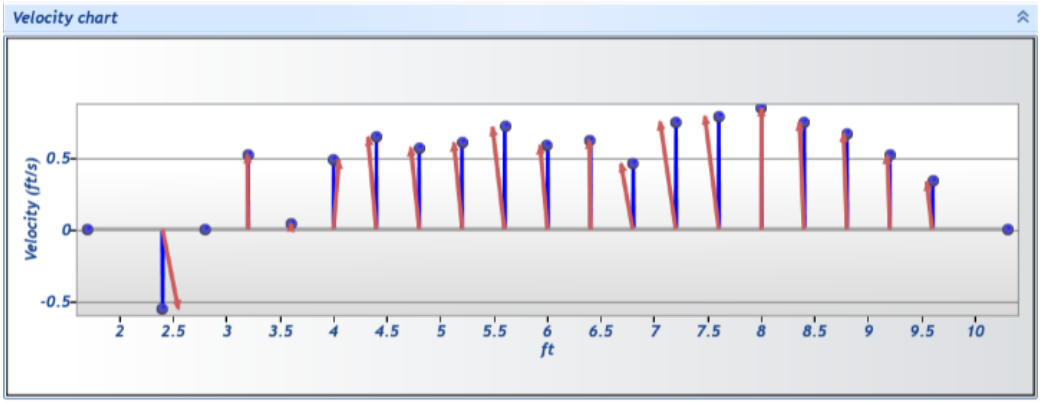
No changes were made to this file
Quality control warnings

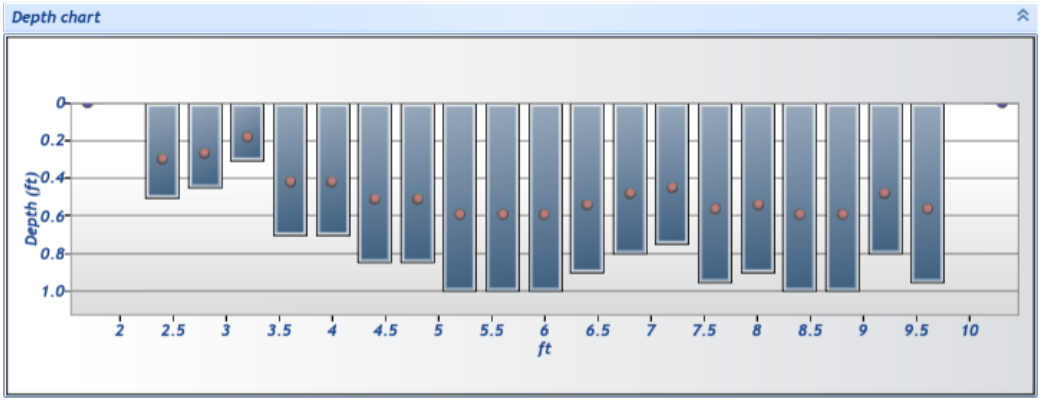
Discharge Measurement Summary

Site name	Monitor Creek - D4
Site number	001
Operator(s)	Jack Landers
File name	Monitor Creek - D4_20190408-173409.ft
Comment	Temp gage

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







Discharge Measurement Summary

Site name	Monitor Creek - D4
Site number	001
Operator(s)	Jack Landers
File name	Monitor Creek - D4_20190408-173409.ft
Comment	Temp gage

Measurement results

St#	Time	Location (ft)	Method	Depth (ft)	%Depth	Measured Depth (ft)	Samples	Velocity (ft/s)	Correction	Mean Velocity (ft/s)	Area (ft²)	Flow (ft³/s)	%Q	
0	5:10 PM	1.700	None	0.000	0.0000	0.000	0	0.0000	1.0000	-0.5541	0.0000	0.0000	0.00	✓
1	5:10 PM	2.400	0.6	0.500	0.6000	0.300	80	-0.5541	1.0000	-0.5541	0.2750	-0.1524	-4.54	✓
2	5:11 PM	2.800	0.6	0.450	0.6000	0.270	80	0.0004	1.0000	0.0004	0.1800	0.0001	0.00	✓
3	5:13 PM	3.200	0.6	0.300	0.6000	0.180	80	0.5252	1.0000	0.5252	0.1200	0.0630	1.88	✓
4	5:14 PM	3.600	0.6	0.700	0.6000	0.420	80	0.0432	1.0000	0.0432	0.2800	0.0121	0.36	✓
5	5:15 PM	4.000	0.6	0.700	0.6000	0.420	80	0.4875	1.0000	0.4875	0.2800	0.1365	4.07	✓
6	5:17 PM	4.400	0.6	0.850	0.6000	0.510	80	0.6476	1.0000	0.6476	0.3400	0.2202	6.57	✓
7	5:18 PM	4.800	0.6	0.850	0.6000	0.510	80	0.5715	1.0000	0.5715	0.3400	0.1943	5.79	✓
8	5:19 PM	5.200	0.6	1.000	0.6000	0.600	80	0.6066	1.0000	0.6066	0.4000	0.2426	7.23	✓
9	5:20 PM	5.600	0.6	1.000	0.6000	0.600	80	0.7174	1.0000	0.7174	0.4000	0.2870	8.56	✓
10	5:21 PM	6.000	0.6	1.000	0.6000	0.600	80	0.5897	1.0000	0.5897	0.4000	0.2359	7.03	✓
11	5:22 PM	6.400	0.6	0.900	0.6000	0.540	80	0.6229	1.0000	0.6229	0.3600	0.2242	6.69	✓
12	5:24 PM	6.800	0.6	0.800	0.6000	0.480	80	0.4599	1.0000	0.4599	0.3200	0.1472	4.39	✓
13	5:25 PM	7.200	0.6	0.750	0.6000	0.450	80	0.7535	1.0000	0.7535	0.3000	0.2261	6.74	✓
14	5:26 PM	7.600	0.6	0.950	0.6000	0.570	80	0.7919	1.0000	0.7919	0.3800	0.3009	8.97	✓
15	5:27 PM	8.000	0.6	0.900	0.6000	0.540	80	0.8486	1.0000	0.8486	0.3600	0.3055	9.11	✓
16	5:28 PM	8.400	0.6	1.000	0.6000	0.600	80	0.7504	1.0000	0.7504	0.4000	0.3002	8.95	✓
17	5:29 PM	8.800	0.6	1.000	0.6000	0.600	80	0.6723	1.0000	0.6723	0.4000	0.2689	8.02	✓
18	5:30 PM	9.200	0.6	0.800	0.6000	0.480	80	0.5189	1.0000	0.5189	0.3200	0.1660	4.95	✓
19	5:32 PM	9.600	0.6	0.950	0.6000	0.570	80	0.3356	1.0000	0.3356	0.5225	0.1754	5.23	✓
20	5:33 PM	10.300	None	0.000	0.0000	0.000	0	0.0000	1.0000	0.3356	0.0000	0.0000	0.00	✓

Discharge Measurement Summary

Site name	Monitor Creek - D4
Site number	001
Operator(s)	Jack Landers
File name	Monitor Creek - D4_20190408-173409.ft
Comment	Temp gage

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

Quality control warnings

St#	*Time*	*Location (ft)*	*Method*	*Depth (ft)*	*%Depth*	*Measured Depth (ft)*	*Warnings*
1	5:10 PM	2.400	0.6	0.500	0.6000	0.300	Low SNR,Beam SNRs Not Similar,Large SNR Variation,SNR Threshold Variation,Standard Error > QC,Velocity Angle > QC
2	5:11 PM	2.800	0.6	0.450	0.6000	0.270	Boundary Interference,SNR Threshold Variation
4	5:14 PM	3.600	0.6	0.700	0.6000	0.420	Boundary Interference,Beam SNRs Not Similar,SNR Threshold Variation,Standard Error > QC
20	5:33 PM	10.300	None	0.000	0.0000	0.000	Water Depth > QC

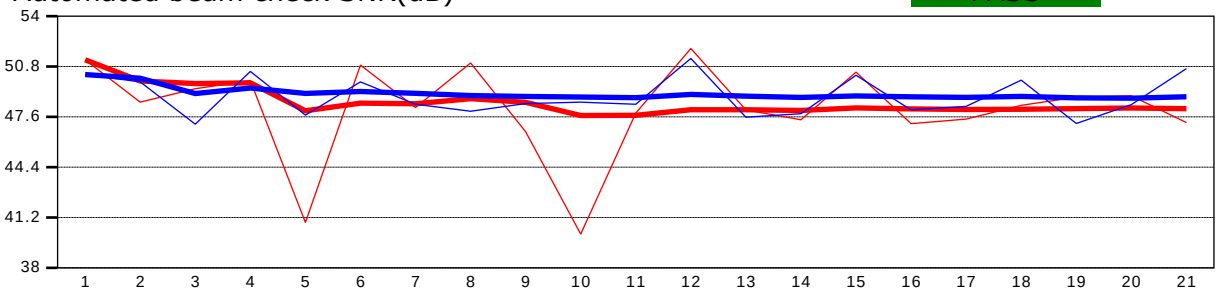
Discharge Measurement Summary

Site name	Monitor Creek - D4
Site number	001
Operator(s)	Jack Landers
File name	Monitor Creek - D4_20190408-173409.ft
Comment	Temp gage

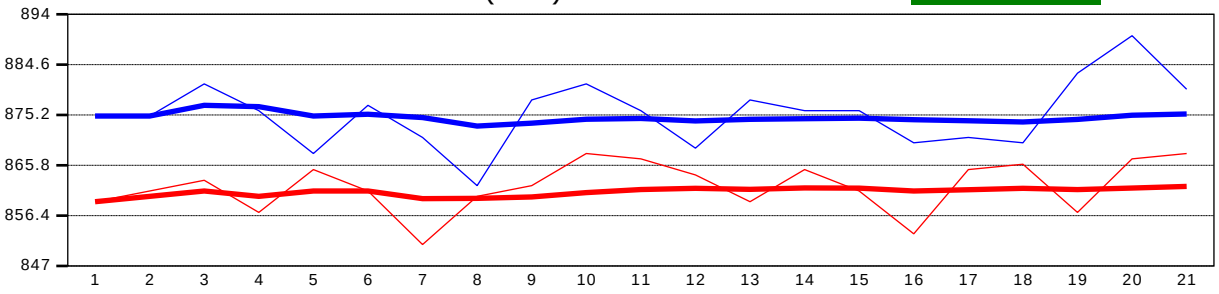
Beam 1	
Beam 2	

Automated beam check Start time 4/8/2019 5:09:36 PM

Automated beam check SNR(dB) PASS



Automated beam check Noise level(cnts) PASS



Automated beam check Quality control warnings

No quality control warnings

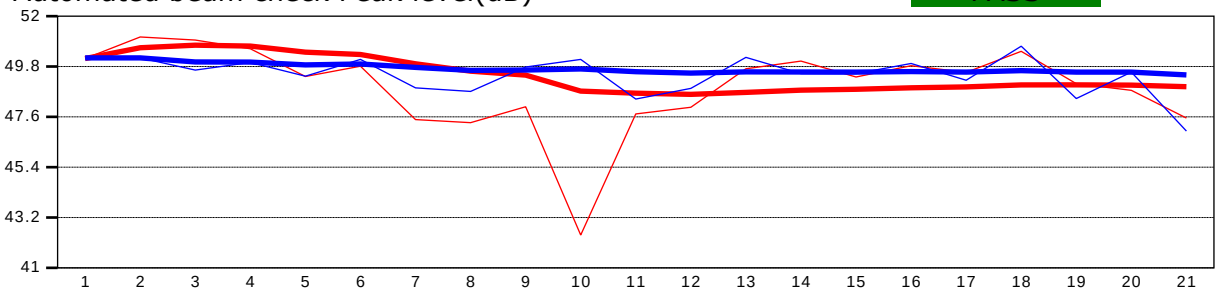
Discharge Measurement Summary

Site name	Monitor Creek - D4
Site number	001
Operator(s)	Jack Landers
File name	Monitor Creek - D4_20190408-173409.ft
Comment	Temp gage

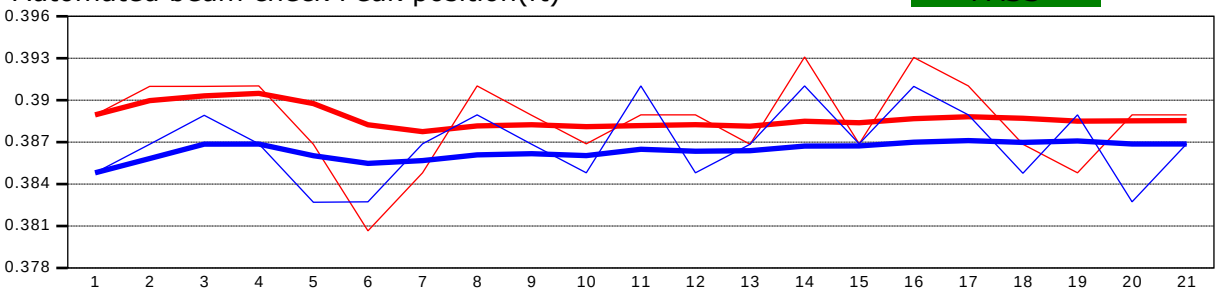
Beam 1	
Beam 2	

Automated beam check Start time 4/8/2019 5:09:36 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	Monitor Creek - D4
Site number	002
Operator(s)	Jack Landers
File name	Monitor Creek - D4_20190411-103207.ft
Comment	Temp gage

Start time	4/11/2019 10:03 AM
End time	4/11/2019 10:29 AM
Start location latitude	38.620
Start location longitude	-108.209
Calculations engine	FlowTracker2

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

# Stations	Avg interval (s)	Total discharge (ft³/s)
23	40	11.6071

Total width (ft)	Total area (ft²)	Wetted Perimeter (ft)
10.900	8.0225	11.384

Mean SNR (dB)	Mean depth (ft)	Mean velocity (ft/s)
53	0.736	1.4468

Mean temp (°F)	Max depth (ft)	Max velocity (ft/s)
37.157	1.100	2.3179

Discharge Uncertainty		
Category	**ISO**	**IVE**
Accuracy	1.0%	1.0%
Depth	0.2%	2.7%
Velocity	0.8%	7.5%
Width	0.1%	0.1%
Method	1.9%	
# Stations	2.2%	
Overall	**3.2%**	**8.0%**

Discharge equation	Mid Section
Discharge uncertainty	IVE
Discharge reference	Rated

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

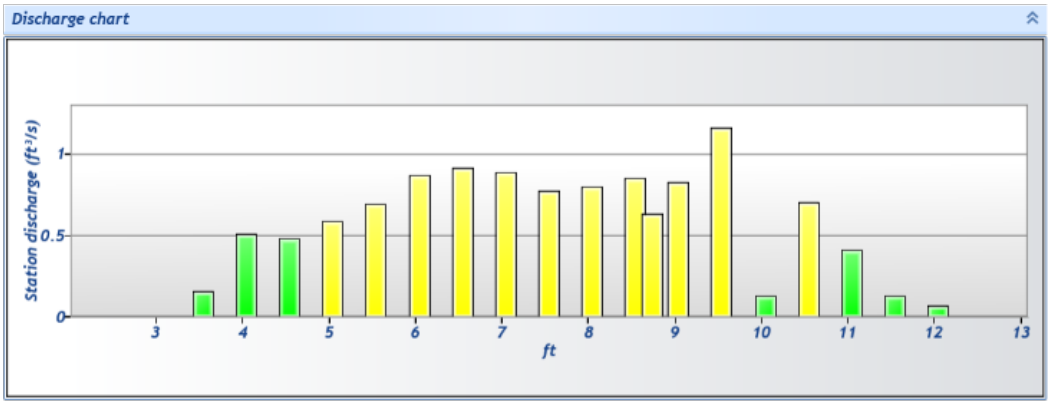
Summary overview

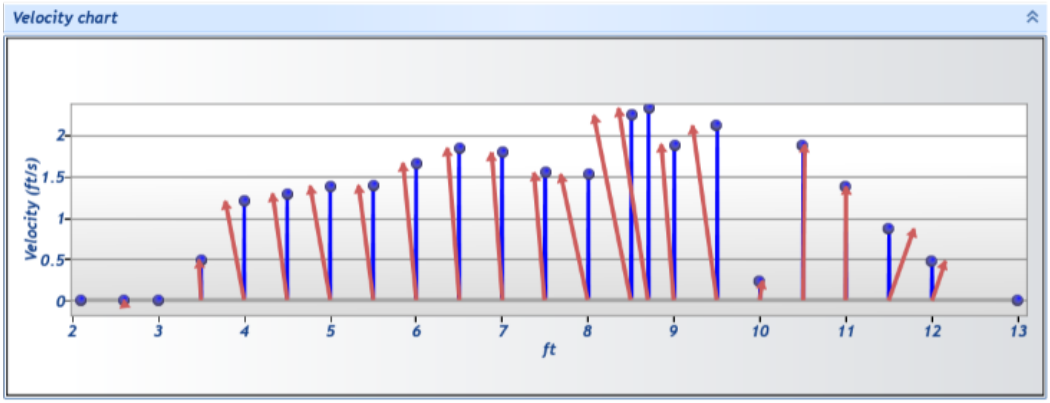
No changes were made to this file
Quality control warnings

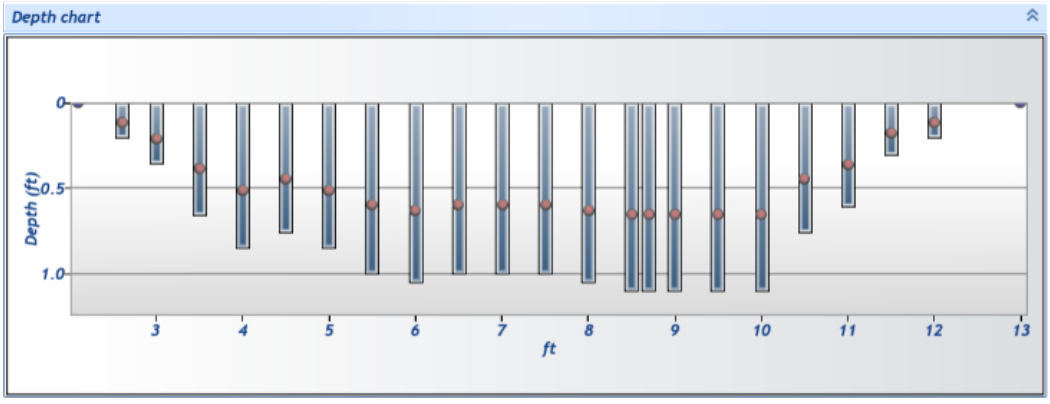
Discharge Measurement Summary

Site name	Monitor Creek - D4
Site number	002
Operator(s)	Jack Landers
File name	Monitor Creek - D4_20190411-103207.ft
Comment	Temp gage

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







Discharge Measurement Summary

Site name	Monitor Creek - D4
Site number	002
Operator(s)	Jack Landers
File name	Monitor Creek - D4_20190411-103207.ft
Comment	Temp gage

Measurement results

St#	Time	Location (ft)	Method	Depth (ft)	%Depth	Measured Depth (ft)	Samples	Velocity (ft/s)	Correction	Mean Velocity (ft/s)	Area (ft²)	Flow (ft³/s)	%Q	
0	10:03 AM	2.100	None	0.000	0.0000	0.000	0	0.0000	1.0000	0.0051	0.0000	0.0000	0.00	✓
1	10:03 AM	2.600	0.6	0.200	0.6000	0.120	80	0.0051	1.0000	0.0051	0.0900	0.0005	0.00	✓
2	10:05 AM	3.000	0.6	0.350	0.6000	0.210	80	0.0008	1.0000	0.0008	0.1575	0.0001	0.00	✓
3	10:07 AM	3.500	0.6	0.650	0.6000	0.390	80	0.4881	1.0000	0.4881	0.3250	0.1586	1.37	✓
4	10:08 AM	4.000	0.6	0.850	0.6000	0.510	80	1.1968	1.0000	1.1968	0.4250	0.5086	4.38	✓
5	10:09 AM	4.500	0.6	0.750	0.6000	0.450	80	1.2884	1.0000	1.2884	0.3750	0.4832	4.16	✓
6	10:10 AM	5.000	0.6	0.850	0.6000	0.510	80	1.3801	1.0000	1.3801	0.4250	0.5865	5.05	✓
7	10:12 AM	5.500	0.6	1.000	0.6000	0.600	80	1.3844	1.0000	1.3844	0.5000	0.6922	5.96	✓
8	10:13 AM	6.000	0.6	1.050	0.6000	0.630	80	1.6559	1.0000	1.6559	0.5250	0.8694	7.49	✓
9	10:14 AM	6.500	0.6	1.000	0.6000	0.600	80	1.8371	1.0000	1.8371	0.5000	0.9185	7.91	✓
10	10:15 AM	7.000	0.6	1.000	0.6000	0.600	80	1.7854	1.0000	1.7854	0.5000	0.8927	7.69	✓
11	10:16 AM	7.500	0.6	1.000	0.6000	0.600	80	1.5413	1.0000	1.5413	0.5000	0.7706	6.64	✓
12	10:17 AM	8.000	0.6	1.050	0.6000	0.630	80	1.5201	1.0000	1.5201	0.5250	0.7981	6.88	✓
13	10:18 AM	8.500	0.6	1.100	0.6000	0.660	80	2.2283	1.0000	2.2283	0.3850	0.8579	7.39	✓
14	10:29 AM	8.700	0.6	1.100	0.6000	0.660	80	2.3179	1.0000	2.3179	0.2750	0.6374	5.49	✓
15	10:20 AM	9.000	0.6	1.100	0.6000	0.660	80	1.8804	1.0000	1.8804	0.4400	0.8274	7.13	✓
16	10:21 AM	9.500	0.6	1.100	0.6000	0.660	80	2.1079	1.0000	2.1079	0.5500	1.1594	9.99	✓
17	10:23 AM	10.000	0.6	1.100	0.6000	0.660	80	0.2331	1.0000	0.2331	0.5500	0.1282	1.10	✓
18	10:24 AM	10.500	0.6	0.750	0.6000	0.450	80	1.8775	1.0000	1.8775	0.3750	0.7040	6.07	✓
19	10:25 AM	11.000	0.6	0.600	0.6000	0.360	80	1.3742	1.0000	1.3742	0.3000	0.4123	3.55	✓
20	10:26 AM	11.500	0.6	0.300	0.6000	0.180	80	0.8647	1.0000	0.8647	0.1500	0.1297	1.12	✓
21	10:27 AM	12.000	0.6	0.200	0.6000	0.120	80	0.4781	1.0000	0.4781	0.1500	0.0717	0.62	✓
22	10:29 AM	13.000	None	0.000	0.0000	0.000	0	0.0000	1.0000	0.4781	0.0000	0.0000	0.00	✓

Discharge Measurement Summary

Site name	Monitor Creek - D4
Site number	002
Operator(s)	Jack Landers
File name	Monitor Creek - D4_20190411-103207.ft
Comment	Temp gage

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

Quality control warnings

St#	Time	Location (ft)	Method	Depth (ft)	%Depth	Measured Depth (ft)	Warnings
1	10:03 AM	2.600	0.6	0.200	0.6000	0.120	Beam SNRs Not Similar,SNR Threshold Variation
2	10:05 AM	3.000	0.6	0.350	0.6000	0.210	SNR Threshold Variation
10	10:15 AM	7.000	0.6	1.000	0.6000	0.600	Standard Error > QC
11	10:16 AM	7.500	0.6	1.000	0.6000	0.600	Standard Error > QC
12	10:17 AM	8.000	0.6	1.050	0.6000	0.630	Standard Error > QC
13	10:18 AM	8.500	0.6	1.100	0.6000	0.660	Standard Error > QC
14	10:29 AM	8.700	0.6	1.100	0.6000	0.660	Standard Error > QC
15	10:20 AM	9.000	0.6	1.100	0.6000	0.660	Stn Spacing > QC,Standard Error > QC
16	10:21 AM	9.500	0.6	1.100	0.6000	0.660	Standard Error > QC
17	10:23 AM	10.000	0.6	1.100	0.6000	0.660	Beam SNRs Not Similar,SNR Threshold Variation,Standard Error > QC
18	10:24 AM	10.500	0.6	0.750	0.6000	0.450	Standard Error > QC
19	10:25 AM	11.000	0.6	0.600	0.6000	0.360	Standard Error > QC

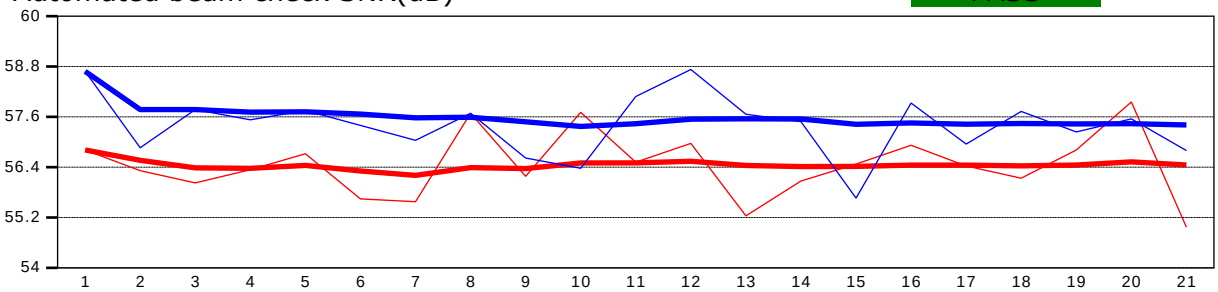
Discharge Measurement Summary

Site name	Monitor Creek - D4
Site number	002
Operator(s)	Jack Landers
File name	Monitor Creek - D4_20190411-103207.ft
Comment	Temp gage

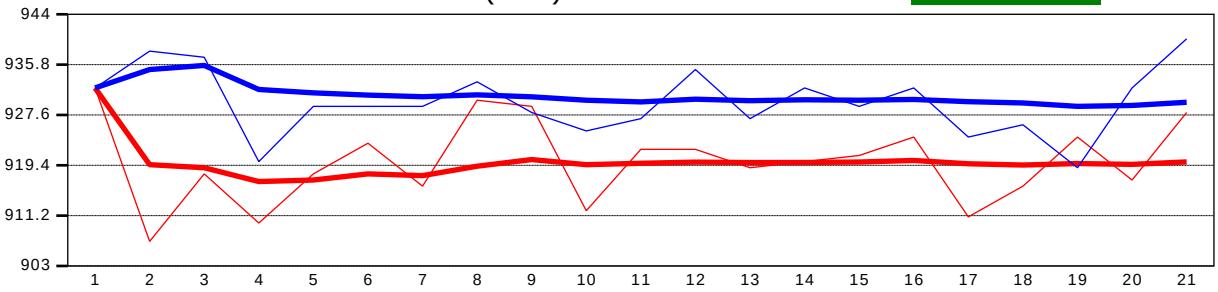
Beam 1	
Beam 2	

Automated beam check Start time 4/11/2019 10:03:08 AM

Automated beam check SNR(dB) PASS



Automated beam check Noise level(cnts) PASS



Automated beam check Quality control warnings

No quality control warnings

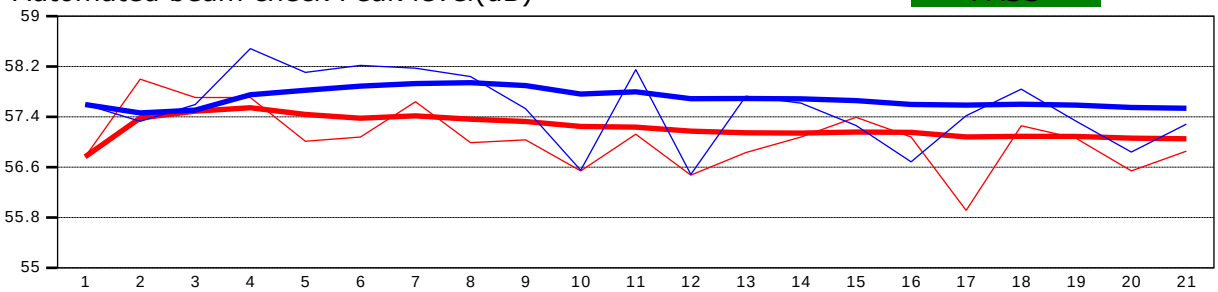
Discharge Measurement Summary

Site name	Monitor Creek - D4
Site number	002
Operator(s)	Jack Landers
File name	Monitor Creek - D4_20190411-103207.ft
Comment	Temp gage

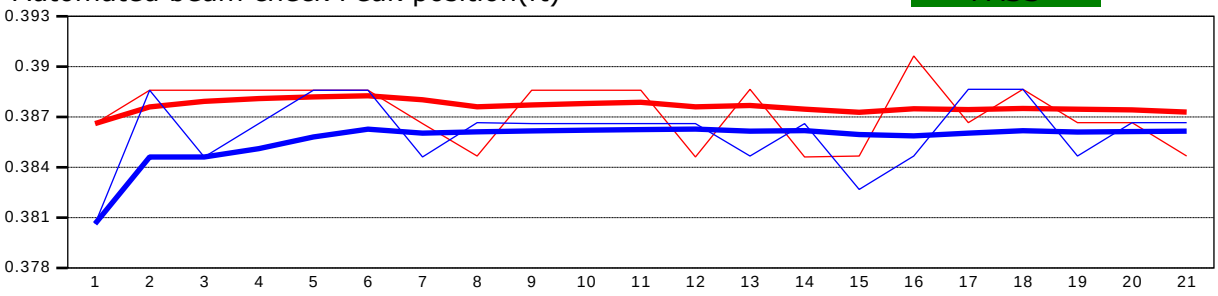
Beam 1	
Beam 2	

Automated beam check Start time 4/11/2019 10:03:08 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

Stream Discharge Calculator

Note: grassline(bankfull, REW, LEW, rock, eddy, behind obstruction, etc.)

Monitor Creek abv Potter Creek
05032019 1130
38.620005, -108.208986
x-section @ above new PT at road crossing

Note	Distance ft	Section wi	Depth ft.	Velocity fp	Area sq. ft.	Discharge cfs
REW	7.90		0.00	0.00		
	8.50	0.55	0.10	0.00	0.06	0.00
	9.00	0.50	0.15	0.59	0.08	0.04
	9.50	0.50	0.05	0.00	0.03	0.00
	10.00	0.50	0.35	1.73	0.18	0.30
	10.50	0.50	0.55	1.95	0.28	0.54
	11.00	0.50	0.70	2.01	0.35	0.70
	11.50	0.50	0.80	2.85	0.40	1.14
	12.00	0.50	0.95	3.96	0.48	1.88
	12.50	0.50	0.90	4.00	0.45	1.80
	13.00	0.50	1.15	4.10	0.58	2.36
	13.50	0.50	1.10	4.11	0.55	2.26
	14.00	0.50	1.70	5.35	0.85	4.55
	14.50	0.50	1.95	5.32	0.98	5.19
	15.00	0.50	1.45	3.68	0.73	2.67
	15.50	0.50	1.35	5.76	0.68	3.89
	16.00	0.50	1.45	5.70	0.73	4.13
	16.50	0.50	1.45	4.40	0.73	3.19
	17.00	0.50	1.50	4.83	0.75	3.62
	17.50	0.50	1.50	4.36	0.75	3.27
	18.00	0.50	1.40	4.30	0.70	3.01
	18.50	0.50	1.60	4.71	0.80	3.77
	19.00	0.50	1.60	4.66	0.80	3.73
	19.50	0.50	1.55	4.20	0.78	3.26
	20.00	0.50	1.35	4.46	0.68	3.01
	20.50	0.50	1.35	4.71	0.68	3.18
	21.00	0.50	0.95	4.78	0.48	2.27
	21.50	0.50	0.90	4.33	0.45	1.95
	22.00	0.50	1.30	3.20	0.65	2.08
	22.50	0.50	1.25	3.56	0.63	2.23
	23.00	0.50	1.20	3.60	0.60	2.16
	23.50	0.50	1.00	2.54	0.50	1.27
	24.00	0.50	1.15	1.31	0.58	0.75
	24.50	0.50	0.65	1.63	0.33	0.53
	25.00	0.50	0.75	1.43	0.38	0.54

25.50	0.00	0.00	0.00	0.00
			Total	48.31

Discharge Measurement Summary

Site name	Monitor Creek - D4
Site number	002
Operator(s)	Jack Landers
File name	Monitor Creek - D4_20190515-143124.ft
Comment	Temp gage

Start time	5/15/2019 1:56 PM
End time	5/15/2019 2:28 PM
Start location latitude	38.620
Start location longitude	-108.209
Calculations engine	FlowTracker2

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

# Stations	Avg interval (s)	Total discharge (ft³/s)
25	40	55.1332

Total width (ft)	Total area (ft²)	Wetted Perimeter (ft)
24.400	19.0975	24.729

Mean SNR (dB)	Mean depth (ft)	Mean velocity (ft/s)
59	0.783	2.8869

Mean temp (°F)	Max depth (ft)	Max velocity (ft/s)
51.844	1.400	4.5269

Discharge Uncertainty		
Category	**ISO**	**IVE**
Accuracy	1.0%	1.0%
Depth	0.2%	2.4%
Velocity	0.8%	2.8%
Width	0.1%	0.1%
Method	2.0%	
# Stations	2.0%	
Overall	**3.1%**	**3.8%**

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 %

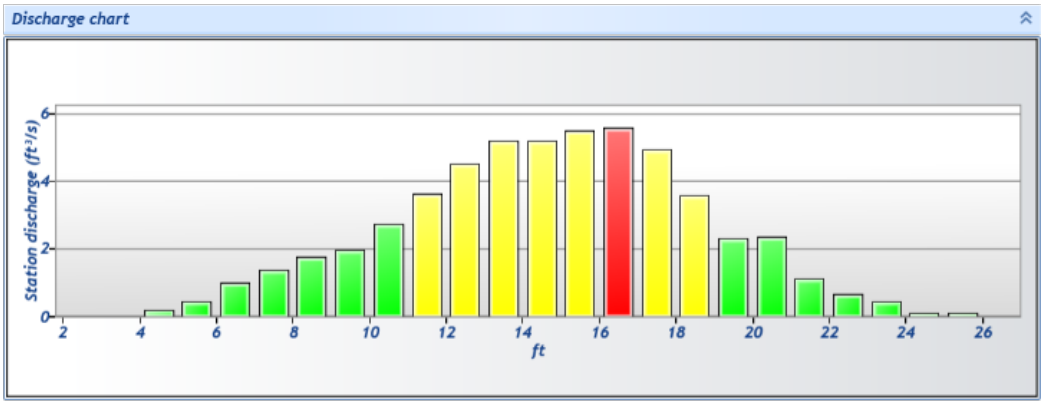
Summary overview

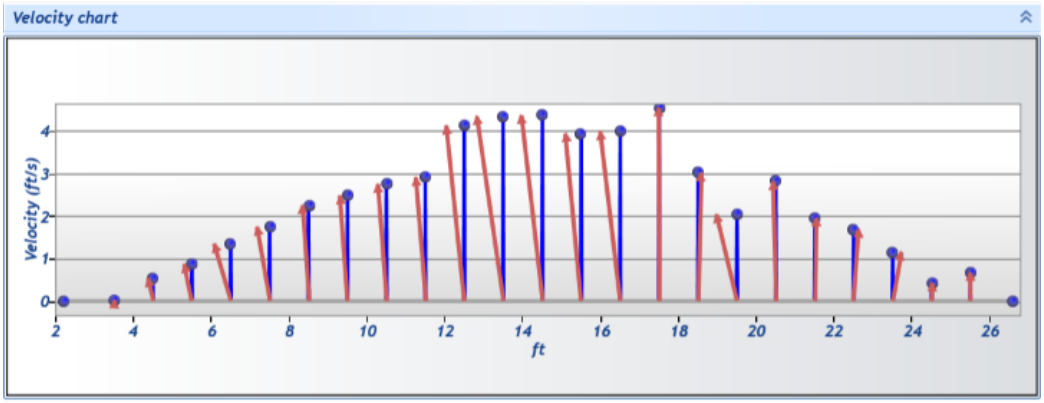
No changes were made to this file
Quality control warnings

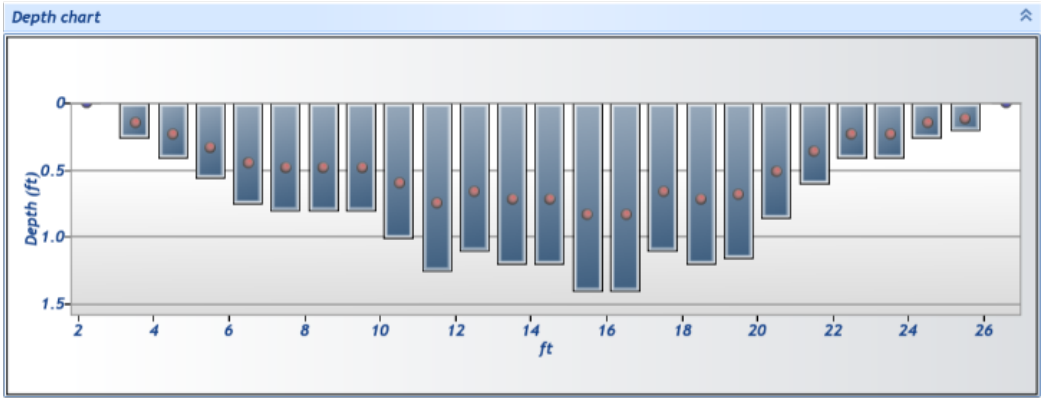
Discharge Measurement Summary

Site name	Monitor Creek - D4
Site number	002
Operator(s)	Jack Landers
File name	Monitor Creek - D4_20190515-143124.ft
Comment	Temp gage

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







Discharge Measurement Summary

Site name	Monitor Creek - D4
Site number	002
Operator(s)	Jack Landers
File name	Monitor Creek - D4_20190515-143124.ft
Comment	Temp gage

Measurement results

St#	Time	Location (ft)	Method	Depth (ft)	%Depth	Measured Depth (ft)	Samples	Velocity (ft/s)	Correction	Mean Velocity (ft/s)	Area (ft²)	Flow (ft³/s)	%Q	
0	1:56 PM	2.200	None	0.000	0.0000	0.000	0	0.0000	1.0000	0.0183	0.0000	0.0000	0.00	✓
1	2:00 PM	3.500	0.6	0.250	0.6000	0.150	80	0.0183	1.0000	0.0183	0.2875	0.0053	0.01	✓
2	2:01 PM	4.500	0.6	0.400	0.6000	0.240	80	0.5350	1.0000	0.5350	0.4000	0.2140	0.39	✓
3	2:02 PM	5.500	0.6	0.550	0.6000	0.330	80	0.8628	1.0000	0.8628	0.5500	0.4746	0.86	✓
4	2:04 PM	6.500	0.6	0.750	0.6000	0.450	80	1.3404	1.0000	1.3404	0.7500	1.0053	1.82	✓
5	2:05 PM	7.500	0.6	0.800	0.6000	0.480	80	1.7421	1.0000	1.7421	0.8000	1.3937	2.53	✓
6	2:06 PM	8.500	0.6	0.800	0.6000	0.480	80	2.2493	1.0000	2.2493	0.8000	1.7994	3.26	✓
7	2:07 PM	9.500	0.6	0.800	0.6000	0.480	80	2.4785	1.0000	2.4785	0.8000	1.9828	3.60	✓
8	2:08 PM	10.500	0.6	1.000	0.6000	0.600	80	2.7483	1.0000	2.7483	1.0000	2.7483	4.98	✓
9	2:09 PM	11.500	0.6	1.250	0.6000	0.750	80	2.9056	1.0000	2.9056	1.2500	3.6320	6.59	✓
10	2:10 PM	12.500	0.6	1.100	0.6000	0.660	80	4.1219	1.0000	4.1219	1.1000	4.5341	8.22	✓
11	2:12 PM	13.500	0.6	1.200	0.6000	0.720	80	4.3291	1.0000	4.3291	1.2000	5.1949	9.42	✓
12	2:13 PM	14.500	0.6	1.200	0.6000	0.720	80	4.3543	1.0000	4.3543	1.2000	5.2251	9.48	✓
13	2:14 PM	15.500	0.6	1.400	0.6000	0.840	80	3.9249	1.0000	3.9249	1.4000	5.4949	9.97	✓
14	2:16 PM	16.500	0.6	1.400	0.6000	0.840	80	3.9851	1.0000	3.9851	1.4000	5.5791	10.12	✓
15	2:17 PM	17.500	0.6	1.100	0.6000	0.660	80	4.5269	1.0000	4.5269	1.1000	4.9796	9.03	✓
16	2:18 PM	18.500	0.6	1.200	0.6000	0.720	80	3.0107	1.0000	3.0107	1.2000	3.6128	6.55	✓
17	2:19 PM	19.500	0.6	1.150	0.6000	0.690	80	2.0309	1.0000	2.0309	1.1500	2.3356	4.24	✓
18	2:21 PM	20.500	0.6	0.850	0.6000	0.510	80	2.8036	1.0000	2.8036	0.8500	2.3830	4.32	✓
19	2:22 PM	21.500	0.6	0.600	0.6000	0.360	80	1.9380	1.0000	1.9380	0.6000	1.1628	2.11	✓
20	2:23 PM	22.500	0.6	0.400	0.6000	0.240	80	1.6745	1.0000	1.6745	0.4000	0.6698	1.21	✓
21	2:24 PM	23.500	0.6	0.400	0.6000	0.240	80	1.1477	1.0000	1.1477	0.4000	0.4591	0.83	✓
22	2:25 PM	24.500	0.6	0.250	0.6000	0.150	80	0.4264	1.0000	0.4264	0.2500	0.1066	0.19	✓
23	2:27 PM	25.500	0.6	0.200	0.6000	0.120	80	0.6681	1.0000	0.6681	0.2100	0.1403	0.25	✓
24	2:28 PM	26.600	None	0.000	0.0000	0.000	0	0.0000	1.0000	0.6681	0.0000	0.0000	0.00	✓

Discharge Measurement Summary

Site name	Monitor Creek - D4
Site number	002
Operator(s)	Jack Landers
File name	Monitor Creek - D4_20190515-143124.ft
Comment	Temp gage

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

Quality control warnings

St#	Time	Location (ft)	Method	Depth (ft)	%Depth	Measured Depth (ft)	Warnings
1	2:00 PM	3.500	0.6	0.250	0.6000	0.150	SNR Threshold Variation
4	2:04 PM	6.500	0.6	0.750	0.6000	0.450	Standard Error > QC
5	2:05 PM	7.500	0.6	0.800	0.6000	0.480	Standard Error > QC
6	2:06 PM	8.500	0.6	0.800	0.6000	0.480	Standard Error > QC
7	2:07 PM	9.500	0.6	0.800	0.6000	0.480	Standard Error > QC
8	2:08 PM	10.500	0.6	1.000	0.6000	0.600	Standard Error > QC
9	2:09 PM	11.500	0.6	1.250	0.6000	0.750	Standard Error > QC
10	2:10 PM	12.500	0.6	1.100	0.6000	0.660	Standard Error > QC
11	2:12 PM	13.500	0.6	1.200	0.6000	0.720	Standard Error > QC
12	2:13 PM	14.500	0.6	1.200	0.6000	0.720	Standard Error > QC
13	2:14 PM	15.500	0.6	1.400	0.6000	0.840	Standard Error > QC
14	2:16 PM	16.500	0.6	1.400	0.6000	0.840	Standard Error > QC,High Stn % Discharge
15	2:17 PM	17.500	0.6	1.100	0.6000	0.660	Standard Error > QC
16	2:18 PM	18.500	0.6	1.200	0.6000	0.720	Standard Error > QC
17	2:19 PM	19.500	0.6	1.150	0.6000	0.690	Standard Error > QC
18	2:21 PM	20.500	0.6	0.850	0.6000	0.510	Standard Error > QC
19	2:22 PM	21.500	0.6	0.600	0.6000	0.360	Standard Error > QC
20	2:23 PM	22.500	0.6	0.400	0.6000	0.240	Standard Error > QC
21	2:24 PM	23.500	0.6	0.400	0.6000	0.240	Standard Error > QC
22	2:25 PM	24.500	0.6	0.250	0.6000	0.150	Beam SNRs Not Similar,SNR Threshold Variation

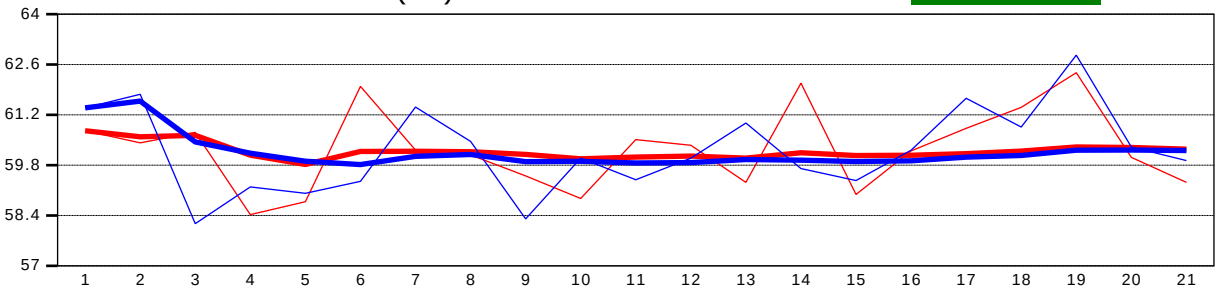
Discharge Measurement Summary

Site name	Monitor Creek - D4
Site number	002
Operator(s)	Jack Landers
File name	Monitor Creek - D4_20190515-143124.ft
Comment	Temp gage

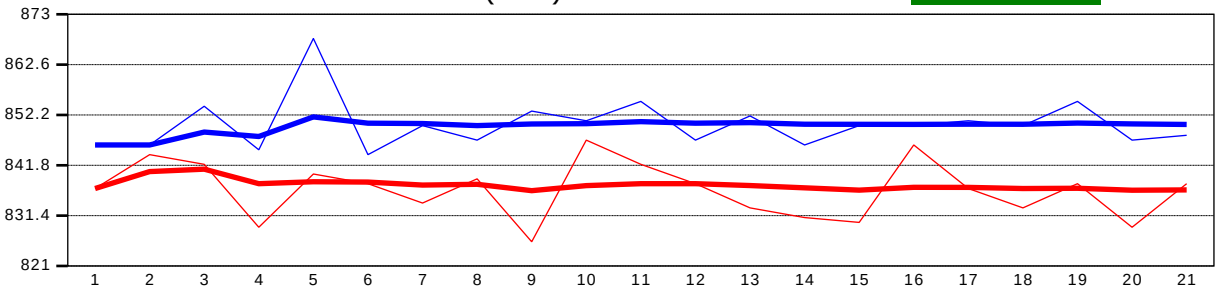
Beam 1	
Beam 2	

Automated beam check Start time 5/15/2019 1:56:35 PM

Automated beam check SNR(dB) PASS



Automated beam check Noise level(cnts) PASS



Automated beam check Quality control warnings

No quality control warnings

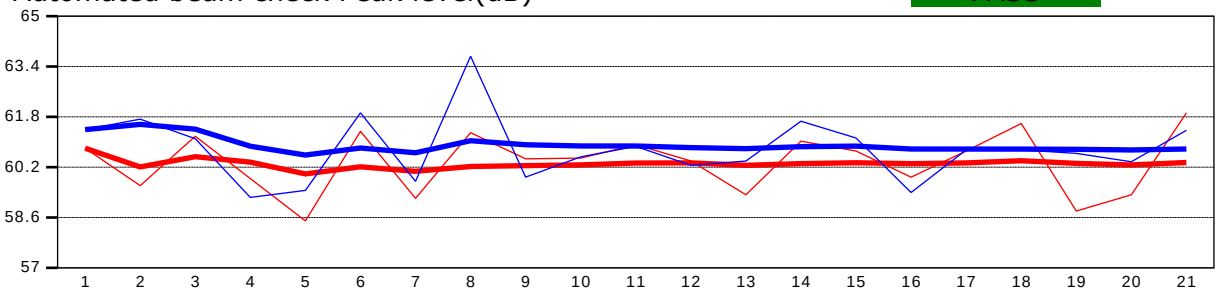
Discharge Measurement Summary

Site name	Monitor Creek - D4
Site number	002
Operator(s)	Jack Landers
File name	Monitor Creek - D4_20190515-143124.ft
Comment	Temp gage

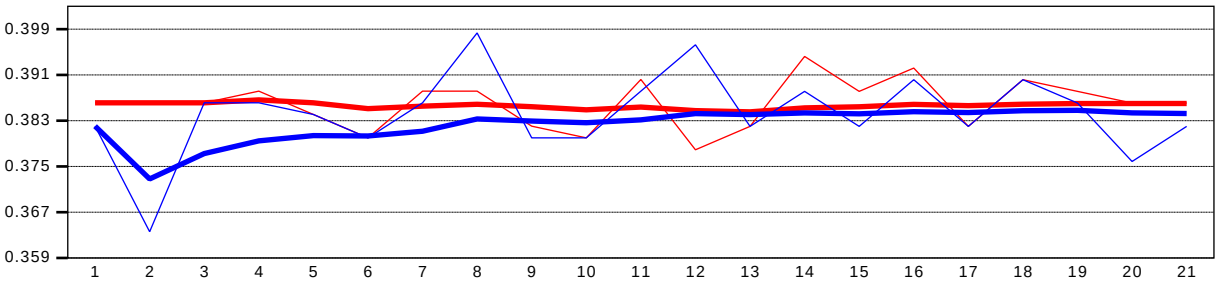
Beam 1	
Beam 2	

Automated beam check Start time 5/15/2019 1:56:35 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	Monitor Creek - D4
Site number	
Operator(s)	Kara scheel
File name	Monitor Creek - D4_20190619-102433.ft
Comment	

Start time	6/19/2019 9:50 AM
End time	6/19/2019 10:22 AM
Start location latitude	38.620
Start location longitude	-108.209
Calculations engine	FlowTracker2

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

# Stations	Avg interval (s)	Total discharge (ft³/s)
23	40	5.0731

Total width (ft)	Total area (ft²)	Wetted Perimeter (ft)
9.800	4.7175	10.327

Mean SNR (dB)	Mean depth (ft)	Mean velocity (ft/s)
47	0.481	1.0754

Mean temp (°F)	Max depth (ft)	Max velocity (ft/s)
57.492	0.700	1.7423

Discharge Uncertainty		
Category	**ISO**	**IVE**
Accuracy	1.0%	1.0%
Depth	0.4%	4.2%
Velocity	0.5%	2.5%
Width	0.1%	0.1%
Method	1.8%	
# Stations	2.2%	
Overall	**3.0%**	**5.0%**

Discharge equation	Mid Section
Discharge uncertainty	IVE
Discharge reference	Rated

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

Summary overview

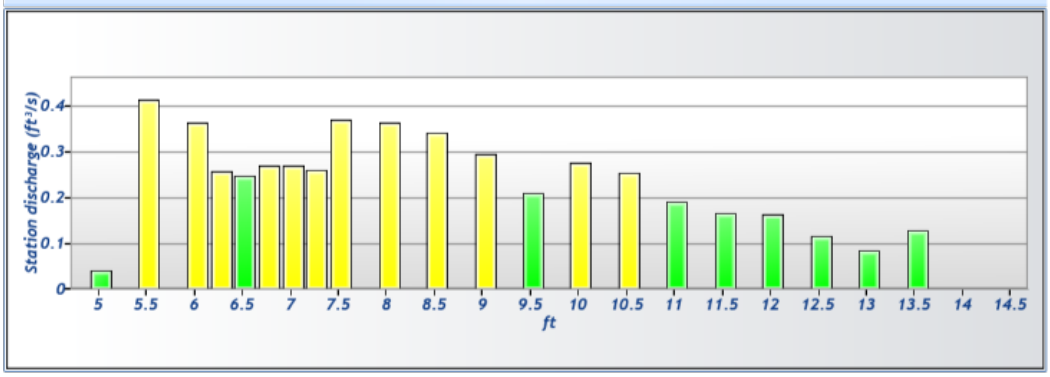
No changes were made to this file
Quality control warnings

Discharge Measurement Summary

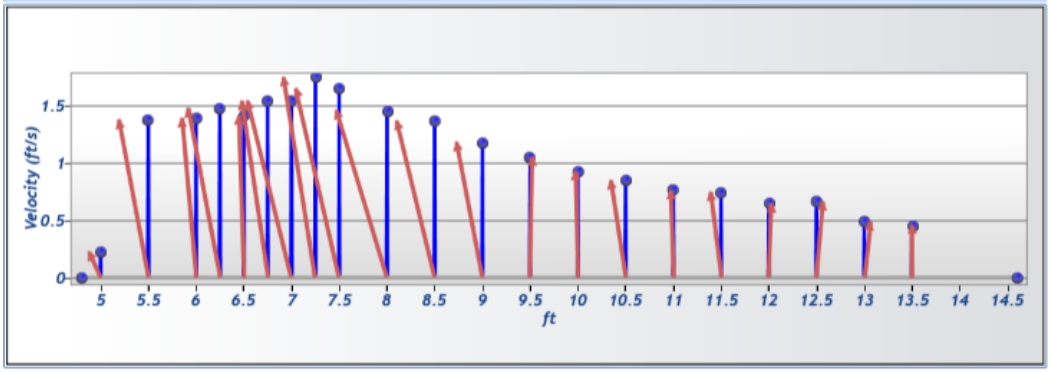
Site name	Monitor Creek - D4
Site number	
Operator(s)	Kara scheel
File name	Monitor Creek - D4_20190619-102433.ft
Comment	

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%

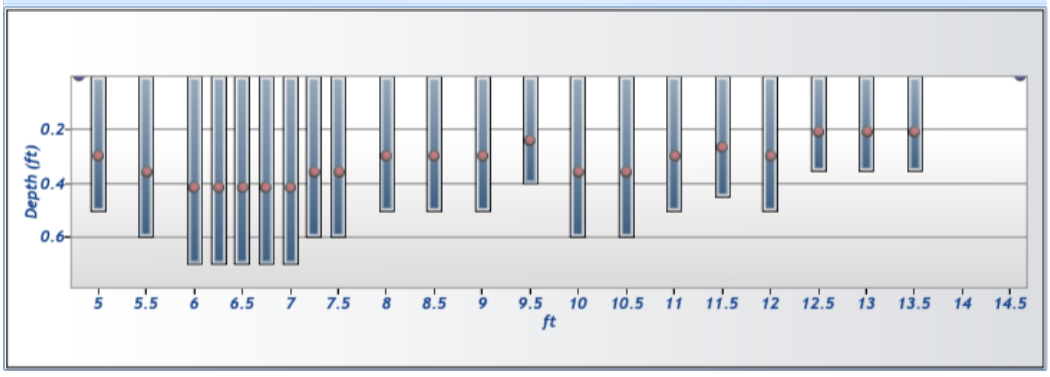
Discharge chart



Velocity chart



Depth chart



Discharge Measurement Summary

Site name	Monitor Creek - D4
Site number	
Operator(s)	Kara scheel
File name	Monitor Creek - D4_20190619-102433.ft
Comment	

Measurement results

St#	Time	Location (ft)	Method	Depth (ft)	%Depth	Measured Depth (ft)	Samples	Velocity (ft/s)	Correction	Mean Velocity (ft/s)	Area (ft²)	Flow (ft³/s)	%Q	
0	9:50 AM	4.800	None	0.000	0.0000	0.000	0	0.0000	1.0000	0.2258	0.0000	0.0000	0.00	✓
1	9:51 AM	5.000	0.6	0.500	0.6000	0.300	80	0.2258	1.0000	0.2258	0.1750	0.0395	0.78	✓
2	9:53 AM	5.500	0.6	0.600	0.6000	0.360	80	1.3737	1.0000	1.3737	0.3000	0.4121	8.12	✓
3	9:55 AM	6.000	0.6	0.700	0.6000	0.420	80	1.3874	1.0000	1.3874	0.2625	0.3642	7.18	✓
4	10:19 AM	6.250	0.6	0.700	0.6000	0.420	80	1.4735	1.0000	1.4735	0.1750	0.2579	5.08	✓
5	9:57 AM	6.500	0.6	0.700	0.6000	0.420	80	1.4076	1.0000	1.4076	0.1750	0.2463	4.86	✓
6	10:20 AM	6.750	0.6	0.700	0.6000	0.420	80	1.5367	1.0000	1.5367	0.1750	0.2689	5.30	✓
7	9:58 AM	7.000	0.6	0.700	0.6000	0.420	80	1.5365	1.0000	1.5365	0.1750	0.2689	5.30	✓
8	10:22 AM	7.250	0.6	0.600	0.6000	0.360	80	1.7423	1.0000	1.7423	0.1500	0.2613	5.15	✓
9	10:00 AM	7.500	0.6	0.600	0.6000	0.360	80	1.6424	1.0000	1.6424	0.2250	0.3695	7.28	✓
10	10:01 AM	8.000	0.6	0.500	0.6000	0.300	80	1.4525	1.0000	1.4525	0.2500	0.3631	7.16	✓
11	10:03 AM	8.500	0.6	0.500	0.6000	0.300	80	1.3650	1.0000	1.3650	0.2500	0.3413	6.73	✓
12	10:04 AM	9.000	0.6	0.500	0.6000	0.300	80	1.1771	1.0000	1.1771	0.2500	0.2943	5.80	✓
13	10:05 AM	9.500	0.6	0.400	0.6000	0.240	80	1.0499	1.0000	1.0499	0.2000	0.2100	4.14	✓
14	10:07 AM	10.000	0.6	0.600	0.6000	0.360	80	0.9208	1.0000	0.9208	0.3000	0.2762	5.45	✓
15	10:08 AM	10.500	0.6	0.600	0.6000	0.360	80	0.8458	1.0000	0.8458	0.3000	0.2537	5.00	✓
16	10:10 AM	11.000	0.6	0.500	0.6000	0.300	80	0.7589	1.0000	0.7589	0.2500	0.1897	3.74	✓
17	10:11 AM	11.500	0.6	0.450	0.6000	0.270	80	0.7424	1.0000	0.7424	0.2250	0.1670	3.29	✓
18	10:12 AM	12.000	0.6	0.500	0.6000	0.300	80	0.6448	1.0000	0.6448	0.2500	0.1612	3.18	✓
19	10:13 AM	12.500	0.6	0.350	0.6000	0.210	80	0.6615	1.0000	0.6615	0.1750	0.1158	2.28	✓
20	10:15 AM	13.000	0.6	0.350	0.6000	0.210	80	0.4841	1.0000	0.4841	0.1750	0.0847	1.67	✓
21	10:16 AM	13.500	0.6	0.350	0.6000	0.210	80	0.4548	1.0000	0.4548	0.2800	0.1274	2.51	✓
22	10:17 AM	14.600	None	0.000	0.0000	0.000	0	0.0000	1.0000	0.4548	0.0000	0.0000	0.00	✓

Discharge Measurement Summary

Site name	Monitor Creek - D4
Site number	
Operator(s)	Kara scheel
File name	Monitor Creek - D4_20190619-102433.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	9:51 AM	5.000	0.6	0.500	0.6000	0.300	Velocity Angle > QC
22	10:17 AM	14.600	None	0.000	0.0000	0.000	Stn Spacing > QC

Discharge Measurement Summary

Site name	Monitor Creek near confl with Potter Creek
Site number	731
Operator(s)	Jack Landers
File name	Monitor Creek near confl with Potter Creek_20190731-121635.ft
Comment	Temp gage

Start time	7/31/2019 11:59 AM
End time	7/31/2019 12:15 PM
Start location latitude	38.620
Start location longitude	-108.209
Calculations engine	FlowTracker2

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

# Stations	Avg interval (s)	Total discharge (ft³/s)
18	40	0.2535

Total width (ft)	Total area (ft²)	Wetted Perimeter (ft)
5.300	1.0590	5.925

Mean SNR (dB)	Mean depth (ft)	Mean velocity (ft/s)
46	0.200	0.2394

Mean temp (°F)	Max depth (ft)	Max velocity (ft/s)
75.647	0.350	0.4086

Discharge Uncertainty		
Category	**ISO**	**IVE**
Accuracy	1.0%	1.0%
Depth	0.4%	12.4%
Velocity	0.5%	11.0%
Width	0.1%	0.1%
Method	2.2%	
# Stations	3.1%	
Overall	**4.0%**	**16.6%**

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 %

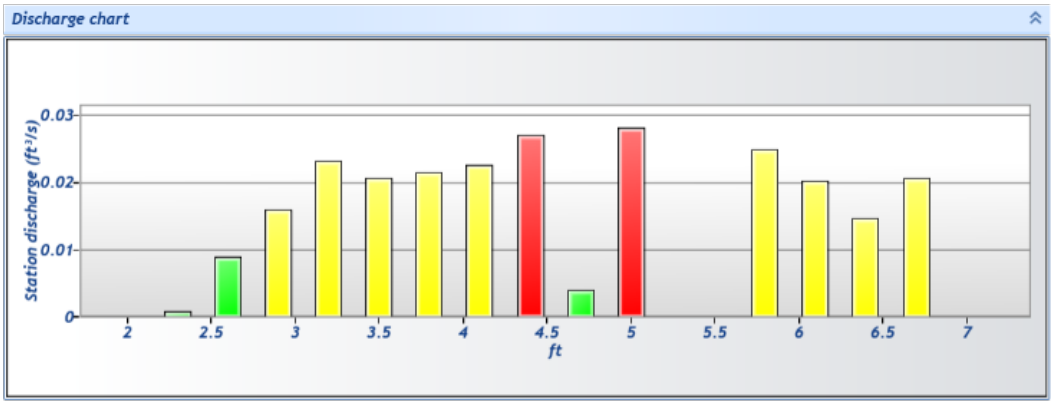
Summary overview

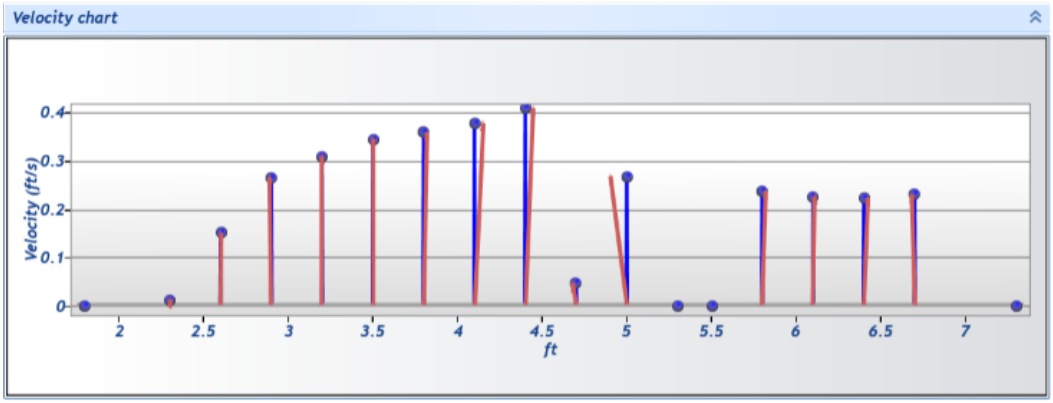
No changes were made to this file
Quality control warnings

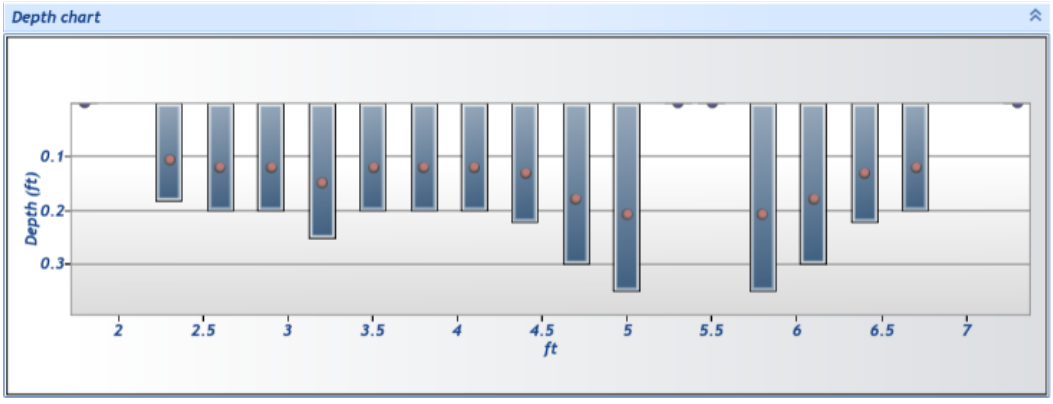
Discharge Measurement Summary

Site name	Monitor Creek near confl with Potter Creek
Site number	731
Operator(s)	Jack Landers
File name	Monitor Creek near confl with Potter Creek_20190731-121635.ft
Comment	Temp gage

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







Discharge Measurement Summary

Site name	Monitor Creek near confl with Potter Creek
Site number	731
Operator(s)	Jack Landers
File name	Monitor Creek near confl with Potter Creek_20190731-121635.ft
Comment	Temp gage

Measurement results

St#	Time	Location (ft)	Method	Depth (ft)	%Depth	Measured Depth (ft)	Samples	Velocity (ft/s)	Correction	Mean Velocity (ft/s)	Area (ft²)	Flow (ft³/s)	%Q	
0	11:59 AM	1.800	None	0.000	0.0000	0.000	0	0.0000	1.0000	0.0122	0.0000	0.0000	0.00	✓
1	11:59 AM	2.300	0.6	0.180	0.6000	0.108	80	0.0122	1.0000	0.0122	0.0720	0.0009	0.35	✓
2	12:00 PM	2.600	0.6	0.200	0.6000	0.120	80	0.1495	1.0000	0.1495	0.0600	0.0090	3.54	✓
3	12:01 PM	2.900	0.6	0.200	0.6000	0.120	80	0.2651	1.0000	0.2651	0.0600	0.0159	6.27	✓
4	12:02 PM	3.200	0.6	0.250	0.6000	0.150	80	0.3094	1.0000	0.3094	0.0750	0.0232	9.16	✓
5	12:03 PM	3.500	0.6	0.200	0.6000	0.120	80	0.3453	1.0000	0.3453	0.0600	0.0207	8.17	✓
6	12:04 PM	3.800	0.6	0.200	0.6000	0.120	80	0.3584	1.0000	0.3584	0.0600	0.0215	8.48	✓
7	12:06 PM	4.100	0.6	0.200	0.6000	0.120	80	0.3771	1.0000	0.3771	0.0600	0.0226	8.93	✓
8	12:07 PM	4.400	0.6	0.220	0.6000	0.132	80	0.4086	1.0000	0.4086	0.0660	0.0270	10.64	✓
9	12:08 PM	4.700	0.6	0.300	0.6000	0.180	80	0.0454	1.0000	0.0454	0.0900	0.0041	1.61	✓
10	12:09 PM	5.000	0.6	0.350	0.6000	0.210	80	0.2672	1.0000	0.2672	0.1050	0.0281	11.07	✓
11	12:10 PM	5.300	None	0.000	0.0000	0.000	0	0.0000	1.0000	0.2672	0.0000	0.0000	0.00	✓
12	12:10 PM	5.500	None	0.000	0.0000	0.000	0	0.0000	1.0000	0.2366	0.0000	0.0000	0.00	✓
13	12:11 PM	5.800	0.6	0.350	0.6000	0.210	80	0.2366	1.0000	0.2366	0.1050	0.0248	9.80	✓
14	12:12 PM	6.100	0.6	0.300	0.6000	0.180	80	0.2258	1.0000	0.2258	0.0900	0.0203	8.02	✓
15	12:13 PM	6.400	0.6	0.220	0.6000	0.132	80	0.2232	1.0000	0.2232	0.0660	0.0147	5.81	✓
16	12:14 PM	6.700	0.6	0.200	0.6000	0.120	80	0.2297	1.0000	0.2297	0.0900	0.0207	8.16	✓
17	12:15 PM	7.300	None	0.000	0.0000	0.000	0	0.0000	1.0000	0.2297	0.0000	0.0000	0.00	✓

Discharge Measurement Summary

Site name	Monitor Creek near confl with Potter Creek
Site number	731
Operator(s)	Jack Landers
File name	Monitor Creek near confl with Potter Creek_20190731-121635.ft
Comment	Temp gage

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

Quality control warnings

St#	Time	Location (ft)	Method	Depth (ft)	%Depth	Measured Depth (ft)	Warnings
1	11:59 AM	2.300	0.6	0.180	0.6000	0.108	SNR Threshold Variation
8	12:07 PM	4.400	0.6	0.220	0.6000	0.132	High Stn % Discharge
10	12:09 PM	5.000	0.6	0.350	0.6000	0.210	Velocity Angle > QC,High Stn % Discharge

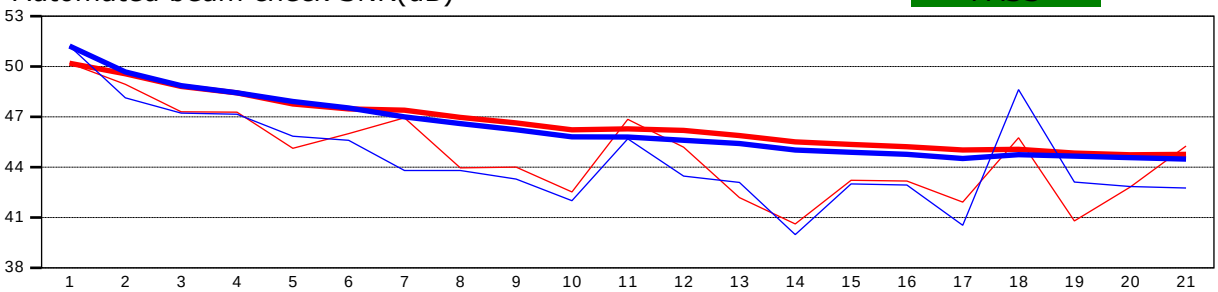
Discharge Measurement Summary

Site name	Monitor Creek near confl with Potter Creek
Site number	731
Operator(s)	Jack Landers
File name	Monitor Creek near confl with Potter Creek_20190731-121635.ft
Comment	Temp gage

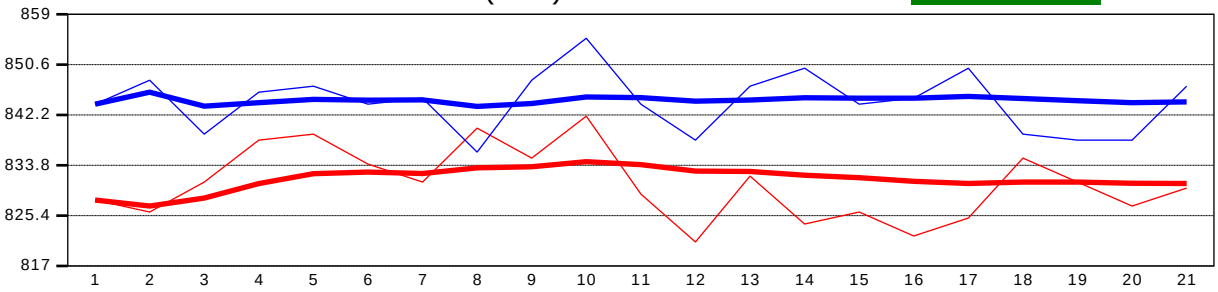
Beam 1	
Beam 2	

Automated beam check Start time 7/31/2019 11:58:27 AM

Automated beam check SNR(dB) PASS



Automated beam check Noise level(cnts) PASS



Automated beam check Quality control warnings

No quality control warnings

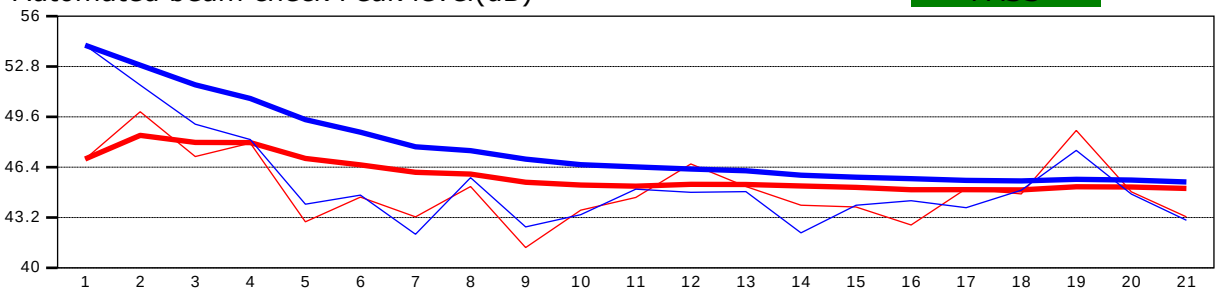
Discharge Measurement Summary

Site name	Monitor Creek near confl with Potter Creek
Site number	731
Operator(s)	Jack Landers
File name	Monitor Creek near confl with Potter Creek_20190731-121635.ft
Comment	Temp gage

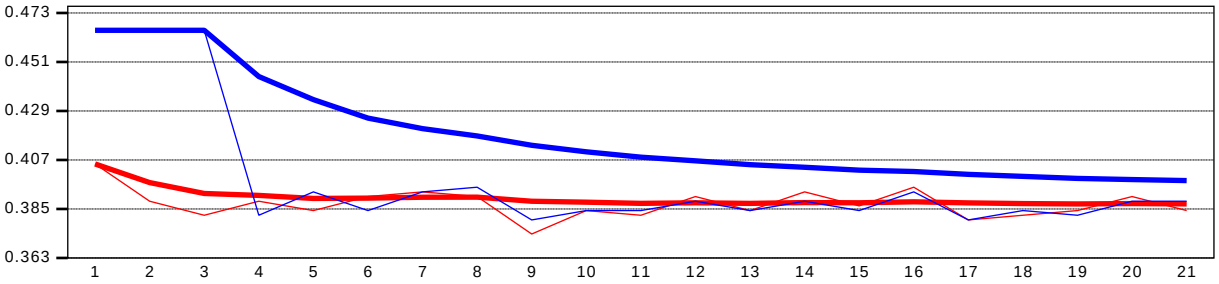
Beam 1	
Beam 2	

Automated beam check Start time 7/31/2019 11:58:27 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	Monitor Creek near confl with Potter Creek
Site number	1017
Operator(s)	Jack Landers
File name	Monitor Creek near confl with Potter Creek_20191017-125717.ft
Comment	Temp gage

Start time	10/17/2019 12:50 PM
End time	10/17/2019 12:55 PM
Start location latitude	38.609
Start location longitude	-108.208
Calculations engine	FlowTracker2

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

# Stations	Avg interval (s)	Total discharge (ft³/s)
6	40	0.0551

Total width (ft)	Total area (ft²)	Wetted Perimeter (ft)
1.800	0.2985	1.946

Mean SNR (dB)	Mean depth (ft)	Mean velocity (ft/s)
59	0.166	0.1847

Mean temp (°F)	Max depth (ft)	Max velocity (ft/s)
52.136	0.290	0.7527

Discharge Uncertainty		
Category	**ISO**	**IVE**
Accuracy	1.0%	1.0%
Depth	1.5%	63.5%
Velocity	3.0%	29.7%
Width	0.5%	0.5%
Method	7.4%	
# Stations	9.4%	
Overall	**12.5%**	**70.1%**

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 %

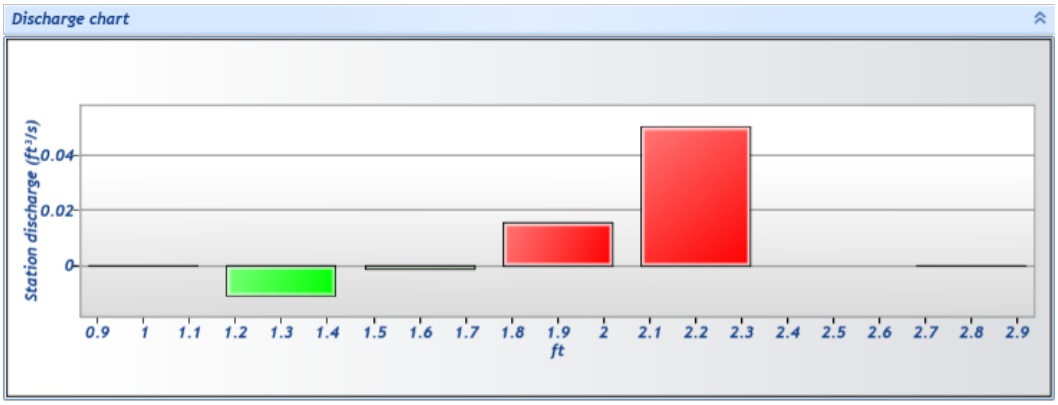
Summary overview

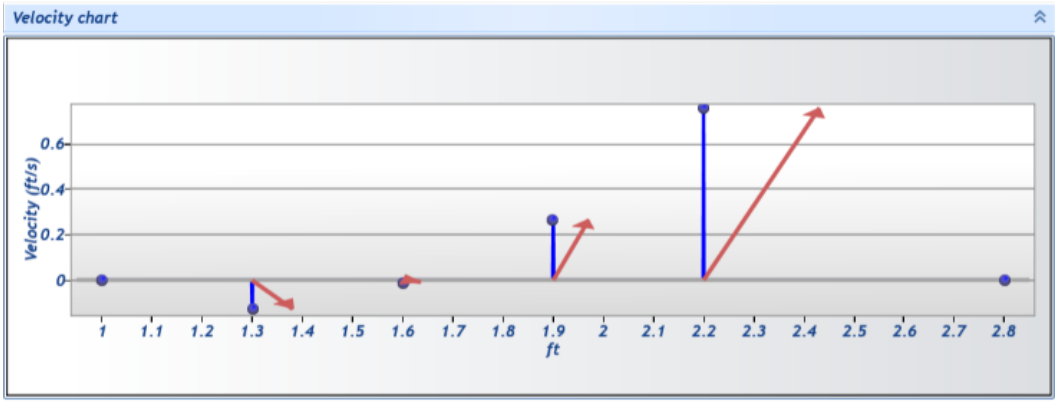
No changes were made to this file
Quality control warnings

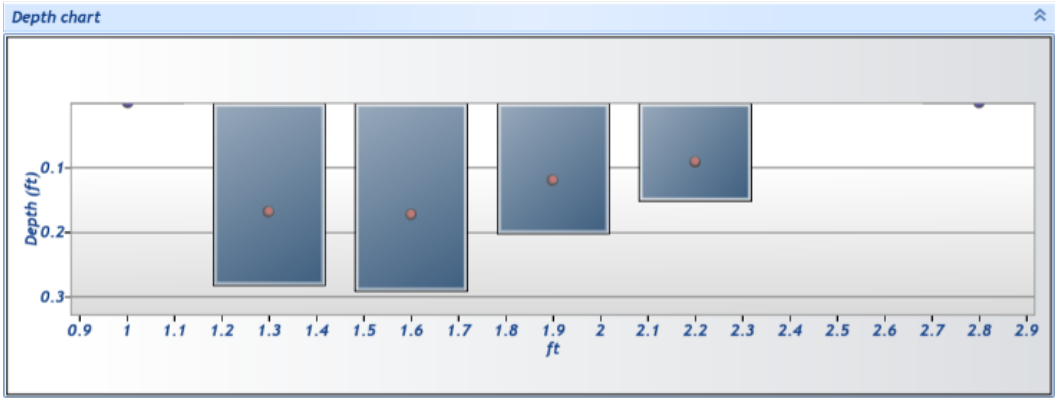
Discharge Measurement Summary

Site name	Monitor Creek near confl with Potter Creek
Site number	1017
Operator(s)	Jack Landers
File name	Monitor Creek near confl with Potter Creek_20191017-125717.ft
Comment	Temp gage

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







Discharge Measurement Summary

Site name	Monitor Creek near confl with Potter Creek
Site number	1017
Operator(s)	Jack Landers
File name	Monitor Creek near confl with Potter Creek_20191017-125717.ft
Comment	Temp gage

Measurement results

St#	Time	Location (ft)	Method	Depth (ft)	%Depth	Measured Depth (ft)	Samples	Velocity (ft/s)	Correction	Mean Velocity (ft/s)	Area (ft²)	Flow (ft³/s)	%Q	
0	12:50 PM	1.000	None	0.000	0.0000	0.000	0	0.0000	1.0000	-0.1266	0.0000	0.0000	0.00	✓
1	12:50 PM	1.300	0.6	0.280	0.6000	0.168	80	-0.1266	1.0000	-0.1266	0.0840	-0.0106	-19.28	✓
2	12:52 PM	1.600	0.6	0.290	0.6000	0.174	80	-0.0105	1.0000	-0.0105	0.0870	-0.0009	-1.65	✓
3	12:53 PM	1.900	0.6	0.200	0.6000	0.120	80	0.2646	1.0000	0.2646	0.0600	0.0159	28.79	✓
4	12:54 PM	2.200	0.6	0.150	0.6000	0.090	80	0.7527	1.0000	0.7527	0.0675	0.0508	92.14	✓
5	12:55 PM	2.800	None	0.000	0.0000	0.000	0	0.0000	1.0000	0.7527	0.0000	0.0000	0.00	✓

Discharge Measurement Summary

Site name	Monitor Creek near confl with Potter Creek
Site number	1017
Operator(s)	Jack Landers
File name	Monitor Creek near confl with Potter Creek_20191017-125717.ft
Comment	Temp gage

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

Quality control warnings

St#	Time	Location (ft)	Method	Depth (ft)	%Depth	Measured Depth (ft)	Warnings
1	12:50 PM	1.300	0.6	0.280	0.6000	0.168	Boundary Interference,Velocity Angle > QC
3	12:53 PM	1.900	0.6	0.200	0.6000	0.120	High Stn % Discharge
4	12:54 PM	2.200	0.6	0.150	0.6000	0.090	High Stn % Discharge

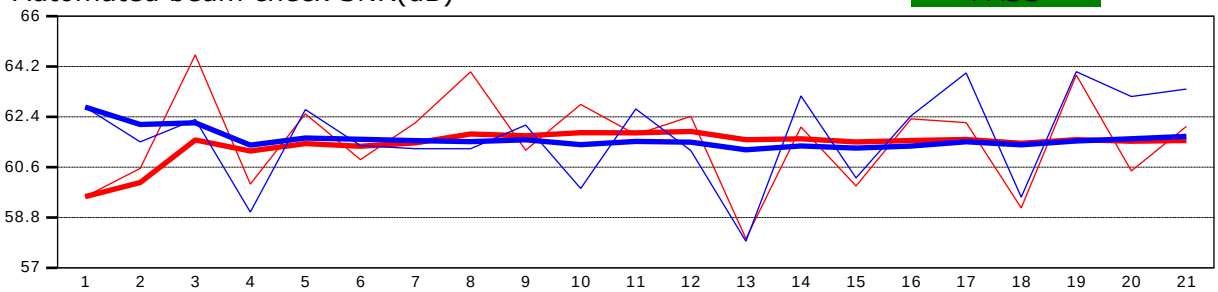
Discharge Measurement Summary

Site name	Monitor Creek near confl with Potter Creek
Site number	1017
Operator(s)	Jack Landers
File name	Monitor Creek near confl with Potter Creek_20191017-125717.ft
Comment	Temp gage

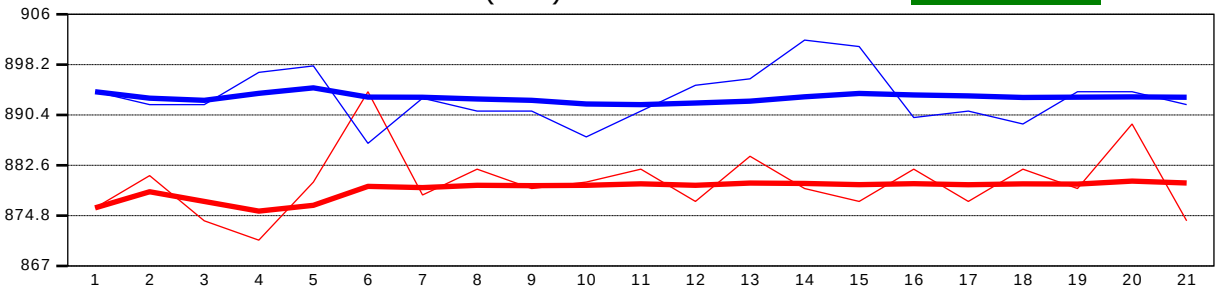
Beam 1	
Beam 2	

Automated beam check Start time 10/17/2019 12:50:15 PM

Automated beam check SNR(dB) PASS



Automated beam check Noise level(cnts) PASS



Automated beam check Quality control warnings

No quality control warnings

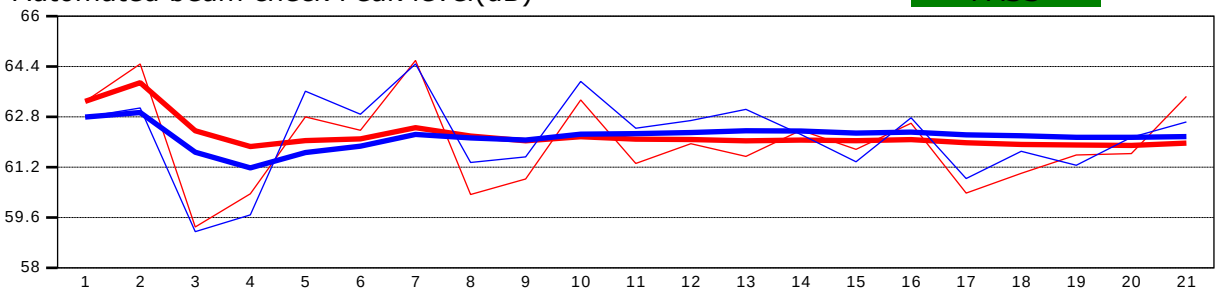
Discharge Measurement Summary

Site name	Monitor Creek near confl with Potter Creek
Site number	1017
Operator(s)	Jack Landers
File name	Monitor Creek near confl with Potter Creek_20191017-125717.ft
Comment	Temp gage

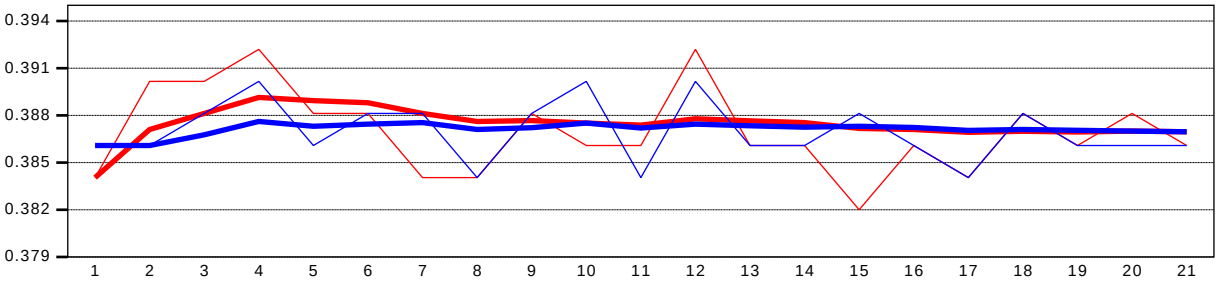
Beam 1	
Beam 2	

Automated beam check Start time 10/17/2019 12:50:15 PM

Automated beam check Peak level(dB) PASS



Automated beam check Peak position(ft) PASS



Automated beam check Quality control warnings

No quality control warnings

Discharge Measurement Summary

Site name	Monitor Creek near confl with Potter Creek
Site number	AT.GAGE
Operator(s)	Jack Landers
File name	Monitor Creek near confl with Potter Creek_20200304-142333.ft
Comment	Upstream.15ft

Start time	3/4/2020 10:03 AM
End time	3/4/2020 10:24 AM
Start location latitude	38.620
Start location longitude	-108.209
Calculations engine	FlowTracker2

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

# Stations	Avg interval (s)	Total discharge (ft³/s)
13	40	0.0569

Total width (ft)	Total area (ft²)	Wetted Perimeter (ft)
3.500	1.7500	4.029

Mean SNR (dB)	Mean depth (ft)	Mean velocity (ft/s)
27	0.500	0.0325

Mean temp (°F)	Max depth (ft)	Max velocity (ft/s)
38.008	0.780	0.0857

Discharge Uncertainty		
Category	**ISO**	**IVE**
Accuracy	1.0%	1.0%
Depth	0.6%	6.0%
Velocity	1.4%	11.8%
Width	0.2%	0.2%
Method	3.0%	
# Stations	3.9%	
Overall	**5.2%**	**13.3%**

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 %

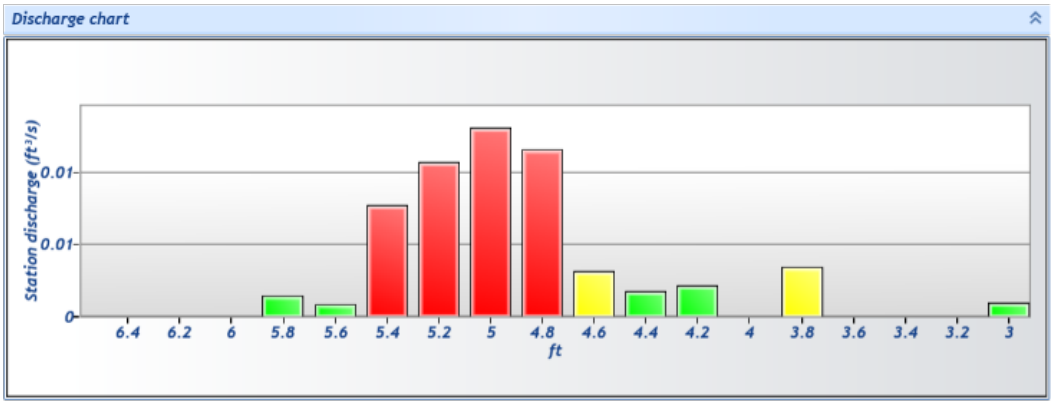
Summary overview

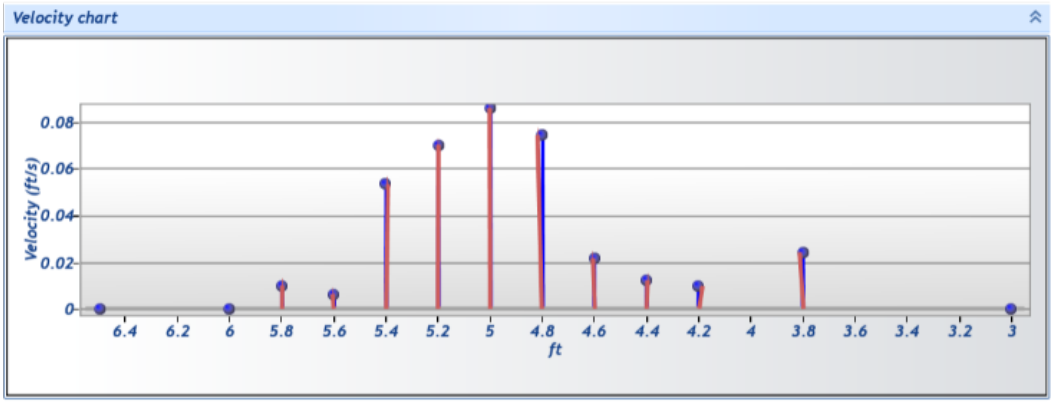
No changes were made to this file
Quality control warnings

Discharge Measurement Summary

Site name	Monitor Creek near confl with Potter Creek
Site number	AT.GAGE
Operator(s)	Jack Landers
File name	Monitor Creek near confl with Potter Creek_20200304-142333.ft
Comment	Upstream.15ft

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	Monitor Creek near confl with Potter Creek
Site number	AT.GAGE
Operator(s)	Jack Landers
File name	Monitor Creek near confl with Potter Creek_20200304-142333.ft
Comment	Upstream.15ft

Measurement results

St#	Time	Location (ft)	Method	Depth (ft)	%Depth	Measured Depth (ft)	Samples	Velocity (ft/s)	Correction	Mean Velocity (ft/s)	Area (ft²)	Flow (ft³/s)	%Q	
12	10:24 AM	3.000	None	0.100	0.0000	0.000	0	0.0000	1.0000	0.0242	0.0400	0.0010	1.70	✓
11	10:21 AM	3.800	0.6	0.240	0.6000	0.144	80	0.0242	1.0000	0.0242	0.1440	0.0035	6.12	✓
10	10:19 AM	4.200	0.6	0.740	0.6000	0.444	80	0.0097	1.0000	0.0097	0.2220	0.0022	3.79	✓
9	10:18 AM	4.400	0.6	0.720	0.6000	0.432	80	0.0122	1.0000	0.0122	0.1440	0.0018	3.09	✓
8	10:16 AM	4.600	0.6	0.740	0.6000	0.444	80	0.0216	1.0000	0.0216	0.1480	0.0032	5.62	✓
7	10:15 AM	4.800	0.6	0.780	0.6000	0.468	80	0.0742	1.0000	0.0742	0.1560	0.0116	20.33	✓
6	10:13 AM	5.000	0.6	0.760	0.6000	0.456	80	0.0857	1.0000	0.0857	0.1520	0.0130	22.88	✓
5	10:12 AM	5.200	0.6	0.760	0.6000	0.456	80	0.0701	1.0000	0.0701	0.1520	0.0107	18.71	✓
4	10:10 AM	5.400	0.6	0.730	0.6000	0.438	80	0.0532	1.0000	0.0532	0.1460	0.0078	13.64	✓
3	10:09 AM	5.600	0.6	0.720	0.6000	0.432	80	0.0063	1.0000	0.0063	0.1440	0.0009	1.59	✓
2	10:07 AM	5.800	0.6	0.720	0.6000	0.432	80	0.0100	1.0000	0.0100	0.1440	0.0014	2.53	✓
1	10:05 AM	6.000	0.6	0.380	0.6000	0.228	80	0.0000	1.0000	0.0000	0.1330	0.0000	0.01	✓
0	10:03 AM	6.500	None	0.100	0.0000	0.000	0	0.0000	1.0000	0.0000	0.0250	0.0000	0.00	✓

Discharge Measurement Summary

Site name	Monitor Creek near confl with Potter Creek
Site number	AT.GAGE
Operator(s)	Jack Landers
File name	Monitor Creek near confl with Potter Creek_20200304-142333.ft
Comment	Upstream.15ft

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
11	10:21 AM	3.800	0.6	0.240	0.6000	0.144	Large SNR Variation,SNR Threshold Variation
10	10:19 AM	4.200	0.6	0.740	0.6000	0.444	Large SNR Variation
9	10:18 AM	4.400	0.6	0.720	0.6000	0.432	Large SNR Variation
8	10:16 AM	4.600	0.6	0.740	0.6000	0.444	Large SNR Variation
7	10:15 AM	4.800	0.6	0.780	0.6000	0.468	High Stn % Discharge
6	10:13 AM	5.000	0.6	0.760	0.6000	0.456	SNR Threshold Variation,High Stn % Discharge
5	10:12 AM	5.200	0.6	0.760	0.6000	0.456	SNR Threshold Variation,High Stn % Discharge
4	10:10 AM	5.400	0.6	0.730	0.6000	0.438	High Stn % Discharge
2	10:07 AM	5.800	0.6	0.720	0.6000	0.432	Boundary Interference,Large SNR Variation
1	10:05 AM	6.000	0.6	0.380	0.6000	0.228	Boundary Interference,SNR Threshold Variation
0	10:03 AM	6.500	None	0.100	0.0000	0.000	Stn Spacing > QC

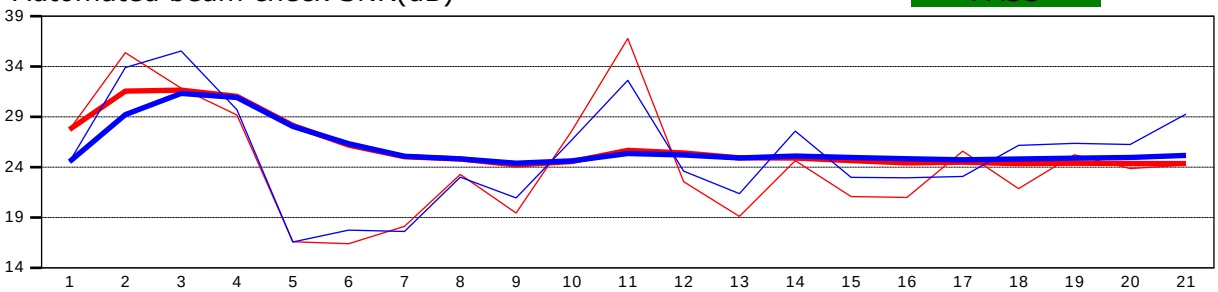
Discharge Measurement Summary

Site name	Monitor Creek near confl with Potter Creek
Site number	AT.GAGE
Operator(s)	Jack Landers
File name	Monitor Creek near confl with Potter Creek_20200304-142333.ft
Comment	Upstream.15ft

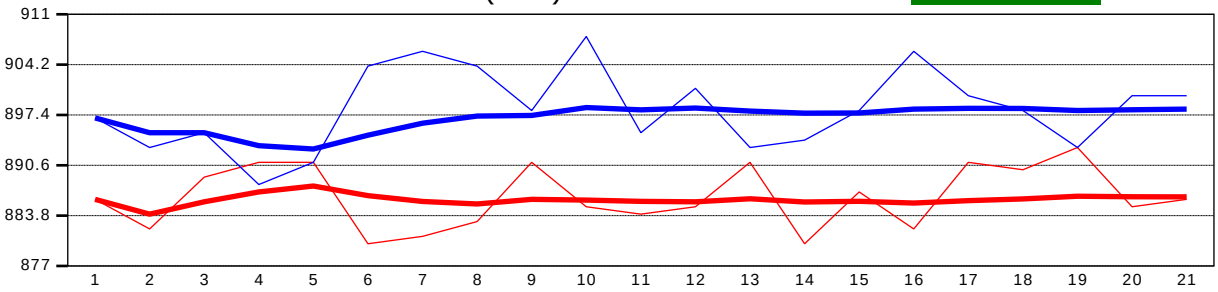
Beam 1	
Beam 2	

Automated beam check Start time 3/4/2020 10:02:58 AM

Automated beam check SNR(dB) PASS



Automated beam check Noise level(cnts) PASS



Automated beam check Quality control warnings

No quality control warnings

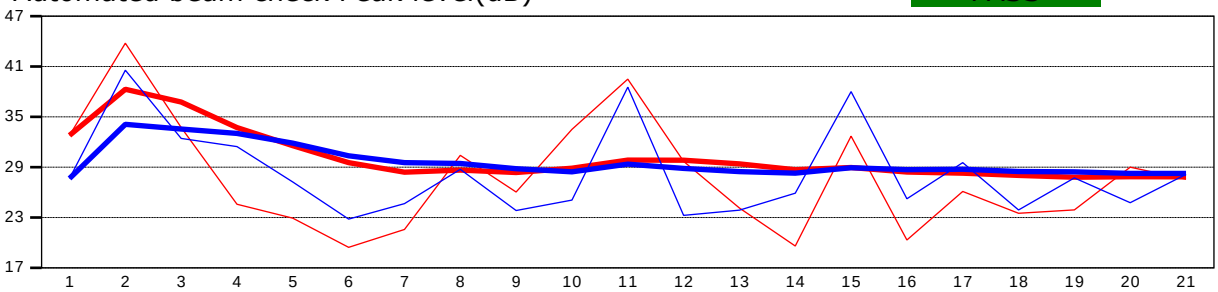
Discharge Measurement Summary

Site name	Monitor Creek near confl with Potter Creek
Site number	AT.GAGE
Operator(s)	Jack Landers
File name	Monitor Creek near confl with Potter Creek_20200304-142333.ft
Comment	Upstream.15ft

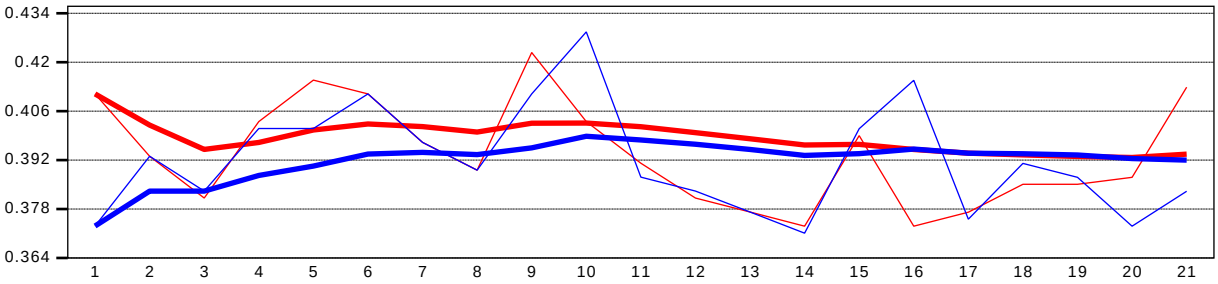
Beam 1	
Beam 2	

Automated beam check Start time 3/4/2020 10:02:58 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
Department of Natural Resources

Date	5/13/2020
Observer	Birch
Cross Section #	1
Coordinate	UTM Zone 12
X (easting)	743004
Y (northing)	4278346

FIELD MEASUREMENTS FOR DISCHARGE CALCULATOR

Stream Name	**Stream Location**
Monitor Creek	At CWCB staff gage (Log level 1.223-1.225')

Feature	Station (ft)	Water Depth (ft)	Velocity (ft/s)
WL	7.8	0	0
	8.1	0.1	0
	8.4	0.2	0.09
	8.7	0.2	0.1
	9	0.35	0.24
	9.3	0.4	0.23
	9.6	0.42	0.26
	9.9	0.4	0.29
	10.2	0.5	0.31
	10.5	0.5	0.27
	10.8	0.55	0.27
	11.1	0.55	0.24
	11.4	0.6	0.21
	11.7	0.65	0.17
	12	0.65	0.14
	12.3	0.7	0.13
	12.6	0.7	0.15
	12.9	0.65	0.12
	13.2	0.6	0.12
	13.5	0.6	0.1
	13.8	0.5	0.08
	14.1	0.4	0.1
	14.4	0.2	0.06
	14.7	0.1	0
WL	14.8	0	0

Instructions

1. This file has been formatted to work with the R2Cross Model on erams. Entering or copying data into this file will reduce the chance of data entry error.
2. Format of the date field is MM/DD/YYYY
3. The only allowable values for the Coordinate Syatems are UTM Zone 13, UTM Zone 12, Lat/Long. Please make the appropriate selection.
4. The non formatable cells cannot be edited.
5. For proper field techniques, please refer to the R2Cross Manual.

Width	Area	Sub-section Q	Total Q	stage
			0.55056	1.224
0.3	0.03	0		
0.3	0.06	0.0054		
0.3	0.06	0.006		
0.3	0.105	0.0252		
0.3	0.12	0.0276		
0.3	0.126	0.03276		
0.3	0.12	0.0348		
0.3	0.15	0.0465		
0.3	0.15	0.0405		
0.3	0.165	0.04455		
0.3	0.165	0.0396		
0.3	0.18	0.0378		
0.3	0.195	0.03315		
0.3	0.195	0.0273		
0.3	0.21	0.0273		
0.3	0.21	0.0315		
0.3	0.195	0.0234		
0.3	0.18	0.0216		
0.3	0.18	0.018		
0.3	0.15	0.012		
0.3	0.12	0.012		
0.3	0.06	0.0036		
0.3	0.03	0		
0.1	0	0		

Discharge Measurement Summary

Site name	
Site number	
Operator(s)	LFS
File name	MONITOR.102.FlowTracker2.ft
Comment	Measured with flowtracker1 and recalculated with flowtracker2 algorithims

Start time	10/1/2020 12:28 PM
End time	10/1/2020 12:56 PM
Start location latitude	-
Start location longitude	-
Calculations engine	FlowTracker2

Sensor type	Unknown
Handheld serial number	n/a
Probe serial number	P2355
Probe firmware	3.90
Handheld software	n/a

# Stations	Avg interval (s)	Total discharge (ft³/s)
19	40	0.0521

Total width (ft)	Total area (ft²)	Wetted Perimeter (ft)
5.800	2.6582	6.342

Mean SNR (dB)	Mean depth (ft)	Mean velocity (ft/s)
20	0.458	0.0196

Mean temp (°F)	Max depth (ft)	Max velocity (ft/s)
61.811	0.770	0.0483

Discharge Uncertainty		
Category	**ISO**	**IVE**
Accuracy	1.0%	1.0%
Depth	0.5%	3.2%
Velocity	1.7%	14.1%
Width	0.2%	0.2%
Method	2.3%	
# Stations	2.6%	
Overall	**4.1%**	**14.5%**

Discharge equation	Mid Section
Discharge uncertainty	ISO
Discharge reference	Measured

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

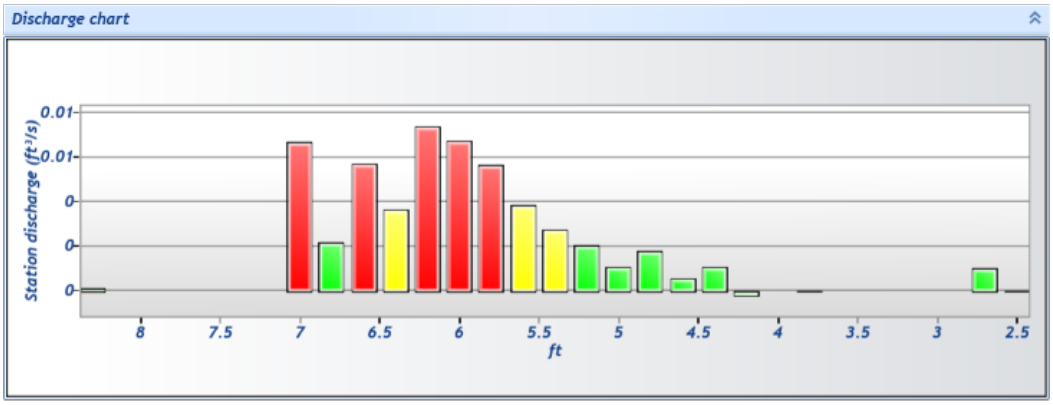
Summary overview

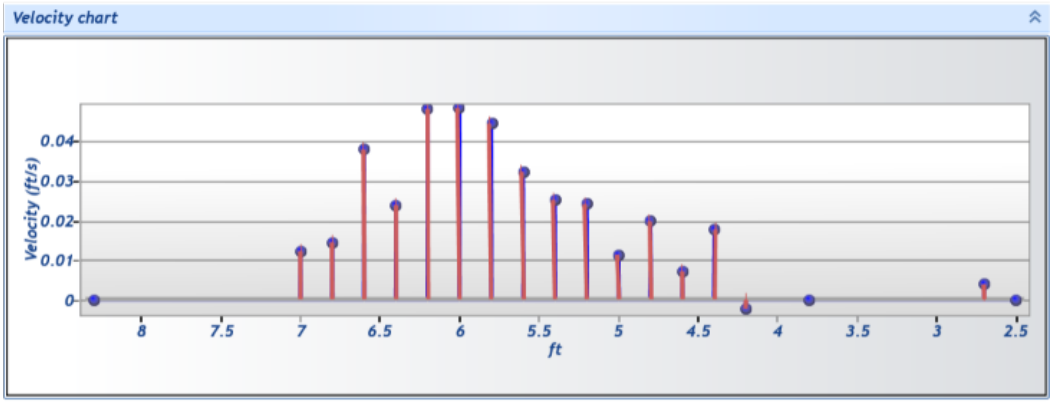
No changes were made to this file
Quality control warnings

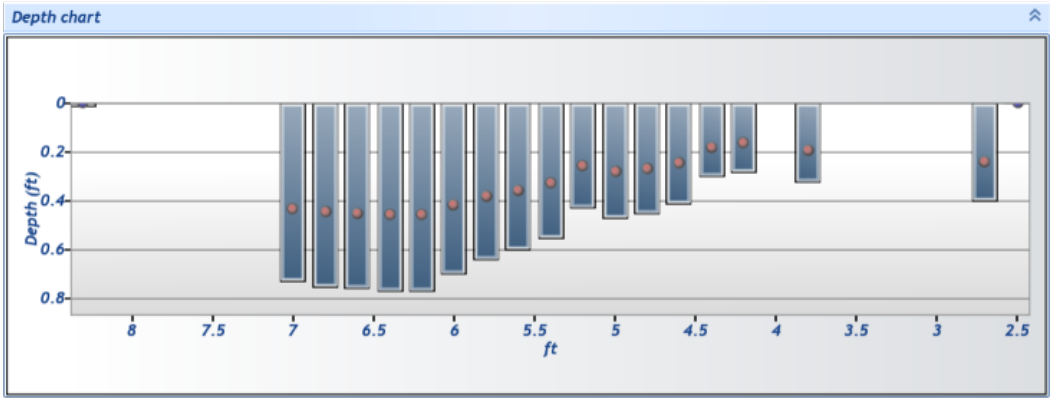
Discharge Measurement Summary

Site name	
Site number	
Operator(s)	LFS
File name	MONITOR.102.FlowTracker2.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	
Site number	
Operator(s)	LFS
File name	MONITOR.102.FlowTracker2.ft
Comment	

Measurement results

St#	Time	Location (ft)	Method	Depth (ft)	%Depth	Measured Depth (ft)	Samples	Velocity (ft/s)	Correction	Mean Velocity (ft/s)	Area (ft²)	Flow (ft³/s)	%Q	
18	12:56 PM	2.500	None	0.000	0.0000	0.000	0	0.0000	1.0000	0.0038	0.0000	0.0000	0.00	✓
17	12:56 PM	2.700	0.6	0.400	0.6000	0.240	40	0.0038	1.0000	0.0038	0.2599	0.0010	1.89	✓
16	12:54 PM	3.800	0.6	0.320	0.6000	0.192	40	-0.0001	1.0000	-0.0001	0.2396	0.0000	-0.05	✓
15	12:53 PM	4.198	0.6	0.280	0.6000	0.168	40	-0.0023	1.0000	-0.0023	0.0837	-0.0002	-0.38	✓
14	12:52 PM	4.398	0.6	0.300	0.6000	0.180	40	0.0177	1.0000	0.0177	0.0600	0.0011	2.04	✓
13	12:51 PM	4.598	0.6	0.410	0.6000	0.246	40	0.0071	1.0000	0.0071	0.0821	0.0006	1.12	✓
12	12:49 PM	4.799	0.6	0.450	0.6000	0.270	40	0.0197	1.0000	0.0197	0.0901	0.0018	3.40	✓
11	12:48 PM	4.999	0.6	0.470	0.6000	0.282	40	0.0113	1.0000	0.0113	0.0941	0.0011	2.03	✓
10	12:46 PM	5.199	0.6	0.430	0.6000	0.258	40	0.0240	1.0000	0.0240	0.0861	0.0021	3.97	✓
9	12:45 PM	5.399	0.6	0.550	0.6000	0.330	40	0.0251	1.0000	0.0251	0.1100	0.0028	5.30	✓
8	12:43 PM	5.599	0.6	0.600	0.6000	0.360	40	0.0323	1.0000	0.0323	0.1201	0.0039	7.44	✓
7	12:42 PM	5.799	0.6	0.640	0.6000	0.384	40	0.0444	1.0000	0.0444	0.1281	0.0057	10.90	✓
6	12:41 PM	5.999	0.6	0.700	0.6000	0.420	40	0.0483	1.0000	0.0483	0.1401	0.0068	12.99	✓
5	12:39 PM	6.199	0.6	0.770	0.6000	0.462	40	0.0481	1.0000	0.0481	0.1541	0.0074	14.22	✓
4	12:36 PM	6.400	0.6	0.770	0.6000	0.462	40	0.0238	1.0000	0.0238	0.1541	0.0037	7.03	✓
3	12:35 PM	6.600	0.6	0.760	0.6000	0.456	40	0.0378	1.0000	0.0378	0.1521	0.0057	11.02	✓
2	12:34 PM	6.800	0.6	0.750	0.6000	0.450	40	0.0144	1.0000	0.0144	0.1501	0.0022	4.13	✓
1	12:32 PM	7.000	0.6	0.730	0.6000	0.438	40	0.0122	1.0000	0.0122	0.5475	0.0067	12.79	✓
0	12:28 PM	8.300	None	0.010	0.0000	0.000	0	0.0000	1.0000	0.0122	0.0064	0.0001	0.15	✓

Discharge Measurement Summary

Site name	
Site number	
Operator(s)	LFS
File name	MONITOR.102.FlowTracker2.ft
Comment	

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

Quality control warnings

St#	Time	Location (ft)	Method	Depth (ft)	%Depth	Measured Depth (ft)	Warnings
17	12:56 PM	2.700	0.6	0.400	0.6000	0.240	SNR Threshold Variation
16	12:54 PM	3.800	0.6	0.320	0.6000	0.192	Large SNR Variation,SNR Threshold Variation
15	12:53 PM	4.198	0.6	0.280	0.6000	0.168	SNR Threshold Variation
14	12:52 PM	4.398	0.6	0.300	0.6000	0.180	Stn Spacing > QC,SNR Threshold Variation
13	12:51 PM	4.598	0.6	0.410	0.6000	0.246	SNR Threshold Variation
12	12:49 PM	4.799	0.6	0.450	0.6000	0.270	Large SNR Variation,SNR Threshold Variation
11	12:48 PM	4.999	0.6	0.470	0.6000	0.282	SNR Threshold Variation
10	12:46 PM	5.199	0.6	0.430	0.6000	0.258	SNR Threshold Variation
9	12:45 PM	5.399	0.6	0.550	0.6000	0.330	SNR Threshold Variation
8	12:43 PM	5.599	0.6	0.600	0.6000	0.360	SNR Threshold Variation
7	12:42 PM	5.799	0.6	0.640	0.6000	0.384	SNR Threshold Variation,High Stn % Discharge
6	12:41 PM	5.999	0.6	0.700	0.6000	0.420	High Stn % Discharge
5	12:39 PM	6.199	0.6	0.770	0.6000	0.462	High Stn % Discharge
3	12:35 PM	6.600	0.6	0.760	0.6000	0.456	High Stn % Discharge
1	12:32 PM	7.000	0.6	0.730	0.6000	0.438	Large SNR Variation,High Stn % Discharge
0	12:28 PM	8.300	None	0.010	0.0000	0.000	Stn Spacing > QC,Water Depth > QC

Discharge Measurement Summary

Site name	Monitor Creek near confl with Potter Creek
Site number	040521
Operator(s)	Ks
File name	Monitor Creek near confl with Potter Creek_20210405-160652.ft
Comment	

Start time	4/5/2021 3:35 PM
End time	4/5/2021 3:57 PM
Start location latitude	38.620
Start location longitude	-108.209
Calculations engine	FlowTracker2

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

# Stations	Avg interval (s)	Total discharge (ft³/s)
17	40	0.0156

Total width (ft)	Total area (ft²)	Wetted Perimeter (ft)
7.700	3.1600	7.992

Mean SNR (dB)	Mean depth (ft)	Mean velocity (ft/s)
45	0.410	0.0049

Mean temp (°F)	Max depth (ft)	Max velocity (ft/s)
63.194	0.700	0.0371

Discharge Uncertainty		
Category	**ISO**	**IVE**
Accuracy	1.0%	1.0%
Depth	1.4%	19.5%
Velocity	7.3%	140.6%
Width	0.5%	0.5%
Method	7.1%	
# Stations	3.0%	
Overall	**10.8%**	**141.9%**

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

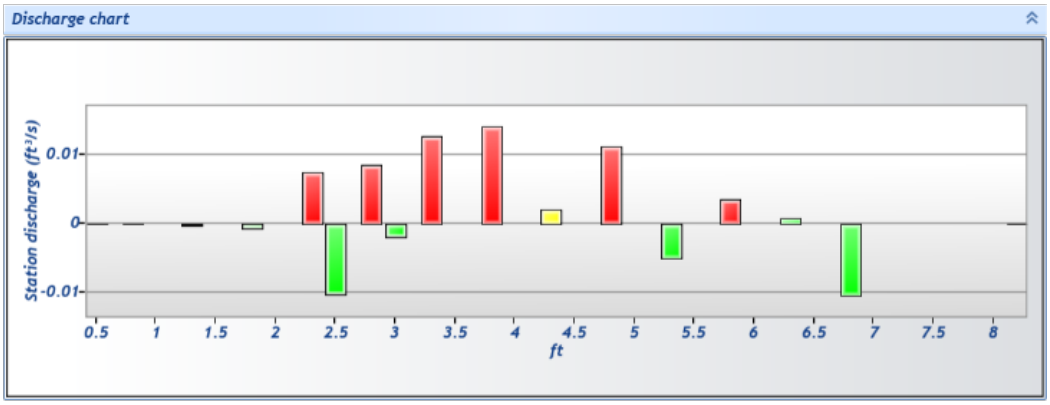
No changes were made to this file
Quality control warnings

Discharge Measurement Summary

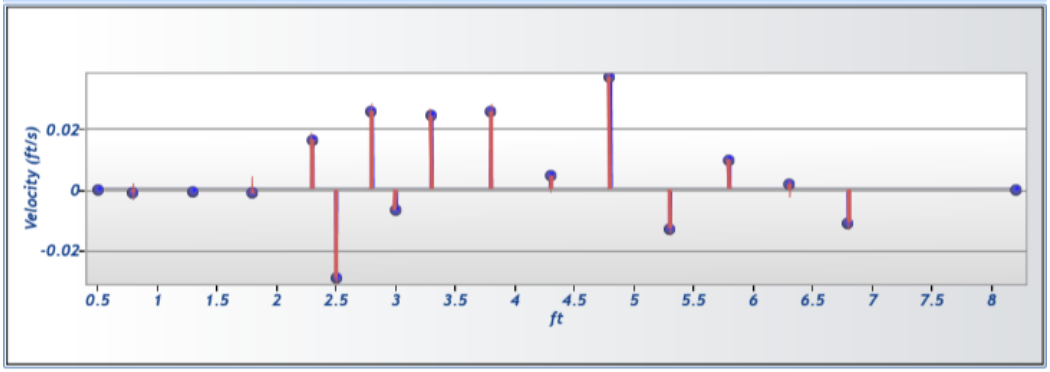
Site name	Monitor Creek near confl with Potter Creek
Site number	040521
Operator(s)	Ks
File name	Monitor Creek near confl with Potter Creek_20210405-160652.ft
Comment	

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%

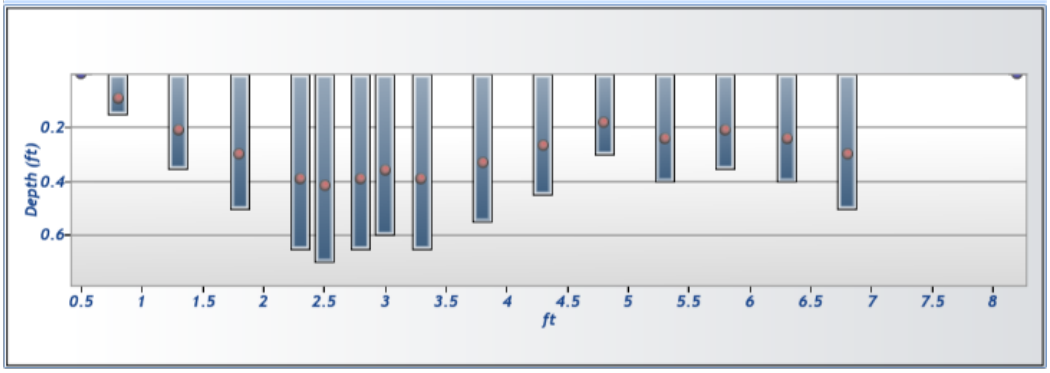
Discharge chart



Velocity chart



Depth chart



Discharge Measurement Summary

Site name	Monitor Creek near confl with Potter Creek
Site number	040521
Operator(s)	Ks
File name	Monitor Creek near confl with Potter Creek_20210405-160652.ft
Comment	

Measurement results

St#	Time	Location (ft)	Method	Depth (ft)	%Depth	Measured Depth (ft)	Samples	Velocity (ft/s)	Correction	Mean Velocity (ft/s)	Area (ft²)	Flow (ft³/s)	%Q	
0	3:35 PM	0.500	None	0.000	0.0000	0.000	0	0.0000	1.0000	-0.0012	0.0000	0.0000	0.00	✓
1	3:35 PM	0.800	0.6	0.150	0.6000	0.090	80	-0.0012	1.0000	-0.0012	0.0600	-0.0001	-0.45	✓
2	3:38 PM	1.300	0.6	0.350	0.6000	0.210	80	-0.0006	1.0000	-0.0006	0.1750	-0.0001	-0.66	✓
3	3:40 PM	1.800	0.6	0.500	0.6000	0.300	80	-0.0013	1.0000	-0.0013	0.2500	-0.0003	-2.08	✓
4	3:41 PM	2.300	0.6	0.650	0.6000	0.390	80	0.0165	1.0000	0.0165	0.2275	0.0037	24.03	✓
5	3:56 PM	2.500	0.6	0.700	0.6000	0.420	80	-0.0292	1.0000	-0.0292	0.1750	-0.0051	-32.86	✓
6	3:43 PM	2.800	0.6	0.650	0.6000	0.390	80	0.0260	1.0000	0.0260	0.1625	0.0042	27.08	✓
7	3:57 PM	3.000	0.6	0.600	0.6000	0.360	80	-0.0068	1.0000	-0.0068	0.1500	-0.0010	-6.54	✓
8	3:44 PM	3.300	0.6	0.650	0.6000	0.390	80	0.0243	1.0000	0.0243	0.2600	0.0063	40.55	✓
9	3:46 PM	3.800	0.6	0.550	0.6000	0.330	80	0.0258	1.0000	0.0258	0.2750	0.0071	45.52	✓
10	3:47 PM	4.300	0.6	0.450	0.6000	0.270	80	0.0045	1.0000	0.0045	0.2250	0.0010	6.45	✓
11	3:48 PM	4.800	0.6	0.300	0.6000	0.180	80	0.0371	1.0000	0.0371	0.1500	0.0056	35.72	✓
12	3:50 PM	5.300	0.6	0.400	0.6000	0.240	80	-0.0129	1.0000	-0.0129	0.2000	-0.0026	-16.60	✓
13	3:51 PM	5.800	0.6	0.350	0.6000	0.210	80	0.0099	1.0000	0.0099	0.1750	0.0017	11.07	✓
14	3:52 PM	6.300	0.6	0.400	0.6000	0.240	80	0.0019	1.0000	0.0019	0.2000	0.0004	2.39	✓
15	3:54 PM	6.800	0.6	0.500	0.6000	0.300	80	-0.0110	1.0000	-0.0110	0.4750	-0.0052	-33.62	✓
16	3:55 PM	8.200	None	0.000	0.0000	0.000	0	0.0000		-0.0110	0.0000	0.0000	0.00	✓

Discharge Measurement Summary

Site name	Monitor Creek near confl with Potter Creek
Site number	040521
Operator(s)	Ks
File name	Monitor Creek near confl with Potter Creek_20210405-160652.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	3:35 PM	0.800	0.6	0.150	0.6000	0.090	Beam SNRs Not Similar,SNR Threshold Variation
2	3:38 PM	1.300	0.6	0.350	0.6000	0.210	Boundary Interference,Beam SNRs Not Similar
4	3:41 PM	2.300	0.6	0.650	0.6000	0.390	High Stn % Discharge
6	3:43 PM	2.800	0.6	0.650	0.6000	0.390	Large SNR Variation,High Stn % Discharge
8	3:44 PM	3.300	0.6	0.650	0.6000	0.390	Large SNR Variation,High Stn % Discharge
9	3:46 PM	3.800	0.6	0.550	0.6000	0.330	High Stn % Discharge
11	3:48 PM	4.800	0.6	0.300	0.6000	0.180	High Stn % Discharge
13	3:51 PM	5.800	0.6	0.350	0.6000	0.210	SNR Threshold Variation,High Stn % Discharge
16	3:55 PM	8.200	None	0.000	0.0000	0.000	Stn Spacing > QC

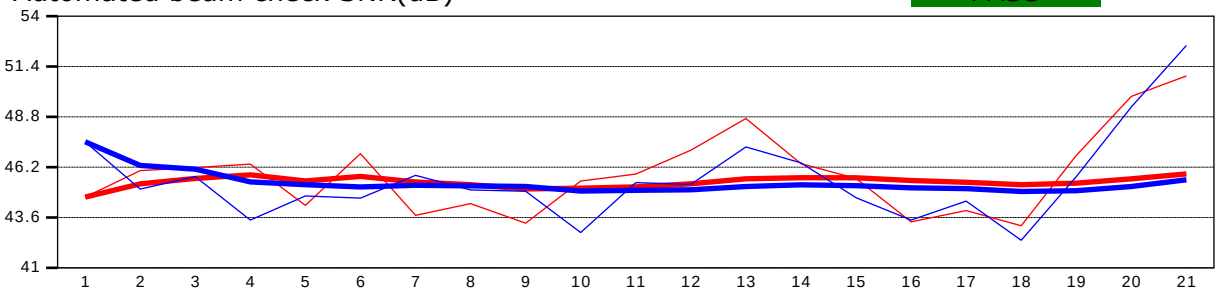
Discharge Measurement Summary

Site name	Monitor Creek near confl with Potter Creek
Site number	040521
Operator(s)	Ks
File name	Monitor Creek near confl with Potter Creek_20210405-160652.ft
Comment	

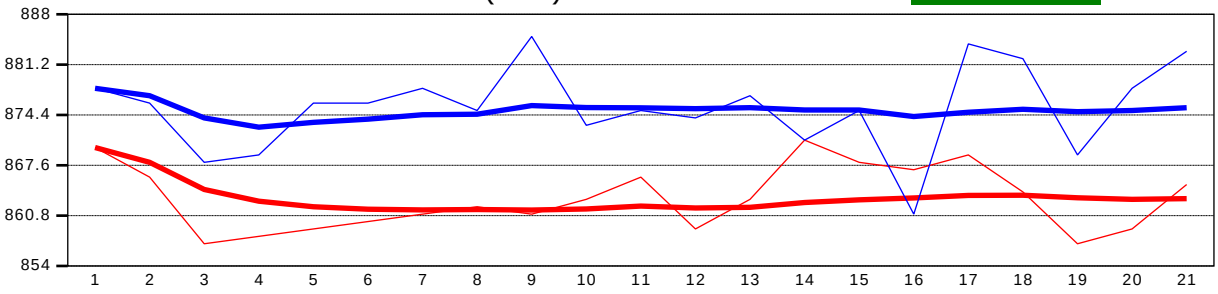
Beam 1	
Beam 2	

Automated beam check Start time 4/5/2021 3:34:57 PM

Automated beam check SNR(dB) PASS



Automated beam check Noise level(cnts) PASS



Automated beam check Quality control warnings

No quality control warnings

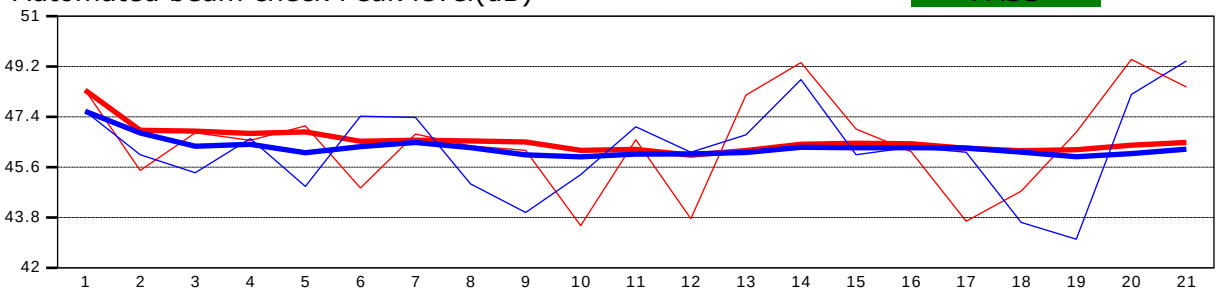
Discharge Measurement Summary

Site name	Monitor Creek near confl with Potter Creek
Site number	040521
Operator(s)	Ks
File name	Monitor Creek near confl with Potter Creek_20210405-160652.ft
Comment	

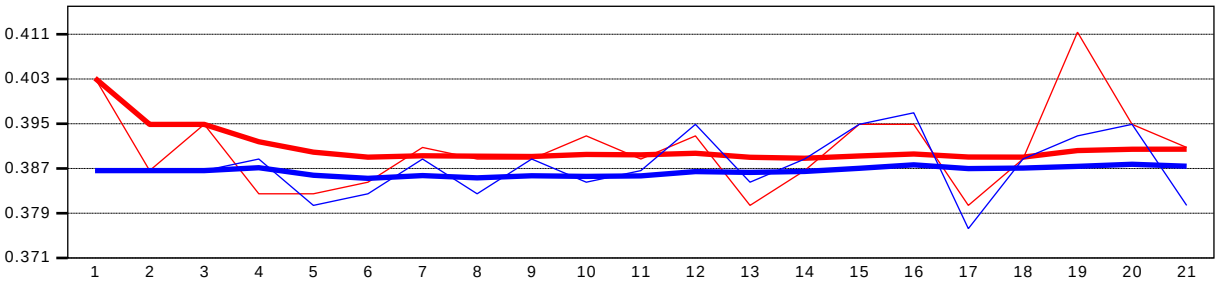
Beam 1	
Beam 2	

Automated beam check Start time 4/5/2021 3:34:57 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	Monitor Creek near confl with Potter Creek
Site number	0405212
Operator(s)	Ks
File name	Monitor Creek near confl with Potter Creek_20210405-162628.ft
Comment	2meas

Start time	4/5/2021 4:13 PM
End time	4/5/2021 4:24 PM
Start location latitude	38.620
Start location longitude	-108.209
Calculations engine	FlowTracker2

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

# Stations	Avg interval (s)	Total discharge (ft³/s)
11	40	0.0187

Total width (ft)	Total area (ft²)	Wetted Perimeter (ft)
5.500	1.0750	5.548

Mean SNR (dB)	Mean depth (ft)	Mean velocity (ft/s)
31	0.195	0.0174

Mean temp (°F)	Max depth (ft)	Max velocity (ft/s)
67.540	0.300	0.0512

Discharge Uncertainty		
Category	**ISO**	**IVE**
Accuracy	1.0%	1.0%
Depth	0.7%	16.8%
Velocity	3.9%	23.1%
Width	0.2%	0.2%
Method	3.3%	
# Stations	4.6%	
Overall	**7.0%**	**28.6%**

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 %

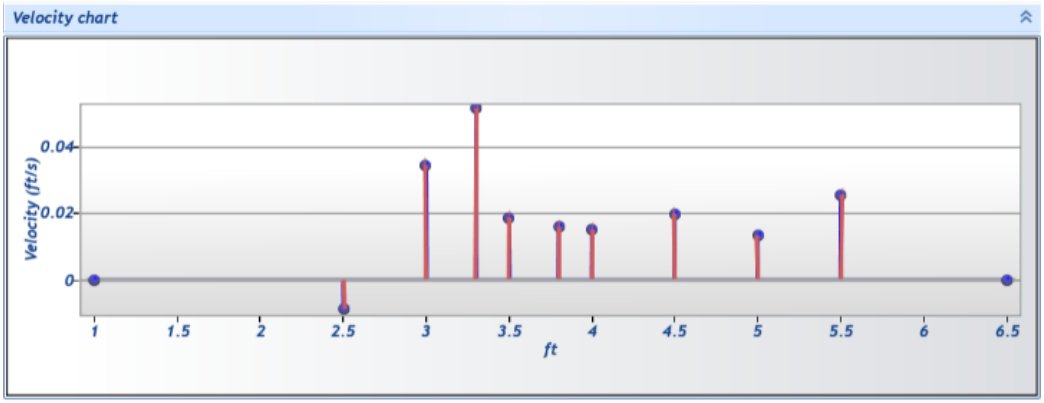
Summary overview

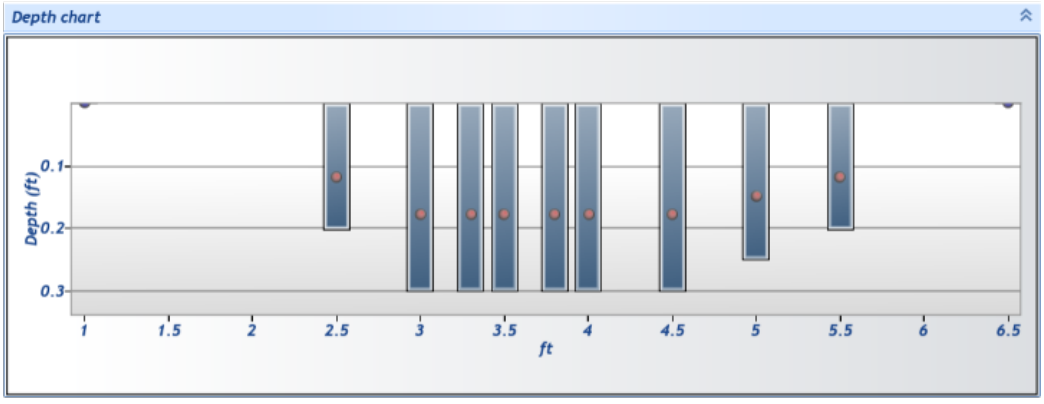
No changes were made to this file
Quality control warnings

Discharge Measurement Summary

Site name	Monitor Creek near confl with Potter Creek
Site number	0405212
Operator(s)	Ks
File name	Monitor Creek near confl with Potter Creek_20210405-162628.ft
Comment	2meas

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%





5/4/2021 11:07:14 AM

Discharge Measurement Summary

Site name	Monitor Creek near confl with Potter Creek
Site number	0405212
Operator(s)	Ks
File name	Monitor Creek near confl with Potter Creek_20210405-162628.ft
Comment	2meas

Measurement results

St#	Time	Location (ft)	Method	Depth (ft)	%Depth	Measured Depth (ft)	Samples	Velocity (ft/s)	Correction	Mean Velocity (ft/s)	Area (ft²)	Flow (ft³/s)	%Q	
0	4:13 PM	1.000	None	0.000	0.0000	0.000	0	0.0000	1.0000	-0.0087	0.0000	0.0000	0.00	✓
1	4:13 PM	2.500	0.6	0.200	0.6000	0.120	80	-0.0087	1.0000	-0.0087	0.2000	-0.0017	-9.32	✓
2	4:14 PM	3.000	0.6	0.300	0.6000	0.180	80	0.0343	1.0000	0.0343	0.1200	0.0041	21.99	✓
3	4:23 PM	3.300	0.6	0.300	0.6000	0.180	80	0.0512	1.0000	0.0512	0.0750	0.0038	20.55	✓
4	4:16 PM	3.500	0.6	0.300	0.6000	0.180	80	0.0185	1.0000	0.0185	0.0750	0.0014	7.42	✓
5	4:24 PM	3.800	0.6	0.300	0.6000	0.180	80	0.0157	1.0000	0.0157	0.0750	0.0012	6.29	✓
6	4:17 PM	4.000	0.6	0.300	0.6000	0.180	80	0.0149	1.0000	0.0149	0.1050	0.0016	8.36	✓
7	4:18 PM	4.500	0.6	0.300	0.6000	0.180	80	0.0195	1.0000	0.0195	0.1500	0.0029	15.64	✓
8	4:19 PM	5.000	0.6	0.250	0.6000	0.150	80	0.0131	1.0000	0.0131	0.1250	0.0016	8.76	✓
9	4:21 PM	5.500	0.6	0.200	0.6000	0.120	80	0.0254	1.0000	0.0254	0.1500	0.0038	20.33	✓
10	4:23 PM	6.500	None	0.000	0.0000	0.000	0	0.0000	1.0000	0.0254	0.0000	0.0000	0.00	✓

Discharge Measurement Summary

Site name	Monitor Creek near confl with Potter Creek
Site number	0405212
Operator(s)	Ks
File name	Monitor Creek near confl with Potter Creek_20210405-162628.ft
Comment	2meas

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	4:13 PM	2.500	0.6	0.200	0.6000	0.120	Boundary Interference,Large SNR Variation,SNR Threshold Variation
2	4:14 PM	3.000	0.6	0.300	0.6000	0.180	Boundary Interference,Large SNR Variation,High Stn % Discharge
3	4:23 PM	3.300	0.6	0.300	0.6000	0.180	High Stn % Discharge
5	4:24 PM	3.800	0.6	0.300	0.6000	0.180	Large SNR Variation,High % Spikes
6	4:17 PM	4.000	0.6	0.300	0.6000	0.180	Boundary Interference,Large SNR Variation
7	4:18 PM	4.500	0.6	0.300	0.6000	0.180	Large SNR Variation,High Stn % Discharge
8	4:19 PM	5.000	0.6	0.250	0.6000	0.150	Large SNR Variation
9	4:21 PM	5.500	0.6	0.200	0.6000	0.120	High Stn % Discharge

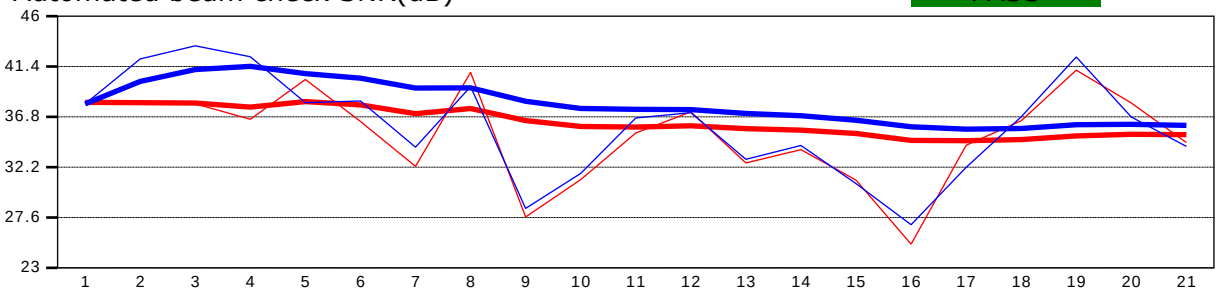
Discharge Measurement Summary

Site name	Monitor Creek near confl with Potter Creek
Site number	0405212
Operator(s)	Ks
File name	Monitor Creek near confl with Potter Creek_20210405-162628.ft
Comment	2meas

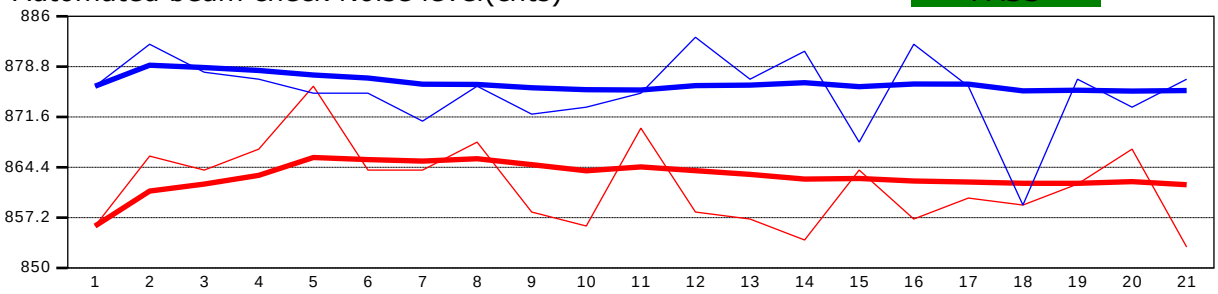
Beam 1	
Beam 2	

Automated beam check Start time 4/5/2021 4:12:57 PM

Automated beam check SNR(dB) PASS



Automated beam check Noise level(cnts) PASS



Automated beam check Quality control warnings

No quality control warnings

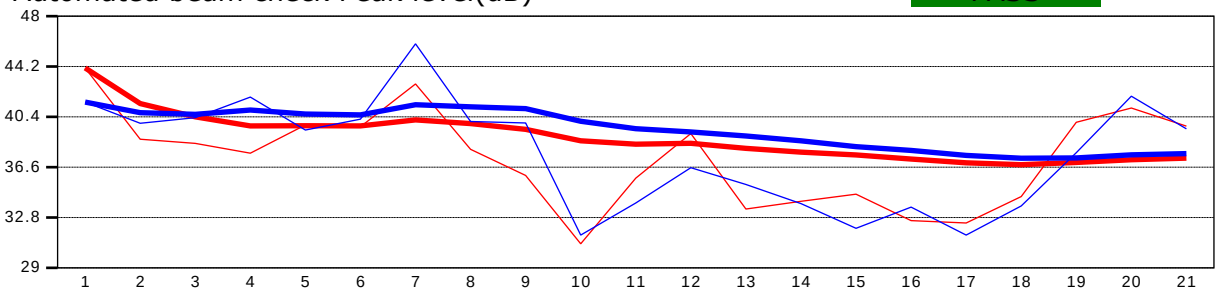
Discharge Measurement Summary

Site name	Monitor Creek near confl with Potter Creek
Site number	0405212
Operator(s)	Ks
File name	Monitor Creek near confl with Potter Creek_20210405-162628.ft
Comment	2meas

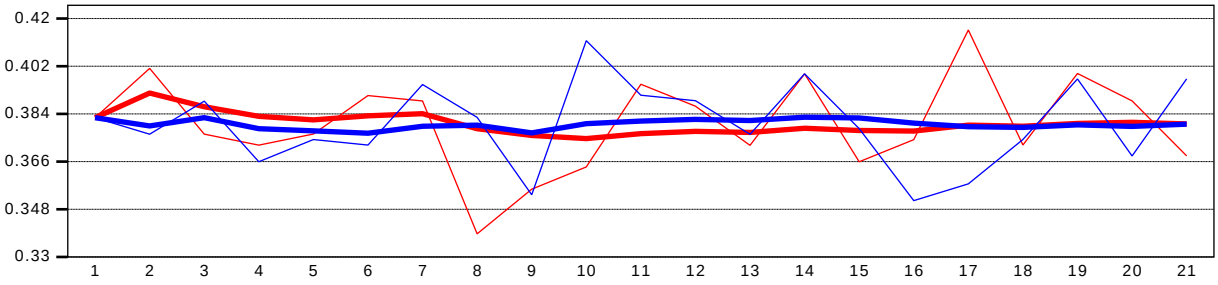
Beam 1	
Beam 2	

Automated beam check Start time 4/5/2021 4:12:57 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	Monitorcr
Site number	5112021
Operator(s)	Lfs
File name	Monitorcr_20210511-145836.ft
Comment	

Start time	5/11/2021 2:19 PM
End time	5/11/2021 2:53 PM
Start location latitude	38.620
Start location longitude	-108.209
Calculations engine	FlowTracker2

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

# Stations	Avg interval (s)	Total discharge (ft³/s)
26	40	0.0347

Total width (ft)	Total area (ft²)	Wetted Perimeter (ft)
6.800	3.0550	7.075

Mean SNR (dB)	Mean depth (ft)	Mean velocity (ft/s)
33	0.449	0.0114

Mean temp (°F)	Max depth (ft)	Max velocity (ft/s)
67.092	0.700	0.0560

Discharge Uncertainty		
Category	**ISO**	**IVE**
Accuracy	1.0%	1.0%
Depth	0.6%	6.9%
Velocity	22.7%	18.5%
Width	0.2%	0.2%
Method	3.0%	
# Stations	2.0%	
Overall	**23.0%**	**19.8%**

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

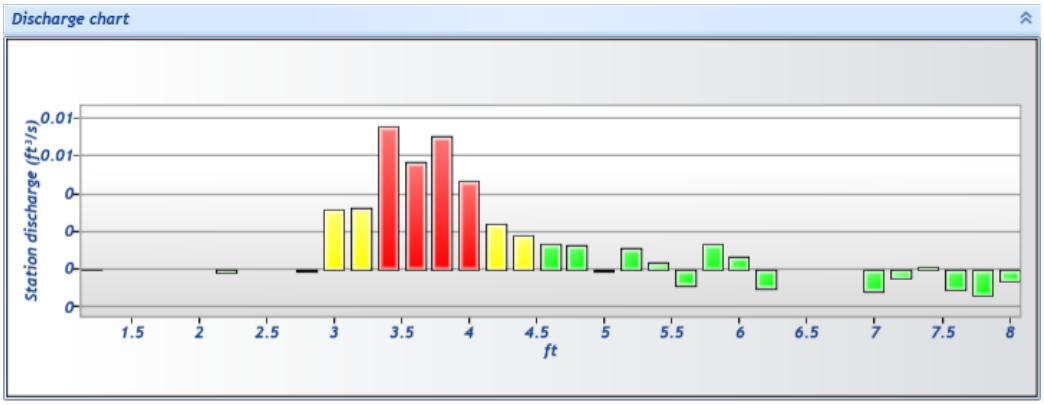
No changes were made to this file
Quality control warnings

Discharge Measurement Summary

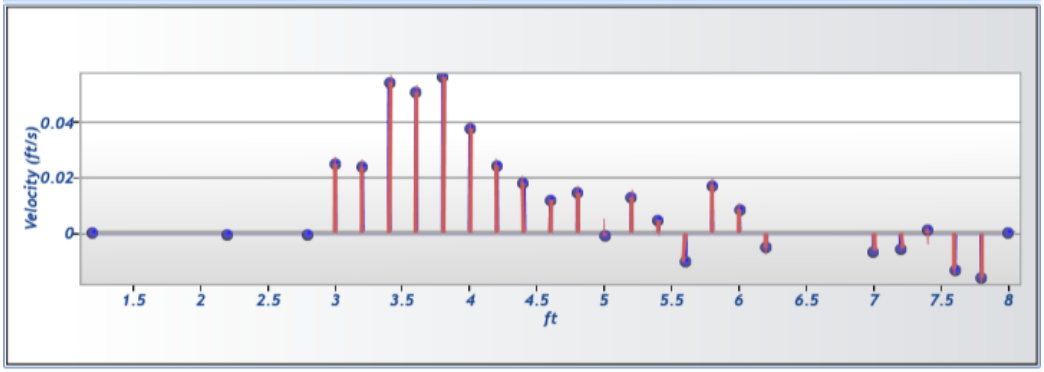
Site name	Monitorcr
Site number	5112021
Operator(s)	Lfs
File name	Monitorcr_20210511-145836.ft
Comment	

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%	

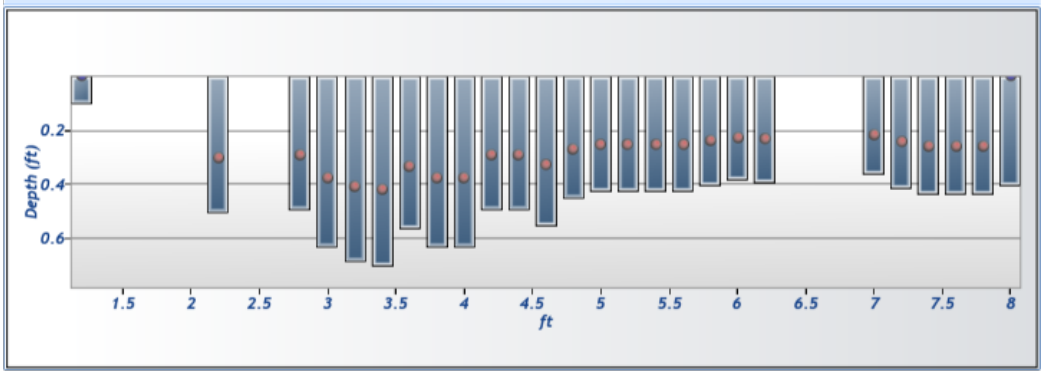
Discharge chart



Velocity chart



Depth chart



Discharge Measurement Summary

Site name	Monitorcr
Site number	5112021
Operator(s)	Lfs
File name	Monitorcr_20210511-145836.ft
Comment	

Measurement results

St#	Time	Location (ft)	Method	Depth (ft)	%Depth	Measured Depth (ft)	Samples	Velocity (ft/s)	Correction	Mean Velocity (ft/s)	Area (ft²)	Flow (ft³/s)	%Q	
25	2:53 PM	1.200	None	0.100	0.0000	0.000	0	0.0000	1.0000	-0.0005	0.0500	0.0000	-0.08	✓
24	2:51 PM	2.200	0.6	0.500	0.6000	0.300	80	-0.0005	1.0000	-0.0005	0.4000	-0.0002	-0.62	✓
23	2:50 PM	2.800	0.6	0.490	0.6000	0.294	80	-0.0004	1.0000	-0.0004	0.1960	-0.0001	-0.22	✓
22	2:49 PM	3.000	0.6	0.630	0.6000	0.378	80	0.0249	1.0000	0.0249	0.1260	0.0031	9.03	✓
21	2:47 PM	3.200	0.6	0.680	0.6000	0.408	80	0.0238	1.0000	0.0238	0.1360	0.0032	9.31	✓
20	2:46 PM	3.400	0.6	0.700	0.6000	0.420	80	0.0543	1.0000	0.0543	0.1400	0.0076	21.91	✓
19	2:45 PM	3.600	0.6	0.560	0.6000	0.336	80	0.0506	1.0000	0.0506	0.1120	0.0057	16.33	✓
18	2:44 PM	3.800	0.6	0.630	0.6000	0.378	80	0.0560	1.0000	0.0560	0.1260	0.0071	20.32	✓
17	2:42 PM	4.000	0.6	0.630	0.6000	0.378	80	0.0375	1.0000	0.0375	0.1260	0.0047	13.61	✓
16	2:41 PM	4.200	0.6	0.490	0.6000	0.294	80	0.0244	1.0000	0.0244	0.0980	0.0024	6.89	✓
15	2:40 PM	4.400	0.6	0.490	0.6000	0.294	80	0.0182	1.0000	0.0182	0.0980	0.0018	5.12	✓
14	2:39 PM	4.600	0.6	0.550	0.6000	0.330	80	0.0120	1.0000	0.0120	0.1100	0.0013	3.80	✓
13	2:37 PM	4.800	0.6	0.450	0.6000	0.270	80	0.0144	1.0000	0.0144	0.0900	0.0013	3.73	✓
12	2:36 PM	5.000	0.6	0.420	0.6000	0.252	80	-0.0011	1.0000	-0.0011	0.0840	-0.0001	-0.27	✓
11	2:35 PM	5.200	0.6	0.420	0.6000	0.252	80	0.0129	1.0000	0.0129	0.0840	0.0011	3.13	✓
10	2:34 PM	5.400	0.6	0.420	0.6000	0.252	80	0.0046	1.0000	0.0046	0.0840	0.0004	1.12	✓
9	2:32 PM	5.600	0.6	0.420	0.6000	0.252	80	-0.0102	1.0000	-0.0102	0.0840	-0.0009	-2.46	✓
8	2:30 PM	5.800	0.6	0.400	0.6000	0.240	80	0.0172	1.0000	0.0172	0.0800	0.0014	3.96	✓
7	2:28 PM	6.000	0.6	0.380	0.6000	0.228	80	0.0085	1.0000	0.0085	0.0760	0.0006	1.85	✓
6	2:27 PM	6.200	0.6	0.390	0.6000	0.234	80	-0.0054	1.0000	-0.0054	0.1950	-0.0010	-3.01	✓
5	2:26 PM	7.000	0.6	0.360	0.6000	0.216	80	-0.0065	1.0000	-0.0065	0.1800	-0.0012	-3.36	✓
4	2:24 PM	7.200	0.6	0.410	0.6000	0.246	80	-0.0055	1.0000	-0.0055	0.0820	-0.0005	-1.30	✓
3	2:23 PM	7.400	0.6	0.430	0.6000	0.258	80	0.0012	1.0000	0.0012	0.0860	0.0001	0.31	✓
2	2:22 PM	7.600	0.6	0.430	0.6000	0.258	80	-0.0131	1.0000	-0.0131	0.0860	-0.0011	-3.25	✓
1	2:20 PM	7.800	0.6	0.430	0.6000	0.258	80	-0.0160	1.0000	-0.0160	0.0860	-0.0014	-3.97	✓
0	2:19 PM	8.000	None	0.400	0.0000	0.000	0	0.0000	1.0000	-0.0160	0.0400	-0.0006	-1.85	✓

Discharge Measurement Summary

Site name	Monitorcr
Site number	5112021
Operator(s)	Lfs
File name	Monitorcr_20210511-145836.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	2:51 PM	2.200	0.6	0.500	0.6000	0.300	SNR Threshold Variation
23	2:50 PM	2.800	0.6	0.490	0.6000	0.294	Large SNR Variation,SNR Threshold Variation
21	2:47 PM	3.200	0.6	0.680	0.6000	0.408	Stn Spacing > QC
20	2:46 PM	3.400	0.6	0.700	0.6000	0.420	High Stn % Discharge
19	2:45 PM	3.600	0.6	0.560	0.6000	0.336	High Stn % Discharge
18	2:44 PM	3.800	0.6	0.630	0.6000	0.378	High Stn % Discharge
17	2:42 PM	4.000	0.6	0.630	0.6000	0.378	High Stn % Discharge
15	2:40 PM	4.400	0.6	0.490	0.6000	0.294	Large SNR Variation
14	2:39 PM	4.600	0.6	0.550	0.6000	0.330	Large SNR Variation
13	2:37 PM	4.800	0.6	0.450	0.6000	0.270	Boundary Interference,SNR Threshold Variation
12	2:36 PM	5.000	0.6	0.420	0.6000	0.252	Boundary Interference,SNR Threshold Variation
11	2:35 PM	5.200	0.6	0.420	0.6000	0.252	Boundary Interference,Large SNR Variation
9	2:32 PM	5.600	0.6	0.420	0.6000	0.252	SNR Threshold Variation
8	2:30 PM	5.800	0.6	0.400	0.6000	0.240	SNR Threshold Variation
6	2:27 PM	6.200	0.6	0.390	0.6000	0.234	SNR Threshold Variation
5	2:26 PM	7.000	0.6	0.360	0.6000	0.216	Boundary Interference
4	2:24 PM	7.200	0.6	0.410	0.6000	0.246	Boundary Interference,SNR Threshold Variation,Standard Error > QC
3	2:23 PM	7.400	0.6	0.430	0.6000	0.258	Stn Spacing > QC,SNR Threshold Variation
2	2:22 PM	7.600	0.6	0.430	0.6000	0.258	SNR Threshold Variation

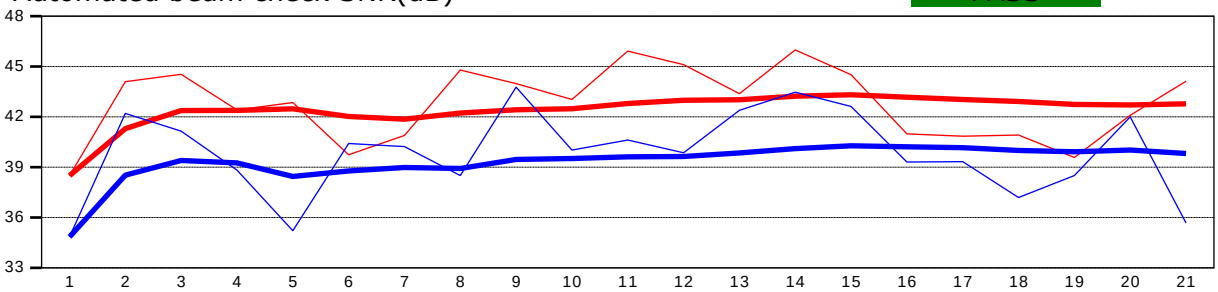
Discharge Measurement Summary

Site name	Monitorcr
Site number	5112021
Operator(s)	Lfs
File name	Monitorcr_20210511-145836.ft
Comment	

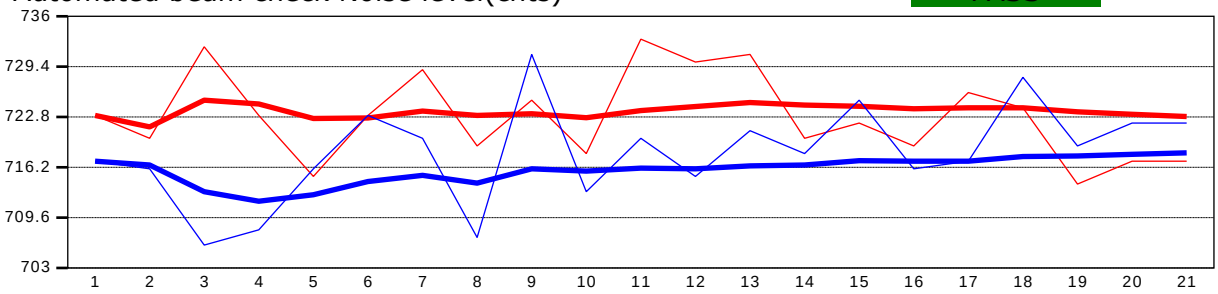
Beam 1	
Beam 2	

Automated beam check Start time 5/11/2021 2:19:32 PM

Automated beam check SNR(dB) PASS



Automated beam check Noise level(cnts) PASS



Automated beam check Quality control warnings

No quality control warnings

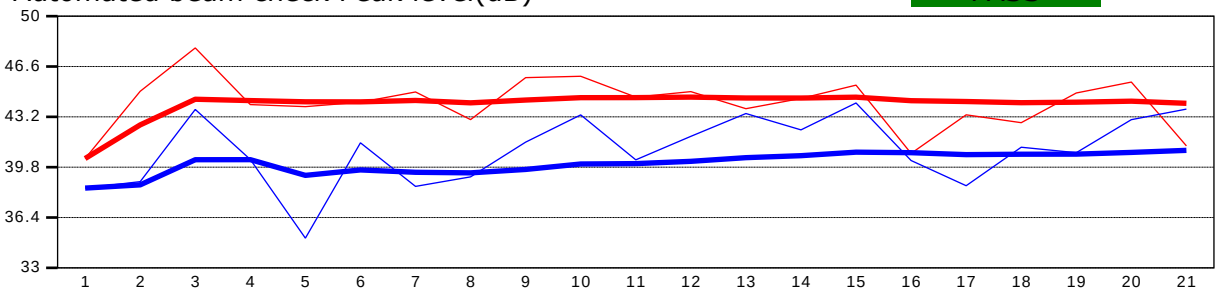
Discharge Measurement Summary

Site name	Monitorcr
Site number	5112021
Operator(s)	Lfs
File name	Monitorcr_20210511-145836.ft
Comment	

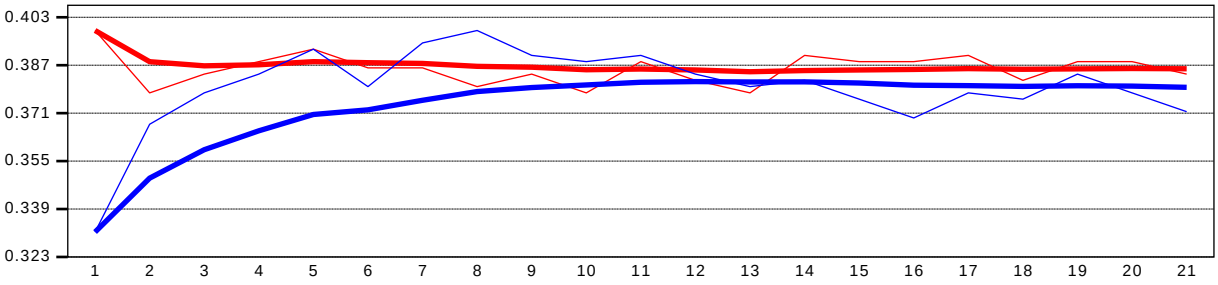
Beam 1	
Beam 2	

Automated beam check Start time 5/11/2021 2:19:32 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

COLORADO
Department of Natural Resources

Date	7/22/2021
Observer	LFS
Cross Section #	24
System	UTM Zone 12
X (easting)	220628
Y (northing)	4279529

FIELD MEASUREMENTS FOR DISCHARGE CALCULATOR

Stream Name	**Stream Location**
Monitor Creek	At CWCB staff gage Stage 0.02ft

Feature	**Station (ft)**	**Water Depth (ft)**	**Velocity (ft/s)**
Right Bank	0	0	0
Center Sruface*	2.79	0.18	0.04
Left Bank	5.58	0	
timer meas (sec)	95.5	93	99
Length (ft)	**Width (ft)**	**Area (ft^2)**	**Sub-section Q**
3.71	2.79	0.5022	0.020088
Avgtime (sec)	95.83333333	**Discharge (cfs) *Center Surface velocity**	**0.038713**

Discharge Measurement Summary

Site name	Monitorcr
Site number	091420211330
Operator(s)	Lfs
File name	Monitorcr_20210914-133429.ft
Comment	

Start time	9/14/2021 1:31 PM
End time	9/14/2021 1:33 PM
Start location latitude	38.620
Start location longitude	-108.209
Calculations engine	FlowTracker2

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

# Stations	Avg interval (s)	Total discharge (ft³/s)
3	40	0.0001

Total width (ft)	Total area (ft²)	Wetted Perimeter (ft)
2.000	0.2865	2.071

Mean SNR (dB)	Mean depth (ft)	Mean velocity (ft/s)
40	0.143	0.0002

Mean temp (°F)	Max depth (ft)	Max velocity (ft/s)
72.725	0.270	0.0002

Discharge Uncertainty		
Category	**ISO**	**IVE**
Accuracy		1.0%
Depth		0.0%
Velocity		0.0%
Width		0.5%
Method		
# Stations		
Overall		**1.1%**

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 %

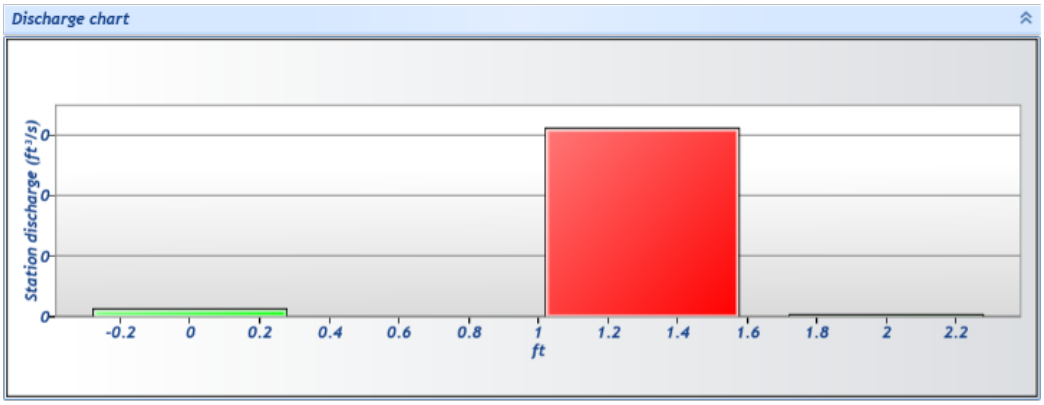
Summary overview

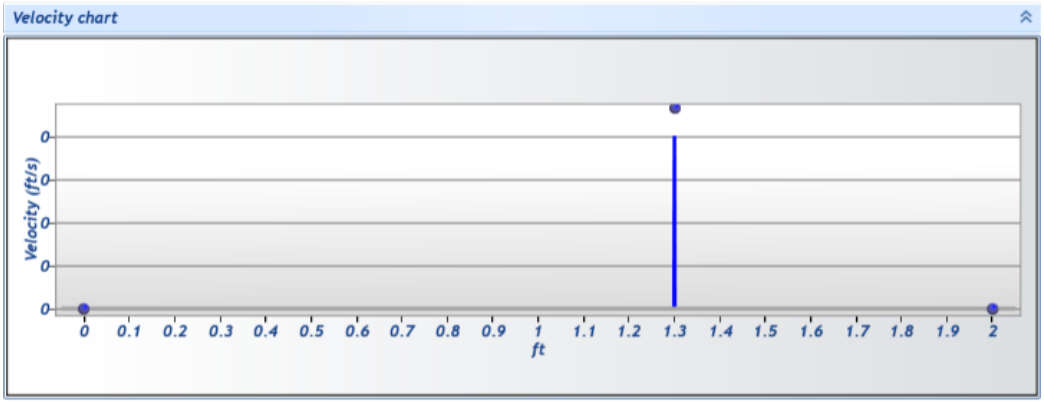
No changes were made to this file
Quality control warnings

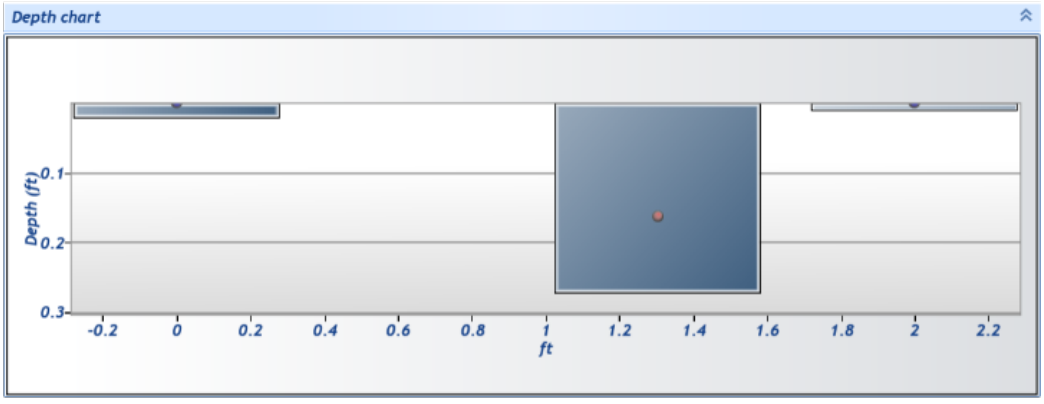
Discharge Measurement Summary

Site name	Monitorcr
Site number	091420211330
Operator(s)	Lfs
File name	Monitorcr_20210914-133429.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	Monitorcr
Site number	091420211330
Operator(s)	Lfs
File name	Monitorcr_20210914-133429.ft
Comment	

Measurement results

St#	Time	Location (ft)	Method	Depth (ft)	%Depth	Measured Depth (ft)	Samples	Velocity (ft/s)	Correction	Mean Velocity (ft/s)	Area (ft²)	Flow (ft³/s)	%Q	
0	1:31 PM	0.000	None	0.020	0.0000	0.000	0	0.0000	1.0000	0.0002	0.0130	0.0000	4.54	✓
1	1:32 PM	1.300	0.6	0.270	0.6000	0.162	80	0.0002	1.0000	0.0002	0.2700	0.0001	94.24	✓
2	1:33 PM	2.000	None	0.010	0.0000	0.000	0	0.0000	1.0000	0.0002	0.0035	0.0000	1.22	✓

Discharge Measurement Summary

Site name	Monitorcr
Site number	091420211330
Operator(s)	Lfs
File name	Monitorcr_20210914-133429.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	1:32 PM	1.300	0.6	0.270	0.6000	0.162	Boundary Interference,High Stn % Discharge

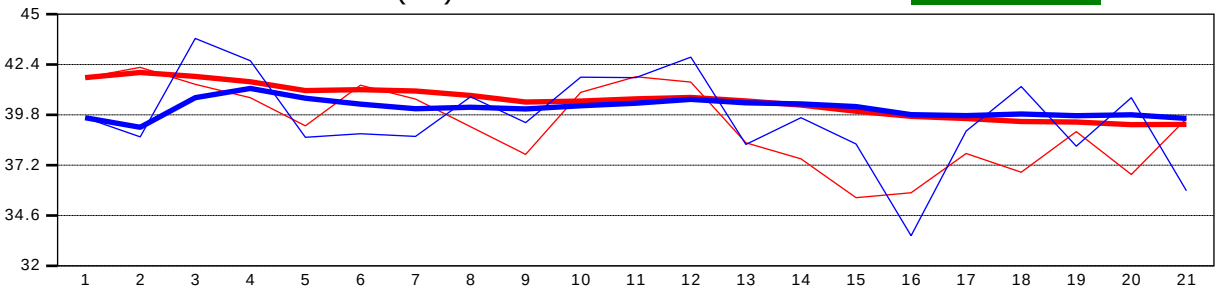
Discharge Measurement Summary

Site name	Monitorcr
Site number	091420211330
Operator(s)	Lfs
File name	Monitorcr_20210914-133429.ft
Comment	

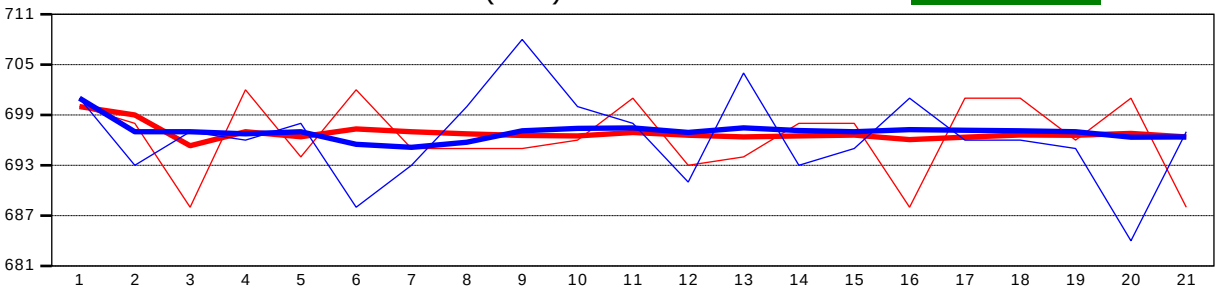
Beam 1	
Beam 2	

Automated beam check Start time 9/14/2021 1:31:24 PM

Automated beam check SNR(dB) PASS



Automated beam check Noise level(cnts) PASS



Automated beam check Quality control warnings
Peak Location > QC

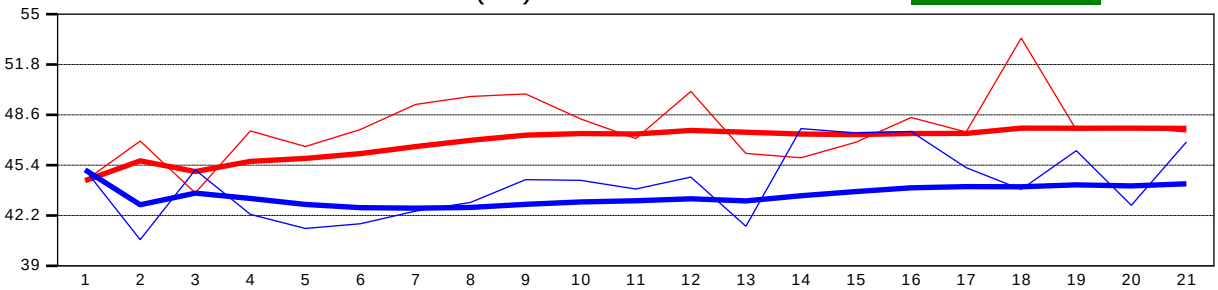
Discharge Measurement Summary

Site name	Monitorcr
Site number	091420211330
Operator(s)	Lfs
File name	Monitorcr_20210914-133429.ft
Comment	

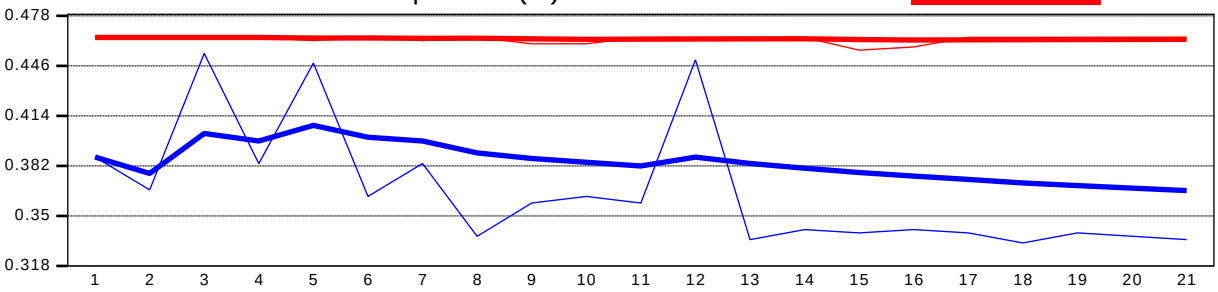
Beam 1	
Beam 2	

Automated beam check Start time 9/14/2021 1:31:24 PM

Automated beam check Peak level(dB) PASS



Automated beam check Peak position(ft) FAIL



Automated beam check Quality control warnings
Peak Location > QC

Discharge Measurement Summary

Site name	Monitorcr
Site number	2232022
Operator(s)	Lfs
File name	Monitorcr_20220223-121756.ft
Comment	

Start time	2/23/2022 12:10 PM
End time	2/23/2022 12:17 PM
Start location latitude	38.608
Start location longitude	-108.213
Calculations engine	FlowTracker2

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

# Stations	Avg interval (s)	Total discharge (ft³/s)
6	40	0.0395

Total width (ft)	Total area (ft²)	Wetted Perimeter (ft)
3.300	0.6800	3.497

Mean SNR (dB)	Mean depth (ft)	Mean velocity (ft/s)
18	0.206	0.0581

Mean temp (°F)	Max depth (ft)	Max velocity (ft/s)
37.947	0.400	0.0867

Discharge Uncertainty		
Category	**ISO**	**IVE**
Accuracy	1.0%	1.0%
Depth	0.9%	27.6%
Velocity	4.1%	42.3%
Width	0.3%	0.3%
Method	4.3%	
# Stations	9.4%	
Overall	**11.2%**	**50.5%**

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 %

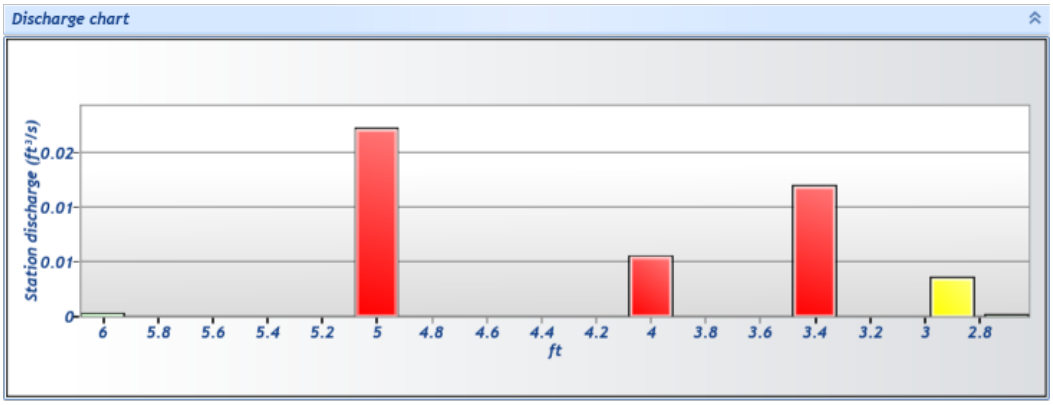
Summary overview

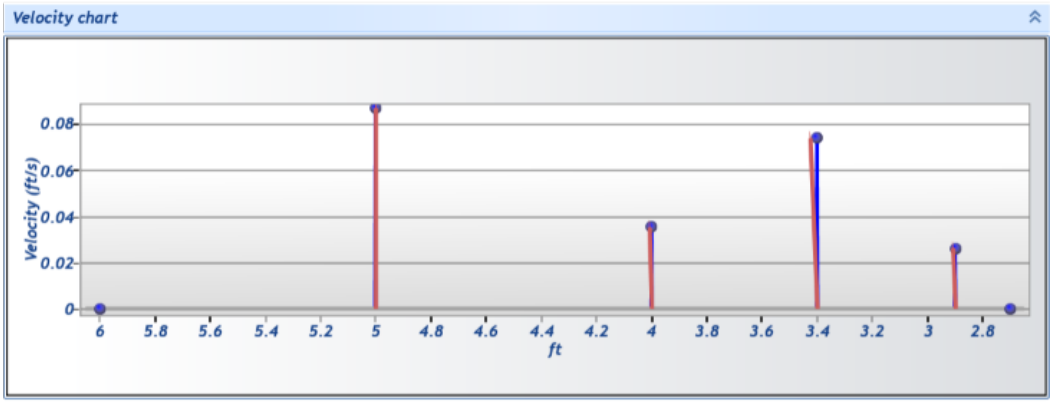
No changes were made to this file
Quality control warnings

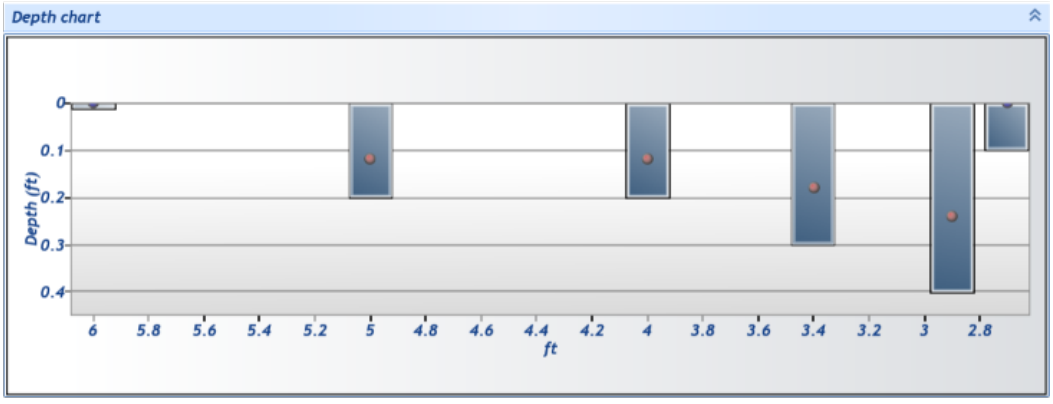
Discharge Measurement Summary

Site name	Monitorcr
Site number	2232022
Operator(s)	Lfs
File name	Monitorcr_20220223-121756.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	Monitorcr
Site number	2232022
Operator(s)	Lfs
File name	Monitorcr_20220223-121756.ft
Comment	

Measurement results

St#	Time	Location (ft)	Method	Depth (ft)	%Depth	Measured Depth (ft)	Samples	Velocity (ft/s)	Correction	Mean Velocity (ft/s)	Area (ft²)	Flow (ft³/s)	%Q	
0	12:10 PM	2.700	None	0.100	0.0000	0.000	0	0.0000	1.0000	0.0263	0.0100	0.0003	0.67	✓
1	12:11 PM	2.900	0.6	0.400	0.6000	0.240	80	0.0263	1.0000	0.0263	0.1400	0.0037	9.34	✓
2	12:13 PM	3.400	0.6	0.300	0.6000	0.180	80	0.0736	1.0000	0.0736	0.1650	0.0121	30.76	✓
3	12:14 PM	4.000	0.6	0.200	0.6000	0.120	80	0.0351	1.0000	0.0351	0.1600	0.0056	14.24	✓
4	12:16 PM	5.000	0.6	0.200	0.6000	0.120	80	0.0867	1.0000	0.0867	0.2000	0.0173	43.90	✓
5	12:17 PM	6.000	None	0.010	0.0000	0.000	0	0.0000	1.0000	0.0867	0.0050	0.0004	1.10	✓

Discharge Measurement Summary

Site name	Monitorcr
Site number	2232022
Operator(s)	Lfs
File name	Monitorcr_20220223-121756.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	12:11 PM	2.900	0.6	0.400	0.6000	0.240	Boundary Interference
2	12:13 PM	3.400	0.6	0.300	0.6000	0.180	High Stn % Discharge
3	12:14 PM	4.000	0.6	0.200	0.6000	0.120	Beam SNRs Not Similar,Large SNR Variation,High Stn % Discharge
4	12:16 PM	5.000	0.6	0.200	0.6000	0.120	High Stn % Discharge

Discharge Measurement Summary

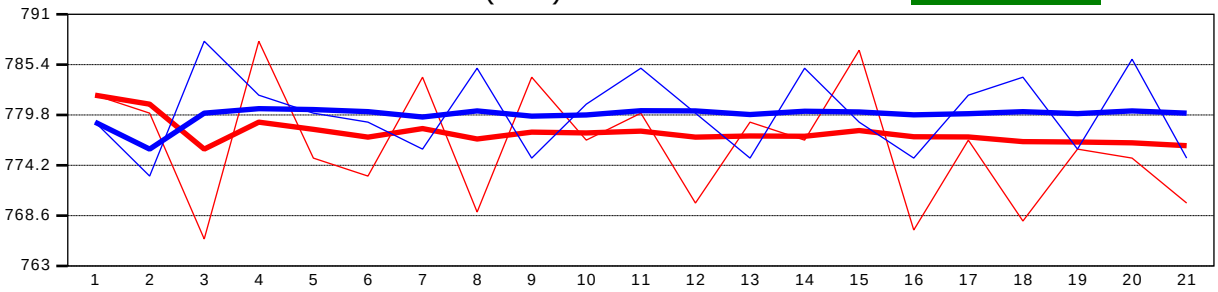
Site name	Monitorcr
Site number	2232022
Operator(s)	Lfs
File name	Monitorcr_20220223-121756.ft
Comment	

Beam 1	
Beam 2	

Automated beam check Start time 2/23/2022 12:10:13 PM

Automated beam check SNR(dB) PASS

Automated beam check Noise level(cnts) PASS



Automated beam check Quality control warnings

No quality control warnings

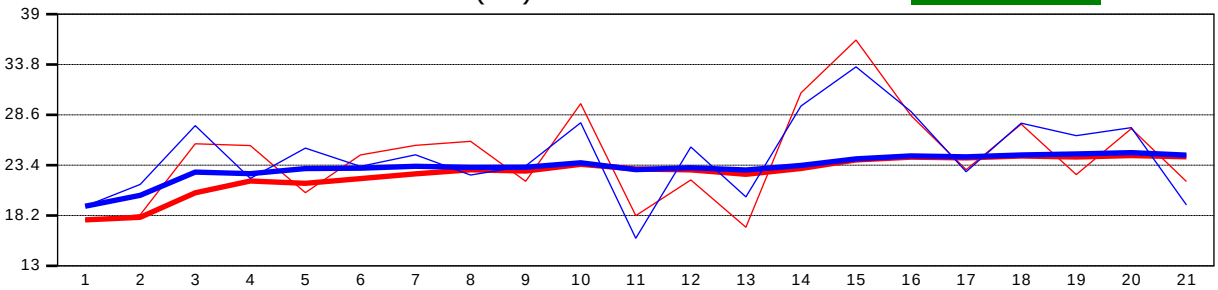
Discharge Measurement Summary

Site name	Monitorcr
Site number	2232022
Operator(s)	Lfs
File name	Monitorcr_20220223-121756.ft
Comment	

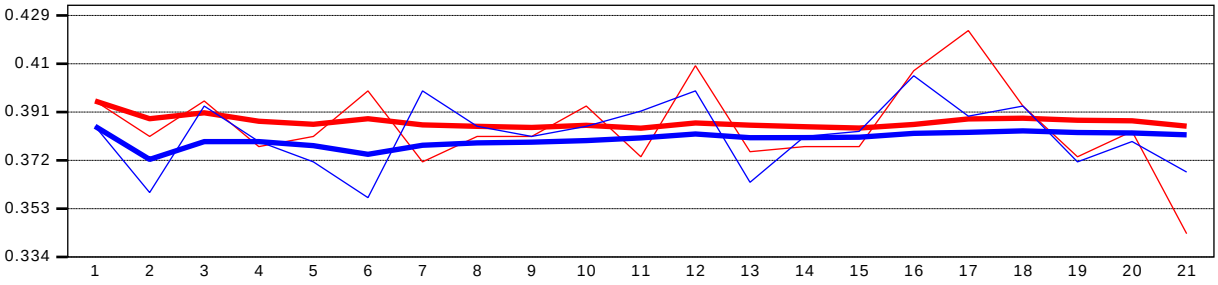
Beam 1	
Beam 2	

Automated beam check Start time 2/23/2022 12:10:13 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	Monitorcr
Site number	03262022
Operator(s)	Lfs
File name	Monitorcr_20220326-154942.ft
Comment	

Start time	3/26/2022 3:19 PM
End time	3/26/2022 3:48 PM
Start location latitude	38.620
Start location longitude	-108.209
Calculations engine	FlowTracker2

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

# Stations	Avg interval (s)	Total discharge (ft³/s)
20	40	0.0150

Total width (ft)	Total area (ft²)	Wetted Perimeter (ft)
5.500	2.1825	5.638

Mean SNR (dB)	Mean depth (ft)	Mean velocity (ft/s)
33	0.397	0.0069

Mean temp (°F)	Max depth (ft)	Max velocity (ft/s)
64.780	0.520	0.0553

Discharge Uncertainty		
Category	**ISO**	**IVE**
Accuracy	1.0%	1.0%
Depth	0.8%	13.9%
Velocity	3.4%	53.8%
Width	0.3%	0.3%
Method	4.1%	
# Stations	2.5%	
Overall	**6.0%**	**55.6%**

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

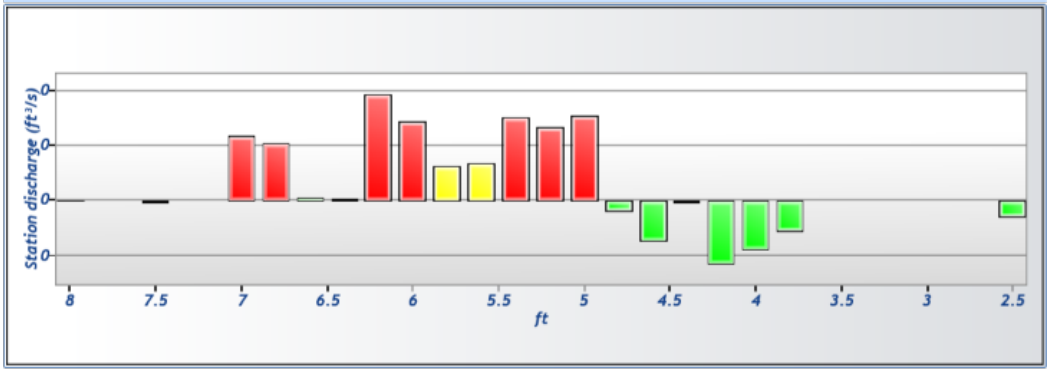
No changes were made to this file
Quality control warnings

Discharge Measurement Summary

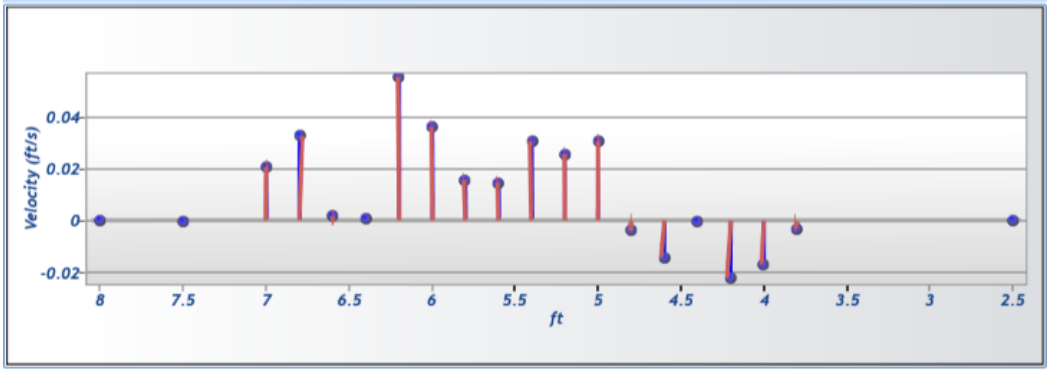
Site name	Monitorcr
Site number	03262022
Operator(s)	Lfs
File name	Monitorcr_20220326-154942.ft
Comment	

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%

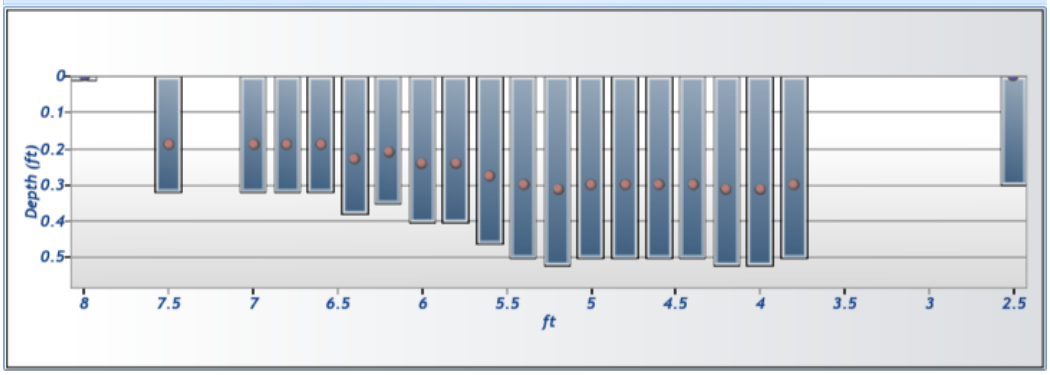
Discharge chart



Velocity chart



Depth chart



4/26/2022 10:45:00 AM

Discharge Measurement Summary

Site name	Monitorcr
Site number	03262022
Operator(s)	Lfs
File name	Monitorcr_20220326-154942.ft
Comment	

Measurement results

St#	Time	Location (ft)	Method	Depth (ft)	%Depth	Measured Depth (ft)	Samples	Velocity (ft/s)	Correction	Mean Velocity (ft/s)	Area (ft²)	Flow (ft³/s)	%Q	
19	3:48 PM	2.500	None	0.300	0.0000	0.000	0	0.0000	1.0000	-0.0029	0.1950	-0.0006	-3.80	✓
18	3:47 PM	3.800	0.6	0.500	0.6000	0.300	80	-0.0029	1.0000	-0.0029	0.3750	-0.0011	-7.31	✓
17	3:46 PM	4.000	0.6	0.520	0.6000	0.312	80	-0.0170	1.0000	-0.0170	0.1040	-0.0018	-11.81	✓
16	3:45 PM	4.200	0.6	0.520	0.6000	0.312	80	-0.0221	1.0000	-0.0221	0.1040	-0.0023	-15.29	✓
15	3:42 PM	4.400	0.6	0.500	0.6000	0.300	80	-0.0006	1.0000	-0.0006	0.1000	-0.0001	-0.40	✓
14	3:41 PM	4.600	0.6	0.500	0.6000	0.300	80	-0.0145	1.0000	-0.0145	0.1000	-0.0014	-9.66	✓
13	3:39 PM	4.800	0.6	0.500	0.6000	0.300	80	-0.0039	1.0000	-0.0039	0.1000	-0.0004	-2.58	✓
12	3:38 PM	5.000	0.6	0.500	0.6000	0.300	80	0.0307	1.0000	0.0307	0.1000	0.0031	20.49	✓
11	3:37 PM	5.200	0.6	0.520	0.6000	0.312	80	0.0256	1.0000	0.0256	0.1040	0.0027	17.75	✓
10	3:35 PM	5.400	0.6	0.500	0.6000	0.300	80	0.0304	1.0000	0.0304	0.1000	0.0030	20.27	✓
9	3:34 PM	5.600	0.6	0.460	0.6000	0.276	80	0.0146	1.0000	0.0146	0.0920	0.0013	8.96	✓
8	3:33 PM	5.800	0.6	0.400	0.6000	0.240	80	0.0156	1.0000	0.0156	0.0800	0.0013	8.34	✓
7	3:31 PM	6.000	0.6	0.400	0.6000	0.240	80	0.0360	1.0000	0.0360	0.0800	0.0029	19.22	✓
6	3:29 PM	6.200	0.6	0.350	0.6000	0.210	80	0.0553	1.0000	0.0553	0.0700	0.0039	25.79	✓
5	3:28 PM	6.400	0.6	0.380	0.6000	0.228	80	0.0006	1.0000	0.0006	0.0760	0.0000	0.31	✓
4	3:26 PM	6.600	0.6	0.320	0.6000	0.192	80	0.0015	1.0000	0.0015	0.0640	0.0001	0.66	✓
3	3:23 PM	6.800	0.6	0.320	0.6000	0.192	80	0.0326	1.0000	0.0326	0.0640	0.0021	13.92	✓
2	3:22 PM	7.000	0.6	0.320	0.6000	0.192	80	0.0208	1.0000	0.0208	0.1120	0.0023	15.55	✓
1	3:20 PM	7.500	0.6	0.320	0.6000	0.192	80	-0.0004	1.0000	-0.0004	0.1600	-0.0001	-0.40	✓
0	3:19 PM	8.000	None	0.010	0.0000	0.000	0	0.0000	1.0000	-0.0004	0.0025	0.0000	-0.01	✓

Discharge Measurement Summary

Site name	Monitorcr
Site number	03262022
Operator(s)	Lfs
File name	Monitorcr_20220326-154942.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
18	3:47 PM	3.800	0.6	0.500	0.6000	0.300	Boundary Interference,Large SNR Variation
17	3:46 PM	4.000	0.6	0.520	0.6000	0.312	Large SNR Variation
16	3:45 PM	4.200	0.6	0.520	0.6000	0.312	Stn Spacing > QC
14	3:41 PM	4.600	0.6	0.500	0.6000	0.300	Large SNR Variation
12	3:38 PM	5.000	0.6	0.500	0.6000	0.300	High Stn % Discharge
11	3:37 PM	5.200	0.6	0.520	0.6000	0.312	High Stn % Discharge
10	3:35 PM	5.400	0.6	0.500	0.6000	0.300	High Stn % Discharge
8	3:33 PM	5.800	0.6	0.400	0.6000	0.240	Boundary Interference
7	3:31 PM	6.000	0.6	0.400	0.6000	0.240	Boundary Interference,High Stn % Discharge
6	3:29 PM	6.200	0.6	0.350	0.6000	0.210	High Stn % Discharge
5	3:28 PM	6.400	0.6	0.380	0.6000	0.228	Boundary Interference,Beam SNRs Not Similar,SNR Threshold Variation
4	3:26 PM	6.600	0.6	0.320	0.6000	0.192	SNR Threshold Variation
3	3:23 PM	6.800	0.6	0.320	0.6000	0.192	High Stn % Discharge
2	3:22 PM	7.000	0.6	0.320	0.6000	0.192	Beam SNRs Not Similar,Large SNR Variation,High Stn % Discharge
1	3:20 PM	7.500	0.6	0.320	0.6000	0.192	Large SNR Variation,SNR Threshold Variation

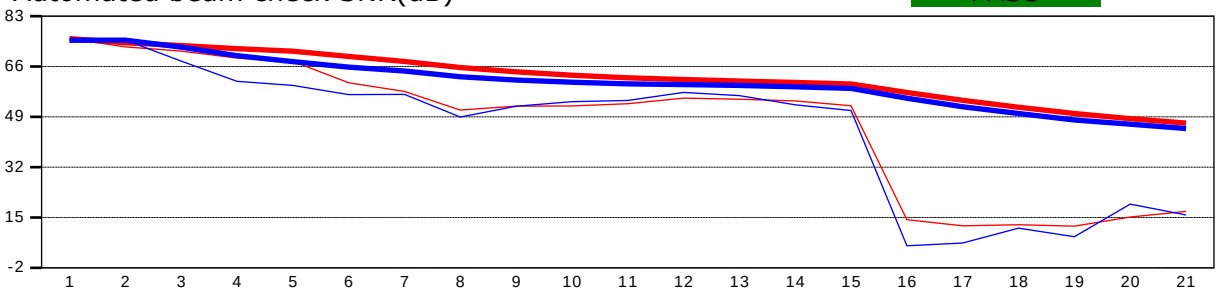
Discharge Measurement Summary

Site name	Monitorcr
Site number	03262022
Operator(s)	Lfs
File name	Monitorcr_20220326-154942.ft
Comment	

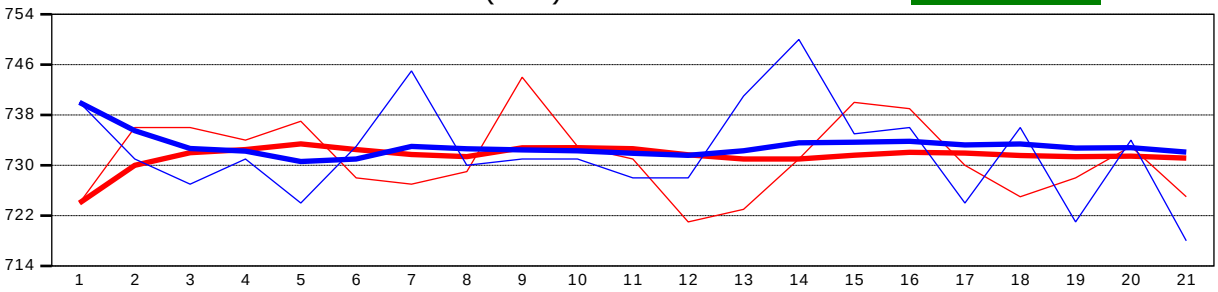
Beam 1	
Beam 2	

Automated beam check Start time 3/26/2022 3:19:03 PM

Automated beam check SNR(dB) PASS



Automated beam check Noise level(cnts) PASS



Automated beam check Quality control warnings

No quality control warnings

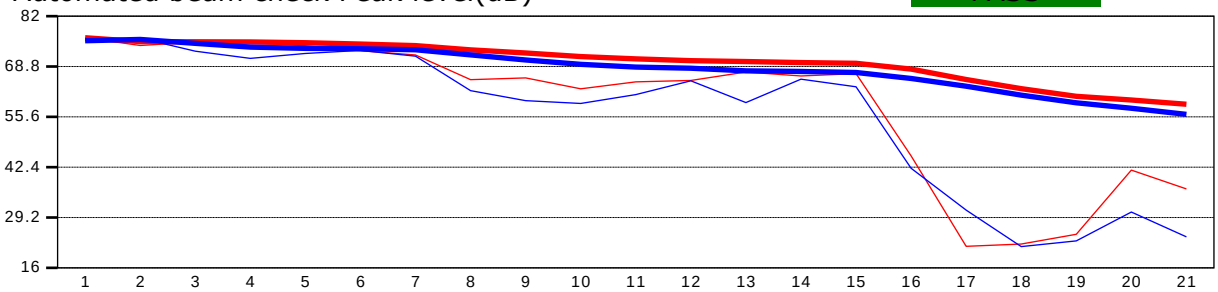
Discharge Measurement Summary

Site name	Monitorcr
Site number	03262022
Operator(s)	Lfs
File name	Monitorcr_20220326-154942.ft
Comment	

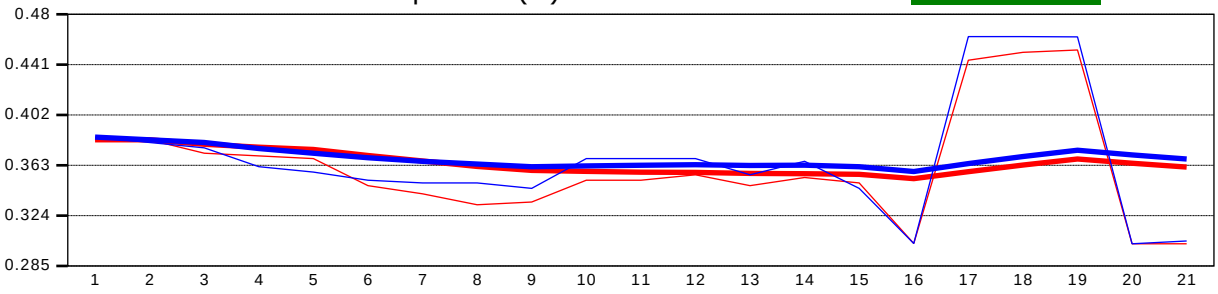
Beam 1	
Beam 2	

Automated beam check Start time 3/26/2022 3:19:03 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	Monitor
Site number	01
Operator(s)	Kb
File name	Monitor_20220428-124712.ft
Comment	

Start time	4/28/2022 12:16 PM
End time	4/28/2022 12:46 PM
Start location latitude	38.620
Start location longitude	-108.208
Calculations engine	FlowTracker2

Sensor type	Top Setting
Handheld serial number	FT2H2113010
Probe serial number	FT2P2114008
Probe firmware	1.30
Handheld software	1.6.4

# Stations	Avg interval (s)	Total discharge (ft³/s)
21	40	47.535

Total width (ft)	Total area (ft²)	Wetted Perimeter (ft)
20.000	17.150	20.381

Mean SNR (dB)	Mean depth (ft)	Mean velocity (ft/s)
59.080	0.858	2.772

Mean temp (°F)	Max depth (ft)	Max velocity (ft/s)
44.387	1.700	4.366

Discharge Uncertainty		
Category	**ISO**	**IVE**
Accuracy	1.0%	1.0%
Depth	0.2%	2.4%
Velocity	0.6%	3.0%
Width	0.1%	0.1%
Method	2.0%	
# Stations	2.4%	
Overall	**3.3%**	**4.0%**

Discharge equation	Mid Section
Discharge uncertainty	IVE
Discharge reference	Rated

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

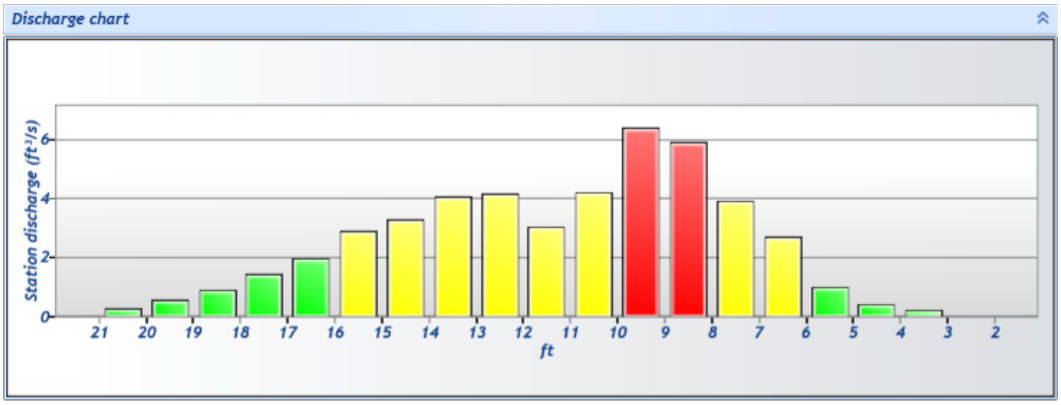
Summary overview

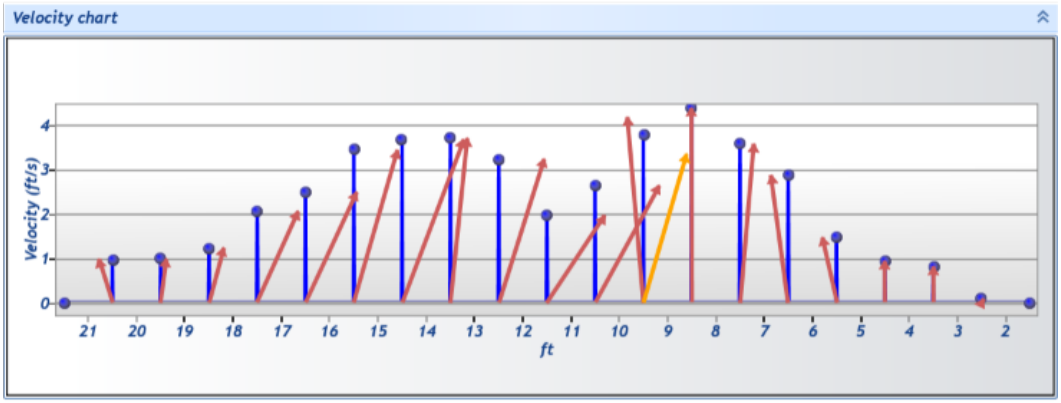
No changes were made to this file
Quality control warnings

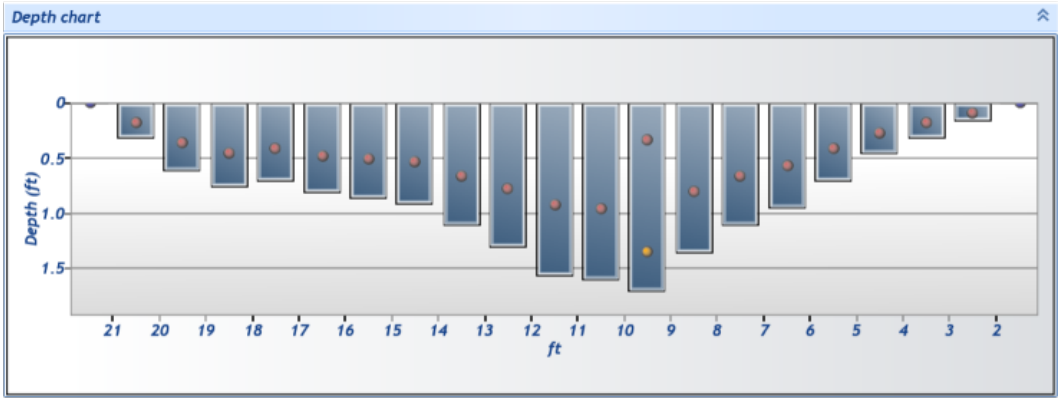
Discharge Measurement Summary

Site name	Monitor
Site number	01
Operator(s)	Kb
File name	Monitor_20220428-124712.ft
Comment	

Station Warning Settings	
Station discharge OK	Station discharge < 5.000%
Station discharge caution	5.000% >= Station discharge < 10.000%
Station discharge warning	Station discharge >= 10.000%







Discharge Measurement Summary

Site name	Monitor
Site number	01
Operator(s)	Kb
File name	Monitor_20220428-124712.ft
Comment	

Measurement results

St#	Time	Location (ft)	Method	Depth (ft)	%Depth	Measured Depth (ft)	Samples	Velocity (ft/s)	Correction	Mean Velocity (ft/s)	Area (ft²)	Flow (ft³/s)	%Q	
0	12:16 PM	1.500	None	0.000	0.000	0.000	0	0.000		0.079	0.000	0.000	0.000	✓
1	12:16 PM	2.500	0.6	0.150	0.600	0.090	80	0.079	1.000	0.079	0.150	0.012	0.025	✓
2	12:18 PM	3.500	0.6	0.300	0.600	0.180	80	0.808	1.000	0.808	0.300	0.242	0.510	✓
3	12:19 PM	4.500	0.6	0.450	0.600	0.270	80	0.930	1.000	0.930	0.450	0.419	0.881	✓
4	12:21 PM	5.500	0.6	0.700	0.600	0.420	80	1.467	1.000	1.467	0.700	1.027	2.161	✓
5	12:22 PM	6.500	0.6	0.950	0.600	0.570	80	2.866	1.000	2.866	0.950	2.722	5.727	✓
6	12:24 PM	7.500	0.6	1.100	0.600	0.660	80	3.567	1.000	3.567	1.100	3.924	8.255	✓
7	12:25 PM	8.500	0.6	1.350	0.600	0.810	80	4.366	1.000	4.366	1.350	5.894	12.399	✓
8	12:27 PM	9.500	0.2/0.8	1.700	0.200	0.340	80	4.163	1.000	3.749	1.700	6.374	13.408	✓
8	12:27 PM	9.500	0.2/0.8	1.700	0.800	1.360	80	3.335	1.000	3.749	1.700	6.374	13.408	✓
9	12:31 PM	10.500	0.6	1.600	0.600	0.960	80	2.623	1.000	2.623	1.600	4.197	8.828	✓
10	12:33 PM	11.500	0.6	1.550	0.600	0.930	80	1.966	1.000	1.966	1.550	3.047	6.411	✓
11	12:34 PM	12.500	0.6	1.300	0.600	0.780	80	3.220	1.000	3.220	1.300	4.186	8.806	✓
12	12:36 PM	13.500	0.6	1.100	0.600	0.660	80	3.693	1.000	3.693	1.100	4.062	8.545	✓
13	12:37 PM	14.500	0.6	0.900	0.600	0.540	80	3.662	1.000	3.662	0.900	3.296	6.933	✓
14	12:38 PM	15.500	0.6	0.850	0.600	0.510	80	3.427	1.000	3.427	0.850	2.913	6.129	✓
15	12:40 PM	16.500	0.6	0.800	0.600	0.480	80	2.481	1.000	2.481	0.800	1.985	4.176	✓
16	12:41 PM	17.500	0.6	0.700	0.600	0.420	80	2.044	1.000	2.044	0.700	1.431	3.009	✓
17	12:42 PM	18.500	0.6	0.750	0.600	0.450	80	1.233	1.000	1.233	0.750	0.925	1.945	✓
18	12:43 PM	19.500	0.6	0.600	0.600	0.360	80	0.980	1.000	0.980	0.600	0.588	1.236	✓
19	12:45 PM	20.500	0.6	0.300	0.600	0.180	80	0.977	1.000	0.977	0.300	0.293	0.617	✓
20	12:46 PM	21.500	None	0.000	0.000	0.000	0	0.000		0.977	0.000	0.000	0.000	✓

Discharge Measurement Summary

Site name	Monitor
Site number	01
Operator(s)	Kb
File name	Monitor_20220428-124712.ft
Comment	

Quality Control Settings	
Maximum depth change	50.000%
Maximum spacing change	100.000%
SNR threshold	10.000 dB
Standard error threshold	0.033 ft/s
Spike threshold	10.000%
Maximum velocity angle	20.000 deg
Maximum tilt angle	5.000 deg

Quality control warnings

St#	Time	Location (ft)	Method	Depth (ft)	%Depth	Measured Depth (ft)	Warnings
1	12:16 PM	2.500	0.6	0.150	0.600	0.090	Large SNR Variation,Velocity Angle > QC
4	12:21 PM	5.500	0.6	0.700	0.600	0.420	SNR Threshold Variation,Standard Error > QC
5	12:22 PM	6.500	0.6	0.950	0.600	0.570	Standard Error > QC
6	12:24 PM	7.500	0.6	1.100	0.600	0.660	Standard Error > QC
7	12:25 PM	8.500	0.6	1.350	0.600	0.810	Standard Error > QC,High Stn % Discharge
8	12:27 PM	9.500	0.2/0.8	1.700	0.200	0.340	Standard Error > QC,High Stn % Discharge
8	12:27 PM	9.500	0.2/0.8	1.700	0.800	1.360	Standard Error > QC,High Stn % Discharge
9	12:31 PM	10.500	0.6	1.600	0.600	0.960	Standard Error > QC,Velocity Angle > QC
10	12:33 PM	11.500	0.6	1.550	0.600	0.930	Standard Error > QC,Velocity Angle > QC
11	12:34 PM	12.500	0.6	1.300	0.600	0.780	Standard Error > QC
12	12:36 PM	13.500	0.6	1.100	0.600	0.660	Standard Error > QC
13	12:37 PM	14.500	0.6	0.900	0.600	0.540	Standard Error > QC
14	12:38 PM	15.500	0.6	0.850	0.600	0.510	Standard Error > QC
15	12:40 PM	16.500	0.6	0.800	0.600	0.480	Standard Error > QC,Velocity Angle > QC
16	12:41 PM	17.500	0.6	0.700	0.600	0.420	Standard Error > QC,Velocity Angle > QC
17	12:42 PM	18.500	0.6	0.750	0.600	0.450	Standard Error > QC
19	12:45 PM	20.500	0.6	0.300	0.600	0.180	Boundary Interference

Discharge Measurement Summary

Site name	Monitor
Site number	01
Operator(s)	Kb
File name	Monitor_20220506-154249.ft
Comment	

Start time	5/6/2022 3:13 PM
End time	5/6/2022 3:42 PM
Start location latitude	38.637
Start location longitude	-108.230
Calculations engine	FlowTracker2

Sensor type	Top Setting
Handheld serial number	FT2H2113010
Probe serial number	FT2P2114008
Probe firmware	1.30
Handheld software	1.6.4

# Stations	Avg interval (s)	Total discharge (ft³/s)
23	40	23.199

Total width (ft)	Total area (ft²)	Wetted Perimeter (ft)
16.300	11.675	16.776

Mean SNR (dB)	Mean depth (ft)	Mean velocity (ft/s)
54.933	0.716	1.987

Mean temp (°F)	Max depth (ft)	Max velocity (ft/s)
56.737	1.400	2.825

Discharge Uncertainty		
Category	**ISO**	**IVE**
Accuracy	1.0%	1.0%
Depth	0.2%	2.8%
Velocity	0.7%	2.1%
Width	0.1%	0.1%
Method	2.1%	
# Stations	2.2%	
Overall	**3.3%**	**3.7%**

Discharge equation	Mid Section
Discharge uncertainty	IVE
Discharge reference	Rated

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

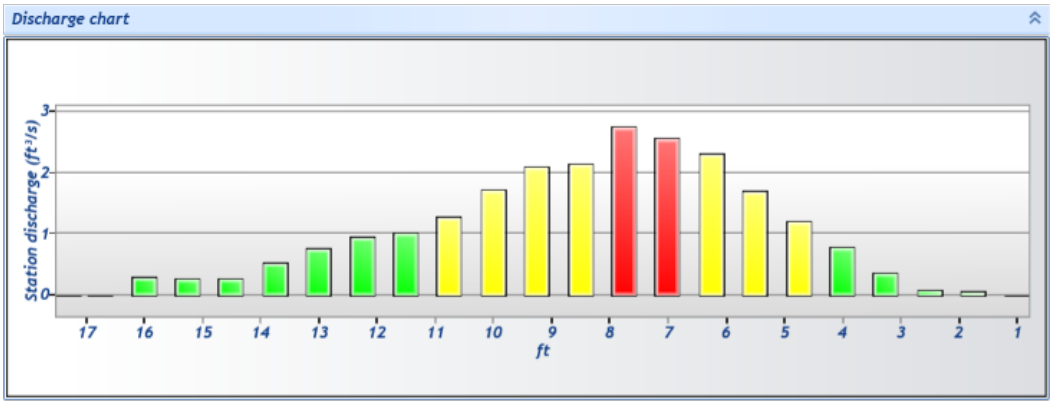
Summary overview

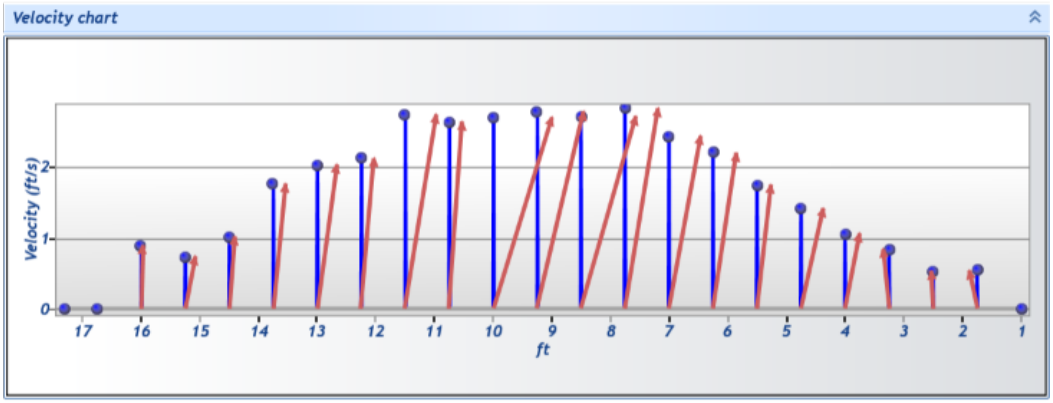
No changes were made to this file
Quality control warnings

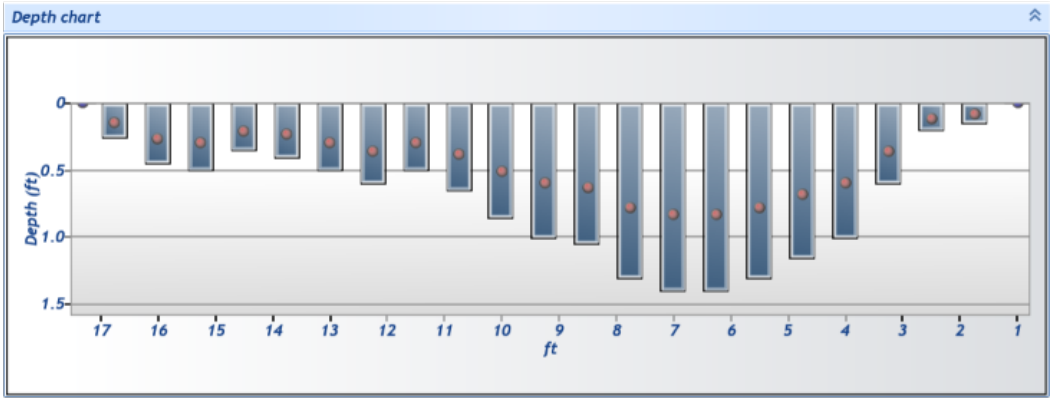
Discharge Measurement Summary

Site name	Monitor
Site number	01
Operator(s)	Kb
File name	Monitor_20220506-154249.ft
Comment	

Station Warning Settings	
Station discharge OK	Station discharge < 5.000%
Station discharge caution	5.000% >= Station discharge < 10.000%
Station discharge warning	Station discharge >= 10.000%







Discharge Measurement Summary

Site name	Monitor
Site number	01
Operator(s)	Kb
File name	Monitor_20220506-154249.ft
Comment	

Measurement results

St#	Time	Location (ft)	Method	Depth (ft)	%Depth	Measured Depth (ft)	Samples	Velocity (ft/s)	Correction	Mean Velocity (ft/s)	Area (ft²)	Flow (ft³/s)	%Q	
0	3:13 PM	1.000	None	0.000	0.000	0.000	0	0.000		0.539	0.000	0.000	0.000	✓
1	3:14 PM	1.750	0.6	0.150	0.600	0.090	80	0.539	1.000	0.539	0.113	0.061	0.261	✓
2	3:15 PM	2.500	0.6	0.200	0.600	0.120	80	0.538	1.000	0.538	0.150	0.081	0.348	✓
3	3:17 PM	3.250	0.6	0.600	0.600	0.360	80	0.838	1.000	0.838	0.450	0.377	1.626	✓
4	3:18 PM	4.000	0.6	1.000	0.600	0.600	80	1.060	1.000	1.060	0.750	0.795	3.428	✓
5	3:19 PM	4.750	0.6	1.150	0.600	0.690	80	1.412	1.000	1.412	0.863	1.218	5.251	✓
6	3:21 PM	5.500	0.6	1.300	0.600	0.780	80	1.749	1.000	1.749	0.975	1.706	7.352	✓
7	3:22 PM	6.250	0.6	1.400	0.600	0.840	80	2.198	1.000	2.198	1.050	2.308	9.949	✓
8	3:23 PM	7.000	0.6	1.400	0.600	0.840	80	2.434	1.000	2.434	1.050	2.555	11.014	✓
9	3:25 PM	7.750	0.6	1.300	0.600	0.780	80	2.825	1.000	2.825	0.975	2.755	11.875	✓
10	3:26 PM	8.500	0.6	1.050	0.600	0.630	80	2.713	1.000	2.713	0.788	2.136	9.208	✓
11	3:27 PM	9.250	0.6	1.000	0.600	0.600	80	2.780	1.000	2.780	0.750	2.085	8.987	✓
12	3:28 PM	10.000	0.6	0.850	0.600	0.510	80	2.696	1.000	2.696	0.638	1.719	7.409	✓
13	3:30 PM	10.750	0.6	0.650	0.600	0.390	80	2.637	1.000	2.637	0.488	1.286	5.542	✓
14	3:31 PM	11.500	0.6	0.500	0.600	0.300	80	2.737	1.000	2.737	0.375	1.026	4.424	✓
15	3:32 PM	12.250	0.6	0.600	0.600	0.360	80	2.120	1.000	2.120	0.450	0.954	4.112	✓
16	3:34 PM	13.000	0.6	0.500	0.600	0.300	80	2.032	1.000	2.032	0.375	0.762	3.284	✓
17	3:35 PM	13.750	0.6	0.400	0.600	0.240	80	1.764	1.000	1.764	0.300	0.529	2.281	✓
18	3:37 PM	14.500	0.6	0.350	0.600	0.210	80	1.020	1.000	1.020	0.263	0.268	1.154	✓
19	3:38 PM	15.250	0.6	0.500	0.600	0.300	80	0.736	1.000	0.736	0.375	0.276	1.190	✓
20	3:39 PM	16.000	0.6	0.450	0.600	0.270	80	0.897	1.000	0.897	0.338	0.303	1.305	✓
21	3:40 PM	16.750	0.6	0.250	0.600	0.150	80	-0.001	1.000	-0.001	0.163	0.000	0.000	✓
22	3:42 PM	17.300	None	0.000	0.000	0.000	0	0.000		-0.001	0.000	0.000	0.000	✓

Discharge Measurement Summary

Site name	Monitor
Site number	01
Operator(s)	Kb
File name	Monitor_20220506-154249.ft
Comment	

Quality Control Settings	
Maximum depth change	50.000%
Maximum spacing change	100.000%
SNR threshold	10.000 dB
Standard error threshold	0.033 ft/s
Spike threshold	10.000%
Maximum velocity angle	20.000 deg
Maximum tilt angle	5.000 deg

Quality control warnings

St#	Time	Location (ft)	Method	Depth (ft)	%Depth	Measured Depth (ft)	Warnings
1	3:14 PM	1.750	0.6	0.150	0.600	0.090	Low SNR,Beam SNRs Not Similar,SNR Threshold Variation,Standard Error > QC
2	3:15 PM	2.500	0.6	0.200	0.600	0.120	Beam SNRs Not Similar,SNR Threshold Variation
5	3:19 PM	4.750	0.6	1.150	0.600	0.690	Standard Error > QC
6	3:21 PM	5.500	0.6	1.300	0.600	0.780	Standard Error > QC
7	3:22 PM	6.250	0.6	1.400	0.600	0.840	Standard Error > QC
8	3:23 PM	7.000	0.6	1.400	0.600	0.840	Standard Error > QC,High Stn % Discharge
9	3:25 PM	7.750	0.6	1.300	0.600	0.780	Standard Error > QC,High Stn % Discharge
10	3:26 PM	8.500	0.6	1.050	0.600	0.630	Standard Error > QC
11	3:27 PM	9.250	0.6	1.000	0.600	0.600	Standard Error > QC
12	3:28 PM	10.000	0.6	0.850	0.600	0.510	Standard Error > QC,Velocity Angle > QC
13	3:30 PM	10.750	0.6	0.650	0.600	0.390	Standard Error > QC
14	3:31 PM	11.500	0.6	0.500	0.600	0.300	Standard Error > QC
15	3:32 PM	12.250	0.6	0.600	0.600	0.360	Standard Error > QC
18	3:37 PM	14.500	0.6	0.350	0.600	0.210	Standard Error > QC
21	3:40 PM	16.750	0.6	0.250	0.600	0.150	Boundary Interference

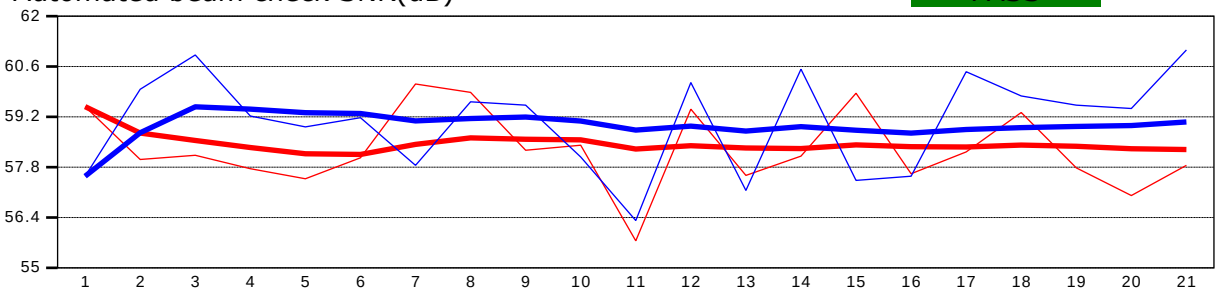
Discharge Measurement Summary

Site name	Monitor
Site number	01
Operator(s)	Kb
File name	Monitor_20220506-154249.ft
Comment	

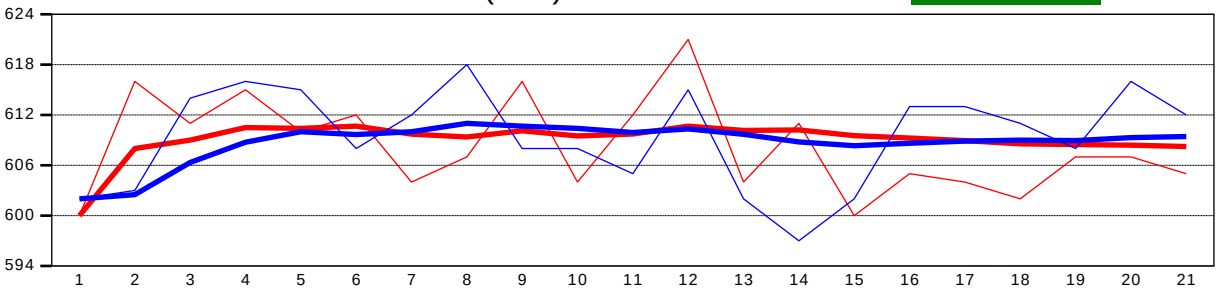
Beam 1	
Beam 2	

Automated beam check Start time 5/6/2022 3:13:18 PM

Automated beam check SNR(dB) PASS



Automated beam check Noise level(cnts) PASS



Automated beam check Quality control warnings

No quality control warnings

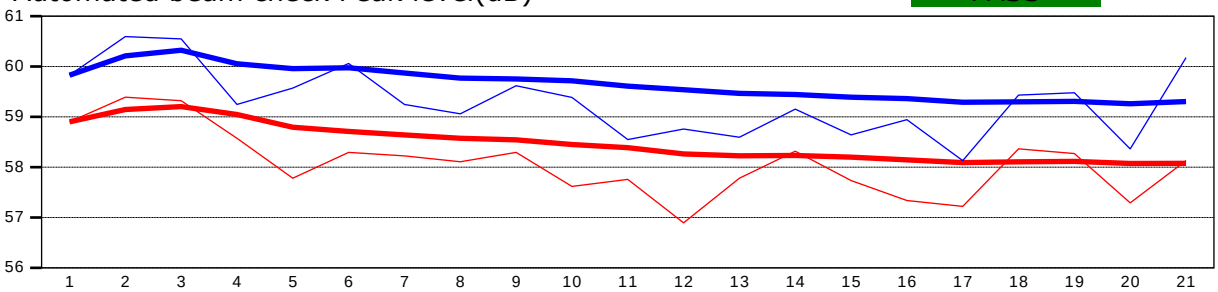
Discharge Measurement Summary

Site name	Monitor
Site number	01
Operator(s)	Kb
File name	Monitor_20220506-154249.ft
Comment	

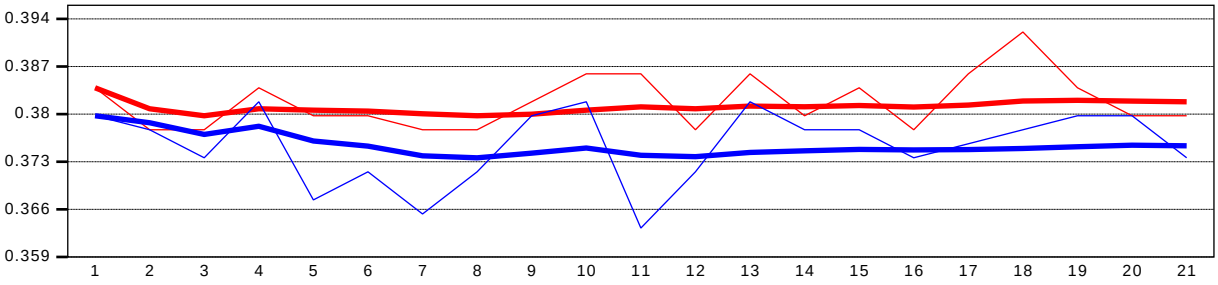
Beam 1	
Beam 2	

Automated beam check Start time 5/6/2022 3:13:18 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	Monitor
Site number	060921
Operator(s)	Kb
File name	Monitor_20220609-163110.ft
Comment	

Start time	6/9/2022 4:04 PM
End time	6/9/2022 4:30 PM
Start location latitude	38.620
Start location longitude	-108.209
Calculations engine	FlowTracker2

Sensor type	Top Setting
Handheld serial number	FT2H2113010
Probe serial number	FT2P2114008
Probe firmware	1.30
Handheld software	1.6.4

# Stations	Avg interval (s)	Total discharge (ft³/s)
23	40	0.116

Total width (ft)	Total area (ft²)	Wetted Perimeter (ft)
7.100	2.420	7.367

Mean SNR (dB)	Mean depth (ft)	Mean velocity (ft/s)
23.505	0.341	0.048

Mean temp (°F)	Max depth (ft)	Max velocity (ft/s)
66.766	0.550	0.065

Discharge Uncertainty		
Category	**ISO**	**IVE**
Accuracy	1.0%	1.0%
Depth	0.4%	5.8%
Velocity	0.6%	3.9%
Width	0.1%	0.1%
Method	1.8%	
# Stations	2.2%	
Overall	**3.1%**	**7.1%**

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

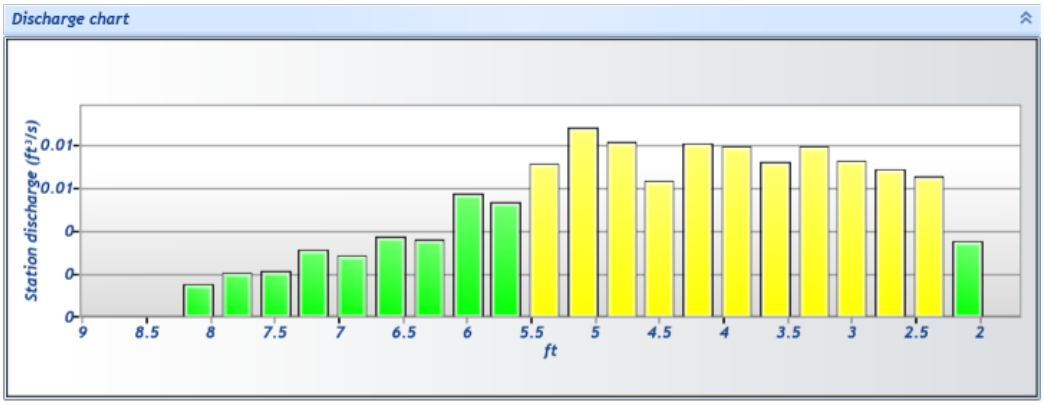
No changes were made to this file
Quality control warnings

Discharge Measurement Summary

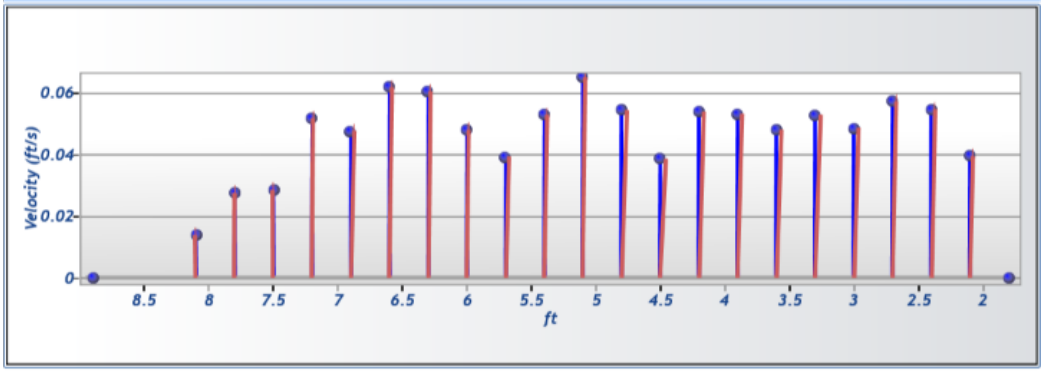
Site name	Monitor
Site number	060921
Operator(s)	Kb
File name	Monitor_20220609-163110.ft
Comment	

Station Warning Settings	
Station discharge OK	Station discharge < 5.000%
Station discharge caution	5.000% >= Station discharge < 10.000%
Station discharge warning	Station discharge >= 10.000%

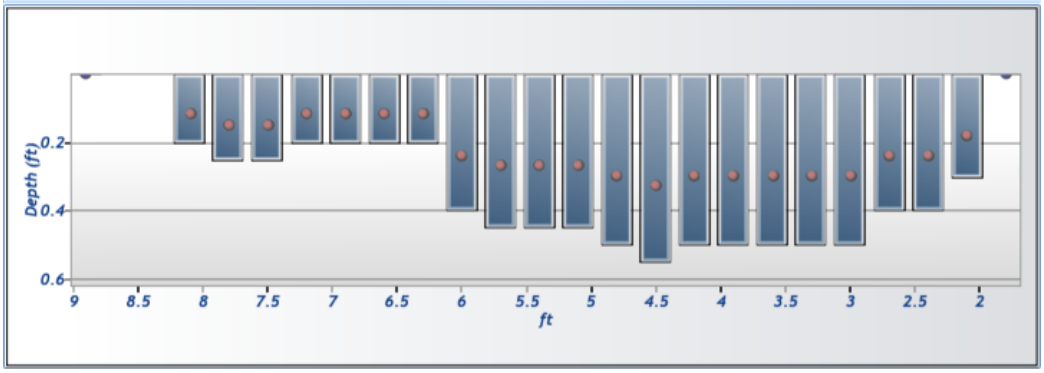
Discharge chart



Velocity chart



Depth chart



Discharge Measurement Summary

Site name	Monitor
Site number	060921
Operator(s)	Kb
File name	Monitor_20220609-163110.ft
Comment	

Measurement results

St#	Time	Location (ft)	Method	Depth (ft)	%Depth	Measured Depth (ft)	Samples	Velocity (ft/s)	Correction	Mean Velocity (ft/s)	Area (ft²)	Flow (ft³/s)	%Q	
0	4:04 PM	1.800	None	0.000	0.000	0.000	0	0.000		0.040	0.000	0.000	0.000	✓
1	4:04 PM	2.100	0.6	0.300	0.600	0.180	80	0.040	1.000	0.040	0.090	0.004	3.065	✓
2	4:06 PM	2.400	0.6	0.400	0.600	0.240	80	0.055	1.000	0.055	0.120	0.007	5.655	✓
3	4:07 PM	2.700	0.6	0.400	0.600	0.240	80	0.057	1.000	0.057	0.120	0.007	5.910	✓
4	4:08 PM	3.000	0.6	0.500	0.600	0.300	80	0.049	1.000	0.049	0.150	0.007	6.288	✓
5	4:10 PM	3.300	0.6	0.500	0.600	0.300	80	0.053	1.000	0.053	0.150	0.008	6.830	✓
6	4:11 PM	3.600	0.6	0.500	0.600	0.300	80	0.048	1.000	0.048	0.150	0.007	6.219	✓
7	4:12 PM	3.900	0.6	0.500	0.600	0.300	80	0.053	1.000	0.053	0.150	0.008	6.872	✓
8	4:13 PM	4.200	0.6	0.500	0.600	0.300	80	0.054	1.000	0.054	0.150	0.008	6.972	✓
9	4:14 PM	4.500	0.6	0.550	0.600	0.330	80	0.039	1.000	0.039	0.165	0.006	5.485	✓
10	4:15 PM	4.800	0.6	0.500	0.600	0.300	80	0.054	1.000	0.054	0.150	0.008	7.025	✓
11	4:16 PM	5.100	0.6	0.450	0.600	0.270	80	0.065	1.000	0.065	0.135	0.009	7.571	✓
12	4:17 PM	5.400	0.6	0.450	0.600	0.270	80	0.053	1.000	0.053	0.135	0.007	6.157	✓
13	4:19 PM	5.700	0.6	0.450	0.600	0.270	80	0.039	1.000	0.039	0.135	0.005	4.581	✓
14	4:20 PM	6.000	0.6	0.400	0.600	0.240	80	0.048	1.000	0.048	0.120	0.006	4.961	✓
15	4:21 PM	6.300	0.6	0.200	0.600	0.120	80	0.060	1.000	0.060	0.060	0.004	3.126	✓
16	4:22 PM	6.600	0.6	0.200	0.600	0.120	80	0.062	1.000	0.062	0.060	0.004	3.196	✓
17	4:24 PM	6.900	0.6	0.200	0.600	0.120	80	0.048	1.000	0.048	0.060	0.003	2.468	✓
18	4:25 PM	7.200	0.6	0.200	0.600	0.120	80	0.052	1.000	0.052	0.060	0.003	2.676	✓
19	4:26 PM	7.500	0.6	0.250	0.600	0.150	80	0.029	1.000	0.029	0.075	0.002	1.845	✓
20	4:28 PM	7.800	0.6	0.250	0.600	0.150	80	0.028	1.000	0.028	0.075	0.002	1.783	✓
21	4:29 PM	8.100	0.6	0.200	0.600	0.120	80	0.014	1.000	0.014	0.110	0.002	1.315	✓
22	4:30 PM	8.900	None	0.000	0.000	0.000	0	0.000		0.014	0.000	0.000	0.000	✓

Discharge Measurement Summary

Site name	Monitor
Site number	060921
Operator(s)	Kb
File name	Monitor_20220609-163110.ft
Comment	

Quality Control Settings	
Maximum depth change	50.000%
Maximum spacing change	100.000%
SNR threshold	10.000 dB
Standard error threshold	0.033 ft/s
Spike threshold	10.000%
Maximum velocity angle	20.000 deg
Maximum tilt angle	5.000 deg

Quality control warnings

St#	Time	Location (ft)	Method	Depth (ft)	%Depth	Measured Depth (ft)	Warnings	
1	4:04 PM	2.100	0.6	0.300	0.600	0.180	Large SNR Variation	
16	4:22 PM	6.600	0.6	0.200	0.600	0.120	Boundary Interference	
19	4:26 PM	7.500	0.6	0.250	0.600	0.150	Boundary Interference	
20	4:28 PM	7.800	0.6	0.250	0.600	0.150	Boundary Interference	
21	4:29 PM	8.100	0.6	0.200	0.600	0.120	Large SNR Variation,SNR Threshold Variation	
22	4:30 PM	8.900	None	0.000	0.000	0.000	Stn Spacing > QC	

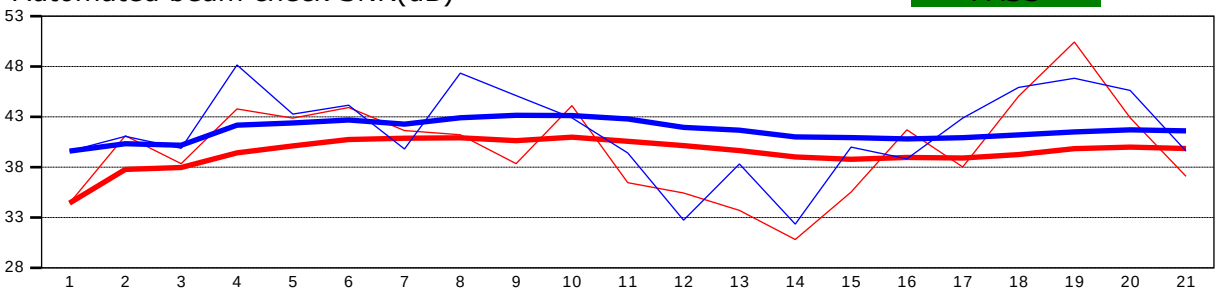
Discharge Measurement Summary

Site name	Monitor
Site number	060921
Operator(s)	Kb
File name	Monitor_20220609-163110.ft
Comment	

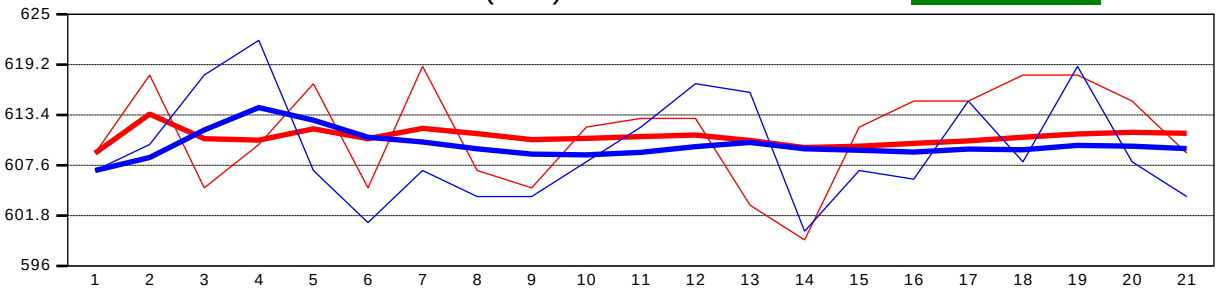
Beam 1	
Beam 2	

Automated beam check Start time 6/9/2022 4:04:08 PM

Automated beam check SNR(dB) PASS



Automated beam check Noise level(cnts) PASS



Automated beam check Quality control warnings

No quality control warnings

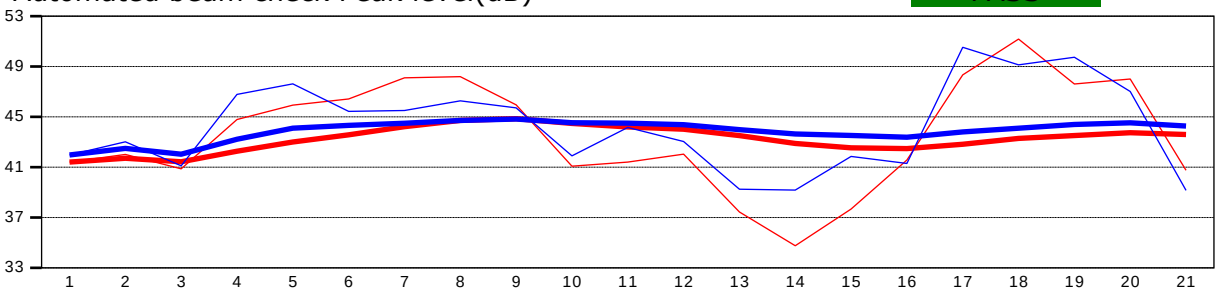
Discharge Measurement Summary

Site name	Monitor
Site number	060921
Operator(s)	Kb
File name	Monitor_20220609-163110.ft
Comment	

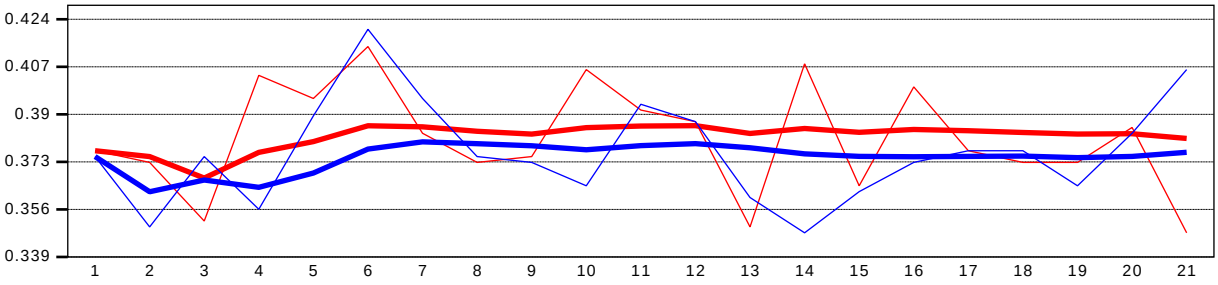
Beam 1	
Beam 2	

Automated beam check Start time 6/9/2022 4:04:08 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	Monitor Creek near confl with Potter Creek
Site number	21062022
Operator(s)	Lfs
File name	Monitor Creek near confl with Potter Creek_20220622-134852.ft
Comment	

Start time	6/22/2022 1:29 PM
End time	6/22/2022 1:42 PM
Start location latitude	38.620
Start location longitude	-108.209
Calculations engine	FlowTracker2

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

# Stations	Avg interval (s)	Total discharge (ft³/s)
12	40	0.0797

Total width (ft)	Total area (ft²)	Wetted Perimeter (ft)
6.000	1.9700	6.142

Mean SNR (dB)	Mean depth (ft)	Mean velocity (ft/s)
21	0.328	0.0405

Mean temp (°F)	Max depth (ft)	Max velocity (ft/s)
78.174	0.500	0.0597

Discharge Uncertainty		
Category	**ISO**	**IVE**
Accuracy	1.0%	1.0%
Depth	0.5%	9.1%
Velocity	0.9%	8.2%
Width	0.2%	0.2%
Method	2.5%	
# Stations	4.2%	
Overall	**5.1%**	**12.3%**

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 %

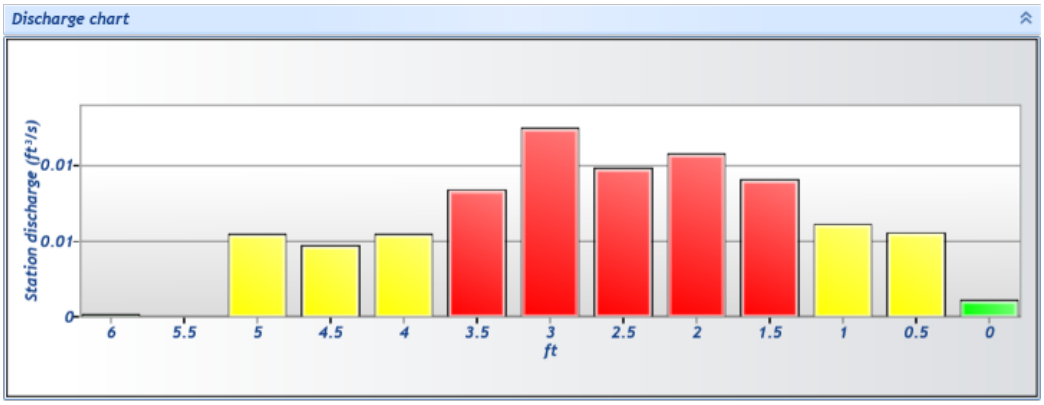
Summary overview

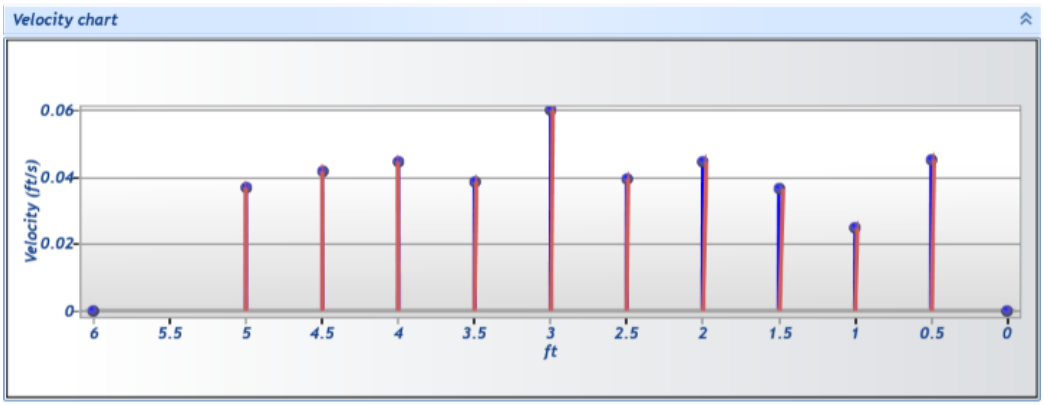
No changes were made to this file
Quality control warnings

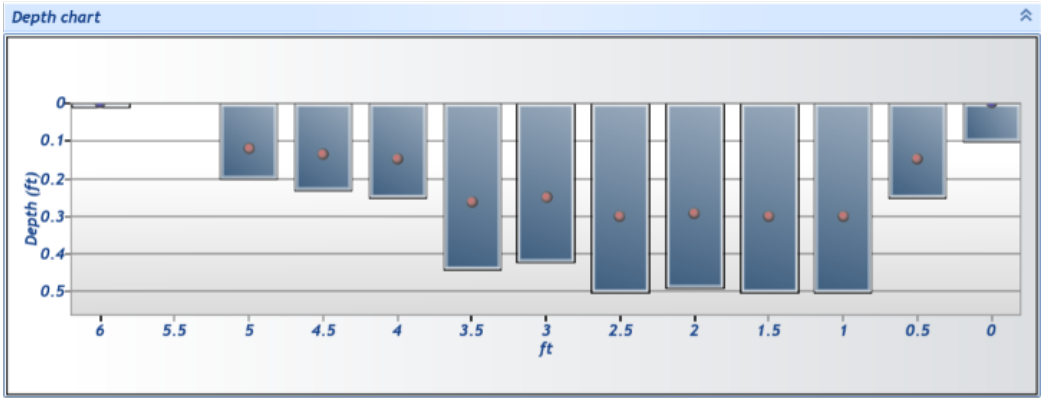
Discharge Measurement Summary

Site name	Monitor Creek near confl with Potter Creek
Site number	21062022
Operator(s)	Lfs
File name	Monitor Creek near confl with Potter Creek_20220622-134852.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	Monitor Creek near confl with Potter Creek
Site number	21062022
Operator(s)	Lfs
File name	Monitor Creek near confl with Potter Creek_20220622-134852.ft
Comment	

Measurement results

St#	Time	Location (ft)	Method	Depth (ft)	%Depth	Measured Depth (ft)	Samples	Velocity (ft/s)	Correction	Mean Velocity (ft/s)	Area (ft²)	Flow (ft³/s)	%Q	
0	1:29 PM	0.000	None	0.100	0.0000	0.000	0	0.0000	1.0000	0.0450	0.0250	0.0011	1.41	✓
1	1:29 PM	0.500	0.6	0.250	0.6000	0.150	80	0.0450	1.0000	0.0450	0.1250	0.0056	7.06	✓
2	1:31 PM	1.000	0.6	0.500	0.6000	0.300	80	0.0246	1.0000	0.0246	0.2500	0.0062	7.73	✓
3	1:32 PM	1.500	0.6	0.500	0.6000	0.300	80	0.0364	1.0000	0.0364	0.2500	0.0091	11.40	✓
4	1:33 PM	2.000	0.6	0.490	0.6000	0.294	80	0.0444	1.0000	0.0444	0.2450	0.0109	13.63	✓
5	1:35 PM	2.500	0.6	0.500	0.6000	0.300	80	0.0394	1.0000	0.0394	0.2500	0.0099	12.36	✓
6	1:36 PM	3.000	0.6	0.420	0.6000	0.252	80	0.0597	1.0000	0.0597	0.2100	0.0125	15.71	✓
7	1:37 PM	3.500	0.6	0.440	0.6000	0.264	80	0.0385	1.0000	0.0385	0.2200	0.0085	10.63	✓
8	1:39 PM	4.000	0.6	0.250	0.6000	0.150	80	0.0443	1.0000	0.0443	0.1250	0.0055	6.95	✓
9	1:40 PM	4.500	0.6	0.230	0.6000	0.138	80	0.0415	1.0000	0.0415	0.1150	0.0048	5.99	✓
10	1:41 PM	5.000	0.6	0.200	0.6000	0.120	80	0.0366	1.0000	0.0366	0.1500	0.0055	6.89	✓
11	1:42 PM	6.000	None	0.010	0.0000	0.000	0	0.0000	1.0000	0.0366	0.0050	0.0002	0.23	✓

Discharge Measurement Summary

Site name	Monitor Creek near confl with Potter Creek
Site number	21062022
Operator(s)	Lfs
File name	Monitor Creek near confl with Potter Creek_20220622-134852.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
3	1:32 PM	1.500	0.6	0.500	0.6000	0.300	High Stn % Discharge
4	1:33 PM	2.000	0.6	0.490	0.6000	0.294	High Stn % Discharge
5	1:35 PM	2.500	0.6	0.500	0.6000	0.300	High Stn % Discharge
6	1:36 PM	3.000	0.6	0.420	0.6000	0.252	High Stn % Discharge
7	1:37 PM	3.500	0.6	0.440	0.6000	0.264	High Stn % Discharge
9	1:40 PM	4.500	0.6	0.230	0.6000	0.138	Boundary Interference
10	1:41 PM	5.000	0.6	0.200	0.6000	0.120	High % Spikes

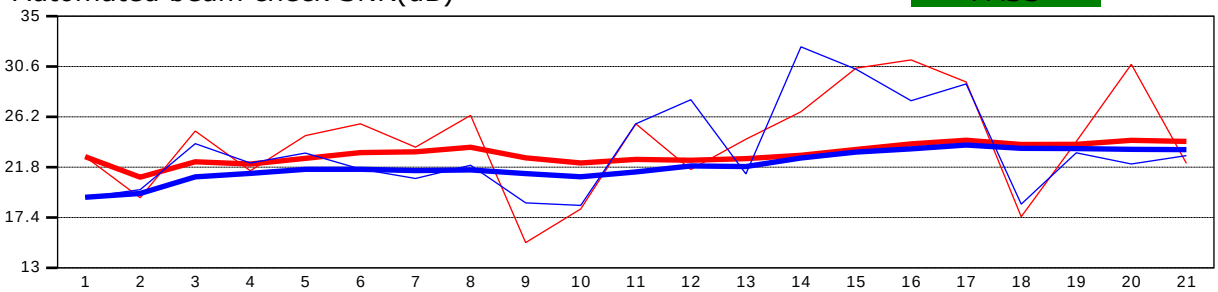
Discharge Measurement Summary

Site name	Monitor Creek near confl with Potter Creek
Site number	21062022
Operator(s)	Lfs
File name	Monitor Creek near confl with Potter Creek_20220622-134852.ft
Comment	

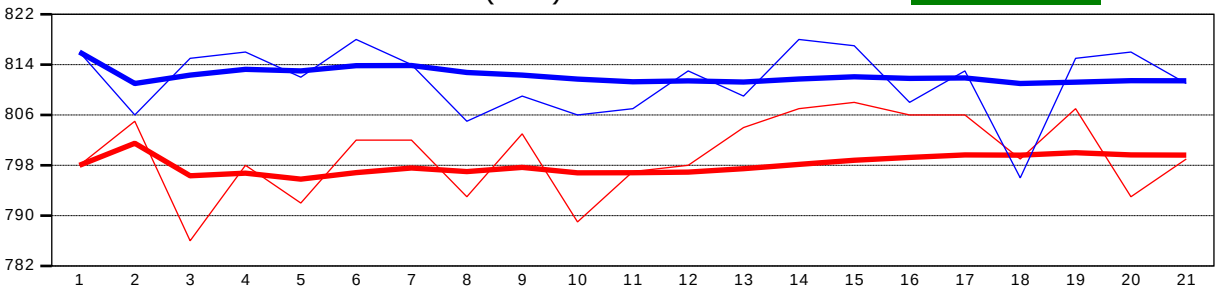
Beam 1	
Beam 2	

Automated beam check Start time 6/22/2022 1:28:23 PM

Automated beam check SNR(dB) PASS



Automated beam check Noise level(cnts) PASS



Automated beam check Quality control warnings
No quality control warnings

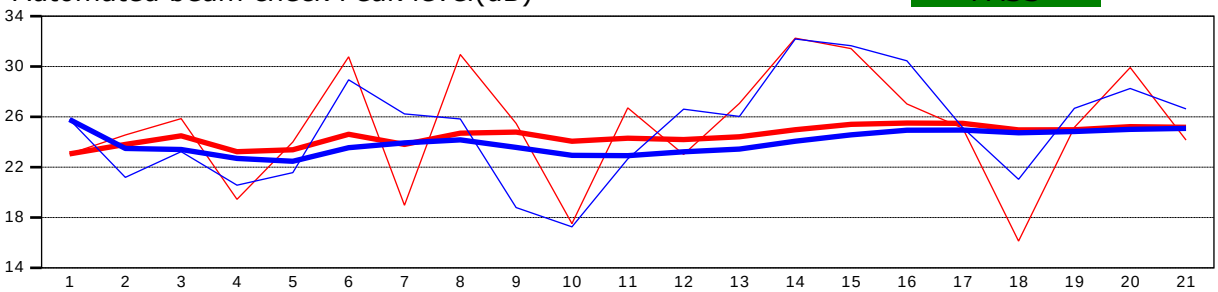
Discharge Measurement Summary

Site name	Monitor Creek near confl with Potter Creek
Site number	21062022
Operator(s)	Lfs
File name	Monitor Creek near confl with Potter Creek_20220622-134852.ft
Comment	

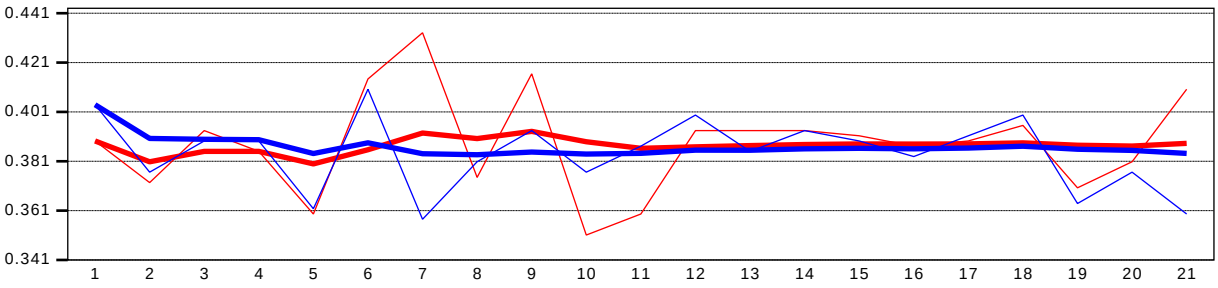
Beam 1	
Beam 2	

Automated beam check Start time 6/22/2022 1:28:23 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

Jack Landers 11/26/2019
Updated: Laura Fields-Sommers 12/14/2022

Monitor Creek temporary stream gage

ISF Segment ID: 18/4/A-003

Location: Approximately 150 feet upstream of the confluence with Potter Creek, UTM coordinates: 13N 220628 4279529

Background: The Monitor Creek streamgage was initially installed in spring of 2017. This stream has a naturally unstable channel and prolonged periods of very low flows interrupted by flashy, high flow events during spring runoff and monsoon storms. The gage has been located at a channel constriction formed by two very large boulders on opposite banks that confine the stream to a single channel, consolidate flows, and form a deep pool ideal for monitoring water level. However, this channel constriction also results in very turbulent flows during spring runoff and summer rainstorms. The gage housing has been dislodged during high flows two times during the period of record and the timeline below outlines the removal and subsequent installation of the gage during this period.

6/8/2017 – Initial gage installation, one measurement occurred prior to this date but flows were too high to install equipment

9/14/2017 – Gage dislodged during high flow event

10/4/2017 – Equipment stopped recording data

3/20/2018 – Installed new gage

3/25/2019 – Data logger batteries died

4/8/2019 - Replaced batteries, memory full, stopped logging around 3/25/2019

4/29/2019 - Gage dislodged during high flow event

5/15/2019 – Installed Onset Hobo U20 water level logger

6/19/2019 – Installed Onset Hobo MX2001 logger to replace U20

7/1/2022 – Gage malfunction, data cut; no apparent large monsoon events showed up in local weather data.

9/15/2022 – Gage stopped recording

Gaps:

9/14/2017 21:00 – 10/4/2017: Gage dislodged with no way to verify or estimate discharge

10/4/2017 – 3/20/2018 21:00 pressure transducer recorded no data.

3/26/2019 3:00 - 4/8/2019 18:00: pressure transducer recorded no data

4/30/2019 00:00 – 5/15/2019 14:30: Gage was washed out by high flow event. Pressure transducer was found downstream on May 3rd. April 29th was estimated to be the day the pressure transducer was dislodged, based on an abrupt change drop in stage reading that likely indicates the transducer was floating. A discharge measurement was taken on May 3rd, but there is no way to use this spot measurement to extrapolate through the missing data due to the stream's flashy nature.

7/1/2020-4/1/2021: Few gage visits due to covid-19, unable to adequately maintain gage. Data was worked up and included, but not used in water availability analysis.

4/5/2021 16:15 – 4/23/2021 16:00: Pressure Transducer did not record data.

Equipment: Onset Hobo MX2001 water level loggers have been used to record water level on 15-minute intervals. An Onset Hobo U20 submersible water level logger was installed for one month on 5/15/2019 to replace the dislodged MX2001 until flows subsided enough to install a new MX2001. The current water level logger installation consists of a 2-inch diameter pvc pipe holding the pressure transducer, secured to the streambed with 2ft metal stakes and buried in the stream bank. The logger cable runs through plastic conduit buried in the bank to a metal t-post secured approximately 6ft from the water's edge and sheltered behind a large boulder. The data logger and barometric pressure transducer are attached to the metal t-post and protected in 2-inch diameter pvc pipe.

Channel type and hydraulic control: The Monitor Creek gage is located approximately 150 feet upstream of the confluence with Potter Creek. Channel gradient is approximately 3-4%, composed of silt and large boulders. The water level logger is located in a large pool scoured by a channel constriction created by two large boulders on opposing banks. The hydraulic control consists of large cobbles and silt at the pool tail. The control remained relatively stable from 2017 through 2018, but changed considerably during 2019 spring flows and several high flow events during summer 2019. Grasses and sedges grew in the channel during late summer and fall of 2019-2022 and affected the control.

Rating curve notes:

Highest flow measured at the gage was 55.13cfs at a stage of 1.22ft on 5/15/2019. Much higher water levels have been recorded on the pressure transducer and backed up by trail camera photos at the gage. Due to dangerous conditions at the site during times when high flows occur, higher measurements were not made. High water marks and three cross sections were surveyed at the gage on 11/3/2021. These cross-sections were used to calculate critical flow between the pinch point created by the rocks at the gage. Calculated flow ranged between 287cfs and 576cfs, with an average of 402cfs. Nearby HEC-RAS modeling was used as a rough comparison for reasonability for the flow calculation.

At a location approximately half a mile upstream calculated bankfull flows at 111cfs with flood discharges at debris locations ranging between 1960cfs and 3885cfs. Drainage area at the survey location is 25.9 square miles, as calculated by StreamStats, 4.2 square miles less than the gage location. There are also two flashy tributaries between the survey location and the gage.

In order to remain conservative, the lowest calculated flow at the high water mark was rounded to one significant figure. The top of the rating is set to 300cfs at the high water mark, stage of 3.37ft.

Rating

A single rating was used with shifts adjusting for changes in the control. The size of the largest shift is small enough to reasonably use the same rating.

Stage (ft)	Discharge (cfs)	Equation
0.39	0.01	----------
1.28	67.09	X = 6.314 * (Y+0.06) ^8.075
3.37	300	X= 42.059* (Y+0.06) ^1.594

Jack Landers 11/26/2019
Updated: Laura Fields-Sommers 12/14/2022

Shifts:

Starts (UTC-7:00)	Ends (UTC -7:00)	Input	Shift	Input	Shift	Input	Shift	Input	Shift
06/08/2017 12:45	07/20/2017 12:45	-0.06	0.00	0.36	-0.1	0.81	-0.1	0.9	-0.12
07/20/2017 13:00	07/21/2017 03:00*	-0.06	0.00	0.67	-0.11				
07/21/2017 03:15	10/04/2017 00:00	-0.06	0.00	0.67	-0.11				
10/4/2017 00:15	03/20/2018 17:45*	-0.06	0.00	0.41	0.07				
03/20/2018 18:00	03/20/2018 08:45*	-0.06	0.00	0.4	0.12	0.41	0.13		
03/21/2018 09:00	06/02/2018 20:45*	-0.06	0.00	0.38	0.05				
06/02/2018 21:00	07/26/2018 20:45	-0.06	0.00	0.38	0.05				
07/26/2018 21:00	03/26/2019 18:00	-0.06	0.00	0.38	0.08				
04/08/2019 01:45	04/09/2019 13:45	-0.06	0.00	0.8	0.07				
04/09/2019 14:00	04/11/2019 09:45*	-0.06	0.00	1.15	-0.13				
04/11/2019 10:00	04/29/2019 01:00	-0.06	0.00	1.15	-0.13				
05/15/2019 14:30	06/15/2019 10:30**	-0.06	0.00	1.2	0.04				
06/12/2019 10:45	08/02/2019 01:00	-0.06	0.00	0.89	0.03				
08/02/2019 01:15	10/17/2019 12:45*	-0.06	0.00	0.57	-0.06				
10/17/2019 13:00	03/04/2020 08:30*	-0.06	0.00	0.66	0.03				
03/04/2020 08:45	04/30/2020 03:45*	-0.06	0.00	0.55	0.13				
04/30/2020 04:00	07/16/2020 15:00	-0.06	0.00	0.55	0.13				
08/28/2020 05:00	10/02/2020 00:45	-0.06	0.00	0.52	0.21				
10/02/2020 01:00	11/14/2020 12:15*	-0.06	0.00	0.63	-0.04				
11/14/2020 12:30	04/08/2021 16:45	-0.06	0.00	0.63	-0.04				
04/08/2021 17:00	09/14/2021 08:45	-0.06	0.00	0.57	-0.12				
09/14/2021 09:00	04/03/2022 12:00	-0.06	0.00	0.35	0.1				
04/03/2022 12:15	04/22/2022 00:00*	-0.06	0.00	1.51	-0.39	1.96	-0.73		
04/22/2022 00:15	06/02/2022 22:00	-0.06	0.00	1.51	-0.39	1.96	-0.73		
06/02/2022 22:15	06/30/2022 23:45	-0.06	0.00	0.36	0.15	0.6	0.00		

*smoothed from prior variable shift curve

** smoothed into post variable shift curve

Jack Landers 11/26/2019
Updated: Laura Fields-Sommers 12/14/2022

Resolved Questions

	DATE(Qs), initials	QUESTION	RESOLUTION	Date (resolution)
1	11/30/2021, KS	11/1/17 through 2/1/18 data was missing from 30 min data. Why? Should they all be null values?	There is no gage height data during this period. The logger did not record pressure during this period.	4/5/2022, LFS
2	11/30/2021, KS	Check the daily average vs. average of 30 min data for 4/19/19 - 4/22/19. They are not aligning. How come?	They are not aligning because aquarius has something funky going on with the time stamp	1/22/2022, LFS
3	11/30/21, ks	In the check tab, Column L, I have highlighted areas of discrepency. Can you provide some explanation to them? Some might be general tranducer noise, or ice affected, but it would be helpful to have notes in these areas	Aquarius is a black box. This version was not meant to be used to calculate daily average. Therefore we should be using CoHMS daily average or excel calculating from Aquarius 15/30min data. In the future, until we all switch to the full Aquarius, we should workup stage 15min data in aquarius and upload the corrected stage data to CoHMS. The CoHMS wll calculate 15min and Daily avg Q	1/22/2022, LFS
4	11/30/21, KS	9/14/17 has a HUGE jump in flow (over 200 cfs in an hour, both increase and decrease), do you think this is correct?	Could be a real thing, but the data looks questionable and then stops a month later. We have no evidence of a real peak or information on what happened here. Therefore I don't trust it and cut it.	4/5/2022, LFS
5	11/30/21, KS	Correct hydrograph to start on 6/8/17 (or 6/9/17 since it is the first full day, your preference) for Daily average	complete	4/5/2022, LFS
6	11/30/21, KS	Correct hydrograph to encompass 2021 data for both daily avg and 15 min data	complete, tho not including 15min data	4/5/2022, LFS
7	11/30/21, KS	I think the tab Spring2020CloseUp should be Spring2019CloseUp, is that correct?	Corrected the tab name	4/5/2022, LFS
8	11/30/21, KS	I think it would be helpful if you made notes in this doc about the top of rating. Maybe just add a column to 15minQ and DailyAvgQ and for values of 300, note "top of rating". Additionally in the notes column, you might be able to add explanation to other descrepencies noted in question 3 above	Notes on the top of the rating are in the gage summary.	4/5/2022, LFS
9	11/30/21, KS	Seems to be something weird happening 7/27/19. Must have been a big rain event, but averages are not matching. Can you check into this?	It was a rain event, we have photographic evidence of the big event and based the top of the rating on the high water mark caprutred during this event.	4/5/2022, LFS
10	11/30/21, KS	In DailyAvgQ, please add header similar to 15minQ that shows export date. I think its helpful to have that for version control.	complete	4/5/2022, LFS

Jack Landers 11/26/2019
Updated: Laura Fields-Sommers 12/14/2022

Photos:

Gage installation (6/19/2019). Onset Hobo MX2001 pressure transducer located at foot of staff gage in center of photo. Cable buried in conduit in bank to vertical pvc pipe behind bush on left edge of large boulder. Right side of photo is upstream.

Jack Landers 11/26/2019
Updated: Laura Fields-Sommers 12/14/2022

Control looking downstream on 6/19/2019. Staff gage is on right bank, right edge of photo. Standing between the two large boulders that form gage pool and constrict flow, looking downstream at control.

Jack Landers 11/26/2019
Updated: Laura Fields-Sommers 12/14/2022

Control looking upstream on 7/31/2019. Previous photo (6/19/2019) taken looking downstream from two large boulders in upper half of this photo. Gage located upstream between the two large boulders in upper half of photo.

Jack Landers 11/26/2019
Updated: Laura Fields-Sommers 12/14/2022

Control looking upstream on 10/17/2019. Grasses and sedges have grown in channel since previous visit. Gage located upstream between the two large boulders in upper half of photo.

Jack Landers 11/26/2019
Updated: Laura Fields-Sommers 12/14/2022

Monitor Creek temporary stream gage

ISF Segment ID: 18/4/A-003

Location: Approximately 150 feet upstream of the confluence with Potter Creek, UTM coordinates: 13N 220628 4279529

Background: The Monitor Creek streamgage was initially installed in spring of 2017. This stream has a naturally unstable channel and prolonged periods of very low flows interrupted by flashy, high flow events during spring runoff and monsoon storms. The gage has been located at a channel constriction formed by two very large boulders on opposite banks that confine the stream to a single channel, consolidate flows, and form a deep pool ideal for monitoring water level. However, this channel constriction also results in very turbulent flows during spring runoff and summer rainstorms. The gage housing has been dislodged during high flows two times during the period of record and the timeline below outlines the removal and subsequent installation of the gage during this period.

6/8/2017 – Initial gage installation, one measurement occurred prior to this date but flows were too high to install equipment

9/14/2017 – Gage dislodged during high flow event

10/4/2017 – Equipment stopped recording data

3/20/2018 – Installed new gage

3/25/2019 – Data logger batteries died

4/8/2019 - Replaced batteries, memory full, stopped logging around 3/25/2019

4/29/2019 - Gage dislodged during high flow event

5/15/2019 – Installed Onset Hobo U20 water level logger

6/19/2019 – Installed Onset Hobo MX2001 logger to replace U20

7/1/2022 – Gage malfunction, data cut; no apparent large monsoon events showed up in local weather data.

9/15/2022 – Gage stopped recording

Gaps:

9/14/2017 21:00 – 10/4/2017: Gage dislodged with no way to verify or estimate discharge

10/4/2017 – 3/20/2018 21:00 pressure transducer recorded no data.

3/26/2019 3:00 - 4/8/2019 18:00: pressure transducer recorded no data

4/30/2019 00:00 – 5/15/2019 14:30: Gage was washed out by high flow event. Pressure transducer was found downstream on May 3rd. April 29th was estimated to be the day the pressure transducer was dislodged, based on an abrupt change drop in stage reading that likely indicates the transducer was floating. A discharge measurement was taken on May 3rd, but there is no way to use this spot measurement to extrapolate through the missing data due to the stream's flashy nature.

7/1/2020-4/1/2021: Few gage visits due to covid-19, unable to adequately maintain gage. Data was worked up and included, but not used in water availability analysis.

4/5/2021 16:15 – 4/23/2021 16:00: Pressure Transducer did not record data.

Equipment: Onset Hobo MX2001 water level loggers have been used to record water level on 15-minute intervals. An Onset Hobo U20 submersible water level logger was installed for one month on 5/15/2019 to replace the dislodged MX2001 until flows subsided enough to install a new MX2001. The current water level logger installation consists of a 2-inch diameter pvc pipe holding the pressure transducer, secured to the streambed with 2ft metal stakes and buried in the stream bank. The logger cable runs through plastic conduit buried in the bank to a metal t-post secured approximately 6ft from the water's edge and sheltered behind a large boulder. The data logger and barometric pressure transducer are attached to the metal t-post and protected in 2-inch diameter pvc pipe.

Channel type and hydraulic control: The Monitor Creek gage is located approximately 150 feet upstream of the confluence with Potter Creek. Channel gradient is approximately 3-4%, composed of silt and large boulders. The water level logger is located in a large pool scoured by a channel constriction created by two large boulders on opposing banks. The hydraulic control consists of large cobbles and silt at the pool tail. The control remained relatively stable from 2017 through 2018, but changed considerably during 2019 spring flows and several high flow events during summer 2019. Grasses and sedges grew in the channel during late summer and fall of 2019-2022 and affected the control.

Rating curve notes:

Highest flow measured at the gage was 55.13cfs at a stage of 1.22ft on 5/15/2019. Much higher water levels have been recorded on the pressure transducer and backed up by trail camera photos at the gage. Due to dangerous conditions at the site during times when high flows occur, higher measurements were not made. High water marks and three cross sections were surveyed at the gage on 11/3/2021. These cross-sections were used to calculate critical flow between the pinch point created by the rocks at the gage. Calculated flow ranged between 287cfs and 576cfs, with an average of 402cfs. Nearby HEC-RAS modeling was used as a rough comparison for reasonability for the flow calculation.

At a location approximately half a mile upstream calculated bankfull flows at 111cfs with flood discharges at debris locations ranging between 1960cfs and 3885cfs. Drainage area at the survey location is 25.9 square miles, as calculated by StreamStats, 4.2 square miles less than the gage location. There are also two flashy tributaries between the survey location and the gage.

In order to remain conservative, the lowest calculated flow at the high water mark was rounded to one significant figure. The top of the rating is set to 300cfs at the high water mark, stage of 3.37ft.

Rating

A single rating was used with shifts adjusting for changes in the control. The size of the largest shift is small enough to reasonably use the same rating.

Stage (ft)	Discharge (cfs)	Equation
0.39	0.01	----------
1.28	67.09	X = 6.314 * (Y+0.06) ^8.075
3.37	300	X= 42.059* (Y+0.06) ^1.594

Jack Landers 11/26/2019
Updated: Laura Fields-Sommers 12/14/2022

Shifts:

Starts (UTC-7:00)	Ends (UTC -7:00)	Input	Shift	Input	Shift	Input	Shift	Input	Shift
06/08/2017 12:45	07/20/2017 12:45	-0.06	0.00	0.36	-0.1	0.81	-0.1	0.9	-0.12
07/20/2017 13:00	07/21/2017 03:00*	-0.06	0.00	0.67	-0.11				
07/21/2017 03:15	10/04/2017 00:00	-0.06	0.00	0.67	-0.11				
10/4/2017 00:15	03/20/2018 17:45*	-0.06	0.00	0.41	0.07				
03/20/2018 18:00	03/20/2018 08:45*	-0.06	0.00	0.4	0.12	0.41	0.13		
03/21/2018 09:00	06/02/2018 20:45*	-0.06	0.00	0.38	0.05				
06/02/2018 21:00	07/26/2018 20:45	-0.06	0.00	0.38	0.05				
07/26/2018 21:00	03/26/2019 18:00	-0.06	0.00	0.38	0.08				
04/08/2019 01:45	04/09/2019 13:45	-0.06	0.00	0.8	0.07				
04/09/2019 14:00	04/11/2019 09:45*	-0.06	0.00	1.15	-0.13				
04/11/2019 10:00	04/29/2019 01:00	-0.06	0.00	1.15	-0.13				
05/15/2019 14:30	06/15/2019 10:30**	-0.06	0.00	1.2	0.04				
06/12/2019 10:45	08/02/2019 01:00	-0.06	0.00	0.89	0.03				
08/02/2019 01:15	10/17/2019 12:45*	-0.06	0.00	0.57	-0.06				
10/17/2019 13:00	03/04/2020 08:30*	-0.06	0.00	0.66	0.03				
03/04/2020 08:45	04/30/2020 03:45*	-0.06	0.00	0.55	0.13				
04/30/2020 04:00	07/16/2020 15:00	-0.06	0.00	0.55	0.13				
08/28/2020 05:00	10/02/2020 00:45	-0.06	0.00	0.52	0.21				
10/02/2020 01:00	11/14/2020 12:15*	-0.06	0.00	0.63	-0.04				
11/14/2020 12:30	04/08/2021 16:45	-0.06	0.00	0.63	-0.04				
04/08/2021 17:00	09/14/2021 08:45	-0.06	0.00	0.57	-0.12				
09/14/2021 09:00	04/03/2022 12:00	-0.06	0.00	0.35	0.1				
04/03/2022 12:15	04/22/2022 00:00*	-0.06	0.00	1.51	-0.39	1.96	-0.73		
04/22/2022 00:15	06/02/2022 22:00	-0.06	0.00	1.51	-0.39	1.96	-0.73		
06/02/2022 22:15	06/30/2022 23:45	-0.06	0.00	0.36	0.15	0.6	0.00		

*smoothed from prior variable shift curve

** smoothed into post variable shift curve

Jack Landers 11/26/2019
Updated: Laura Fields-Sommers 12/14/2022

Resolved Questions

	DATE(Qs), initials	QUESTION	RESOLUTION	Date (resolution)
1	11/30/2021, KS	11/1/17 through 2/1/18 data was missing from 30 min data. Why? Should they all be null values?	There is no gage height data during this period. The logger did not record pressure during this period.	4/5/2022, LFS
2	11/30/2021, KS	Check the daily average vs. average of 30 min data for 4/19/19 - 4/22/19. They are not aligning. How come?	They are not aligning because aquarius has something funky going on with the time stamp	1/22/2022, LFS
3	11/30/21, ks	In the check tab, Column L, I have highlighted areas of discrepency. Can you provide some explanation to them? Some might be general tranducer noise, or ice affected, but it would be helpful to have notes in these areas	Aquarius is a black box. This version was not meant to be used to calculate daily average. Therefore we should be using CoHMS daily average or excel calculating from Aquarius 15/30min data. In the future, until we all switch to the full Aquarius, we should workup stage 15min data in aquarius and upload the corrected stage data to CoHMS. The CoHMS wll calculate 15min and Daily avg Q	1/22/2022, LFS
4	11/30/21, KS	9/14/17 has a HUGE jump in flow (over 200 cfs in an hour, both increase and decrease), do you think this is correct?	Could be a real thing, but the data looks questionable and then stops a month later. We have no evidence of a real peak or information on what happened here. Therefore I don't trust it and cut it.	4/5/2022, LFS
5	11/30/21, KS	Correct hydrograph to start on 6/8/17 (or 6/9/17 since it is the first full day, your preference) for Daily average	complete	4/5/2022, LFS
6	11/30/21, KS	Correct hydrograph to encompass 2021 data for both daily avg and 15 min data	complete, tho not including 15min data	4/5/2022, LFS
7	11/30/21, KS	I think the tab Spring2020CloseUp should be Spring2019CloseUp, is that correct?	Corrected the tab name	4/5/2022, LFS
8	11/30/21, KS	I think it would be helpful if you made notes in this doc about the top of rating. Maybe just add a column to 15minQ and DailyAvgQ and for values of 300, note "top of rating". Additionally in the notes column, you might be able to add explanation to other descrepencies noted in question 3 above	Notes on the top of the rating are in the gage summary.	4/5/2022, LFS
9	11/30/21, KS	Seems to be something weird happening 7/27/19. Must have been a big rain event, but averages are not matching. Can you check into this?	It was a rain event, we have photographic evidence of the big event and based the top of the rating on the high water mark caprutred during this event.	4/5/2022, LFS
10	11/30/21, KS	In DailyAvgQ, please add header similar to 15minQ that shows export date. I think its helpful to have that for version control.	complete	4/5/2022, LFS

Jack Landers 11/26/2019
Updated: Laura Fields-Sommers 12/14/2022

Photos:

Gage installation (6/19/2019). Onset Hobo MX2001 pressure transducer located at foot of staff gage in center of photo. Cable buried in conduit in bank to vertical pvc pipe behind bush on left edge of large boulder. Right side of photo is upstream.

Jack Landers 11/26/2019
Updated: Laura Fields-Sommers 12/14/2022

Control looking downstream on 6/19/2019. Staff gage is on right bank, right edge of photo. Standing between the two large boulders that form gage pool and constrict flow, looking downstream at control.

Jack Landers 11/26/2019
Updated: Laura Fields-Sommers 12/14/2022

Control looking upstream on 7/31/2019. Previous photo (6/19/2019) taken looking downstream from two large boulders in upper half of this photo. Gage located upstream between the two large boulders in upper half of photo.

Jack Landers 11/26/2019
Updated: Laura Fields-Sommers 12/14/2022

Control looking upstream on 10/17/2019. Grasses and sedges have grown in channel since previous visit. Gage located upstream between the two large boulders in upper half of photo.

Colorado Bureau of Land Management

Macroinvertebrate Survey

Project	BLM_AdminState	District	FieldOffice
CO_SouthwestDO	CO	SOUTHWEST DISTRICT OFFICE	UNCOMPAHGRE FIELD OFFICE

FieldEvalDate	StreamName	RecordID	ProtocolType
6/3/2018	MONITOR CREEK	SW-TR-1459_2018-06-04	Wadeable

StreamOrder	FieldStatus	ProtocolReachLength	DefaultBenchmarkGroup
2	Interrupted Flow	150	EasternXericBasin_SmallWadeable

TopReachLatitude	TopReachLongitude	SampledMidLatitude	SampledMidLongitude
38.615751	-108.215578	38.616264	-108.215318

BottomReachLatitude	BottomReachLongitude	x	y
38.616593	-108.214672	-12046475.29	4666853.656

EvaluationID	EvaluationID_OLD	PointID	PointSelectionType
SW-TR-1459_2018-06-04	418750BD-5A08-4D69-A951-DD2977585081	SW-TR-1459	Targeted

CoreSubset	Supplementals	OriginalDesign	OriginalStratum
No			NA

HumanInfluence	PctOverheadCover	PctBankOverheadCover	PctNoxiousWoodySpecies
LandfillTrash, PastureHayFence, Recreation	33.7	77	

PctNativeWoodySpecies	PctNoxiousHerbSpecies	PctSedgeRushSpecies	GreenlineVegComposition
			No

VegComplexity	VegComplexityWoody	VegComplexityUnderstoryGround	Sinuosity
0.67	0.48	0.46	1.23

PctSlope	PctDry	ThalwegDepthAvg	TotalDepth
2.27	13	0.08	0.66

WaterWithdrawals	SideChannels	ChannelIncision	FloodplainConnectivity
Absent	Absent	-0.61	1.19

ThalwegDepthCV	BankfullWidthAvg	WettedWidthAvg	BankAngleAvg
	4.2	0.87	

BankfullHeightAvg	BenchHeightAvg
0.58	0.72

PoolCount	PctPools	PoolFreq	ResPoolDepthAvg
3	15.35	28.6	0.23

LgWoodInChanCount	LgWoodAboveChanVol	LgWoodInChanFreq	LgWoodInChanVol
0		0	0

LgWoodAboveChanCount	LgWoodAboveChanFreq	EntrenchmentRiffle1	EntrenchmentRiffle2
		2.77	1.56

D16	D84	D50	GeometricMeanParticleDiam
1	60	1	5

PctBankStable	PctBankCoveredStableMIM	PctBankCoveredOld	PctBankCoveredStableOld
40		36	29

PctFinesLessThan2mm	PctFinesLessThan6mm	PctPoolTailFines LessThan2mm	PctPoolTailFinesLess Than6mm
55.1	60.4		

PctBankCoveredMIM	InstreamHabitatComplexity	BeaverFlowMod	BeaverSigns
	0.32	None	Absent

PredictedTotalNitrogen	TotalNitrogen	PredictedTotalPhosphorous	TotalPhosphorous
172.1	1570.6	25.3	290.8

InstantTemp	AugTempAvg	TurbidityAvg	pH
27.2	18.46		7.88

PredictedSpecificConductance	SpecificConductance
322.1	490

ExpectedInvertRichness	OE_Macroinvertebrate	MMI_Macroinvertebrate	OE_MMI_ModelUsed
		46.5	CO-EDAS2017 - Biotype 1

PctEquisetumSpecies	InvasiveInvertSpecies	ObservedInvertRichness
	Absent	

OE_MMI_ModelApplicability	MacroinvertebrateCount
	25

Protocol Link:

http://aim.landscapetoolbox.org/wp-content/uploads/2020/11/Lotic_FieldProtocolForWadeableSystems_2018_FieldSeason.pdf

Photo Link:

https://gis.blm.doi.net/attachments/AIM/Lotic/CO/SW-TR-1459_2018-06-04/