
***Lake Thunderbird TMDL Monitoring Plan Implementation:
Sample Year (SY) 2018- June Report***



SY2018 Monthly Report

Lake Thunderbird TMDL Monitoring Plan Implementation:

June 2018 Monitoring Report

Oklahoma Water Resources Board
Water Quality Programs Division
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SUMMARY OF JUNE WATER QUALITY SAMPLING

Sampling for June 2018 occurred on the fifth and was considered a base flow collection. Water samples were collected at all ten locations, and discharge was measured at seven locations. Mesonet data shows 0.05 inches of precipitation occurring on the fifth, no precipitation in the 72 hours prior to sampling, and 1.65 inches of precipitation in the 72 hours after the sampling event. One stormwater sample was collected via autosampler at LDB-1, as well as a discharge measurement on the twenty-fifth of June. Mesonet data shows 1.26 inches of precipitation occurring on the twenty-fifth, 2.63 inches of precipitation occurring in the 72 hours prior to sampling, and no precipitation occurring in the 72 hours after sampling. The total rainfall amount in Norman for the month of June was 6.55 inches. All water level gauges were operational for the month, with the exception of LT-1 and CC-1 as a result of road construction activity.

RESULTS

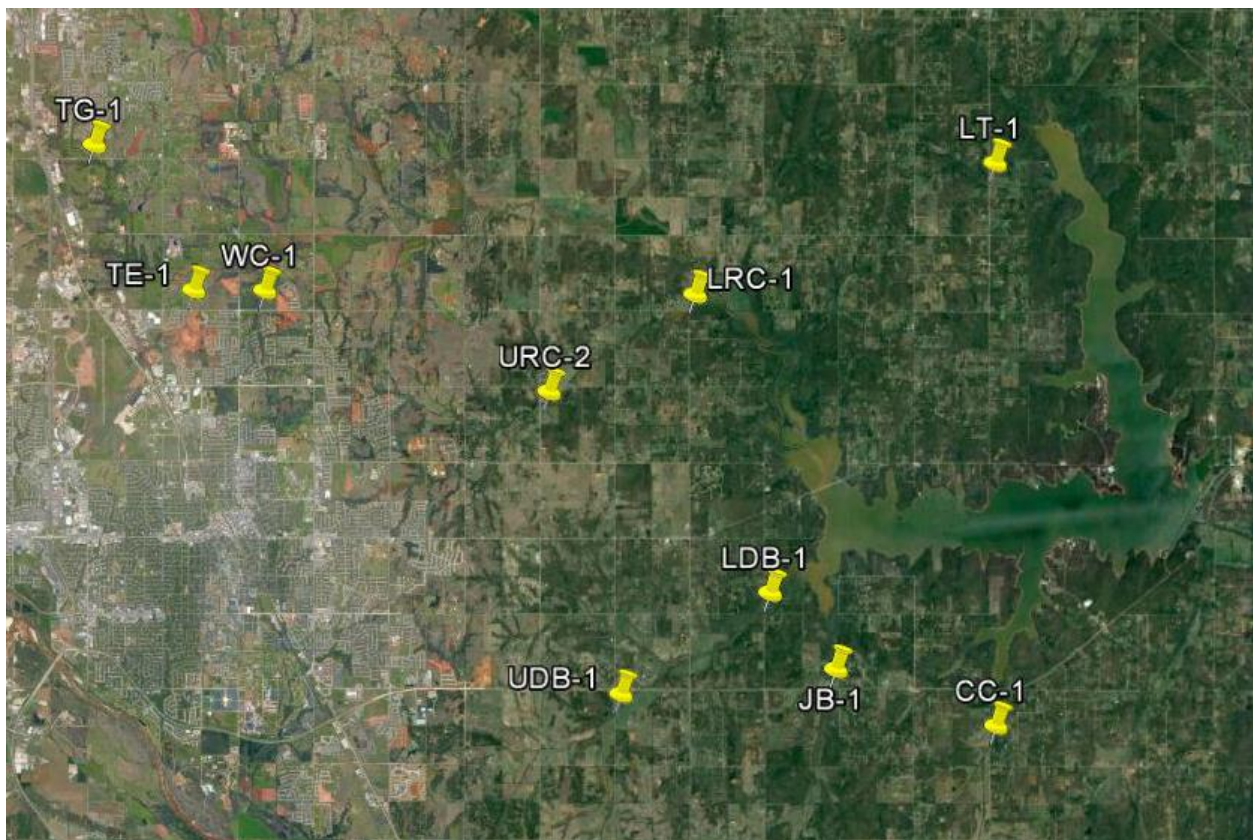


Figure 1 Monitoring Station Map

Field Data Form

Field Measurement Record

Reviewed By: JM

Station	Date	Time	Field Crew	Temp C°	DO mg/L	SpC µS	pH	Turb (NTU)	Notes
cc-1	6/5/2018	9:20	SD	20.8	7.1	710.0	7.9	7.0	road construction activity, trees/brush on ds rew have been removed, road over culvert removed
lt-1	6/5/2018	8:15	SD	23.2	3.8	545.0	7.8	57.0	disconnected from us at culvert. Sampled in large pool on ds side
jb-1	6/5/2018	10:10	SD	21.3	1.8	994.0	7.6	4.0	
udb-1	6/5/2018	10:30	SD	21.4	6.8	849.0	8.0	71.0	looks about base flow conditions, but water is turbid
ldb-1	6/5/2018	11:35	SD	25.6	5.4	686.0	8.0	50.0	no visible surface flow
tg-1	6/5/2018	15:30	SD	27.3	10.8	705.0	8.2	12.0	
te-1	6/5/2018	14:50	SD	26.0	9.4	928.0	7.8	9.0	
wc-1	6/5/2018	14:10	SD	25.7	9.3	862.0	7.7	37.0	
lrc-1	6/5/2018	12:20	SD	24.7	5.9	703.0	7.7	25.0	orifice completely out of water
urc-2	6/5/2018	13:05	SD	23.2	4.6	675.0	7.4	14.0	
ldb-1	6/25/2018	4:15	SD	N/A	N/A	256.0	7.8	497.0	Autosampler collected T1 at 18.017. After flow td=17.995

Table 1 Field Data Form

Site Name	TKN (mg/L)	Nitrate/Nitrite (mg/L)	TP (mg/L)	TSS (mg/L)
TG-1	0.41	0.06	0.048	13.0
CC-1	0.44	0.34	0.093	<5.0
JB-1	0.60	<0.05	0.110	6.0
UDB-1	0.51	0.15	0.091	56.0
LDB-1	0.94	<0.05	0.103	44.0
LRC-1	0.48	<0.05	0.070	25.0
URC-2	1.14	<0.05	0.114	14.0
WC-1	0.35	<0.05	0.069	9.0
TE-1	3.84	<0.05	0.030	9.0
LT-1	1.10	<0.05	0.080	58.0
LDB-1 (6/25/18)	1.59	0.27	0.315	265

Table 2 Laboratory Analysis Summary

Site Name	TKN	Nitrate/Nitrite	TP	TSS
Field Blank	<0.10 mg/L	<0.05 mg/L	<0.010 mg/L	<5.0 mg/L
Duplicate	0.44 mg/L	0.33 mg/L	0.093 mg/L	5.0 mg/L
Duplicate RPD	0%	0.44%	0%	0%

Table 3 QA/QC Data

Quality assurance/quality control (QA/QC) of the data includes a field blank and duplicate sample from each collection event, and is qualified by the OWRB. Relative Percent Difference (RPD) of the duplicate sample can be categorized into four levels, where Level 1 likely has no QA issues and Level 4 has major QA issues, and should be used with caution.

SITE	TG-1	CC-1	JB-1	UDB-1	LDB-1	LRC-1	URC-2	WC-1	TE-1	LT-1	LDB-1 (6/25/18)
STAGE (ft)	9.24	0.68	16.58	17.63	16.75	17.25	11.55	8.42	11.53	N/A	18.03
DISCHARGE (ft ³ /s)	2.35	0.36	0	1.61	0	0.12	0	0.02	0	0	80.08

Table 4 Station Discharge Summary

Discharge Measurement Summary

Date Generated: Wed Jun 6 2018

File Information		Site Details	
File Name	WC0605.WAD	Site Name	WC
Start Date and Time	2018/06/05 11:18:22	Operator(s)	JW

System Information		Units (English Units)		Discharge Uncertainty		
Sensor Type	FlowTracker	Distance	ft	Category	ISO	Stats
Serial #	P4709	Velocity	ft/s	Accuracy	1.0%	1.0%
CPU Firmware Version	3.9	Area	ft^2	Depth	1.8%	11.6%
Software Ver	2.30	Discharge	cfs	Velocity	27.0%	135.6%
Mounting Correction	0.0%			Width	0.8%	0.8%
				Method	11.6%	-
				# Stations	4.2%	-
				Overall	29.8%	136.1%

Summary			
Averaging Int.	40	# Stations	12
Start Edge	LEW	Total Width	12.000
Mean SNR	38.8 dB	Total Area	6.400
Mean Temp	79.63 °F	Mean Depth	0.533
Disch. Equation	Mid-Section	Mean Velocity	0.0030
		Total Discharge	0.0193

Supplemental Data					
#	Time	Location	Gauge Height	Rated Flow	Comments
1	Tue Jun 5 11:07:51 CDT 2018	0.000	8.420		

Measurement Results												
St	Clock	Loc	Method	Depth	%Dep	MeasD	Vel	CorrFact	MeanV	Area	Flow	%Q
0	11:18	0.00	None	0.000	0.0	0.0	0.0000	1.00	0.0000	0.000	0.0000	0.0
1	11:18	1.50	0.6	0.300	0.6	0.120	-0.0003	1.00	-0.0003	0.300	-0.0001	-0.5
2	11:19	2.00	0.6	0.400	0.6	0.160	-0.0128	1.00	-0.0128	0.300	-0.0038	-19.9
3	11:20	3.00	0.6	0.500	0.6	0.200	0.0125	1.00	0.0125	0.500	0.0062	32.3
4	11:22	4.00	0.6	0.400	0.6	0.160	0.0180	1.00	0.0180	0.400	0.0072	37.3
5	11:23	5.00	0.6	0.400	0.6	0.160	0.0131	1.00	0.0131	0.400	0.0052	27.2
6	11:24	6.00	0.6	0.500	0.6	0.200	0.0066	1.00	0.0066	0.500	0.0033	17.0
7	11:25	7.00	0.6	0.700	0.6	0.280	0.0184	1.00	0.0184	0.700	0.0129	66.6
8	11:26	8.00	0.6	0.800	0.6	0.320	0.0161	1.00	0.0161	0.800	0.0129	66.5
9	11:27	9.00	0.6	1.000	0.6	0.400	-0.0200	1.00	-0.0200	1.000	-0.0200	-103.6
10	11:28	10.00	0.6	1.000	0.6	0.400	-0.0030	1.00	-0.0030	1.500	-0.0044	-22.9
11	11:28	12.00	None	0.000	0.0	0.0	0.0000	1.00	0.0000	0.000	0.0000	0.0

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

Figure 2 Discharge Summary WC-1

Discharge Measurement Summary

Date Generated: Wed Jun 6 2018

File Information

File Name URC0605.WAD
Start Date and Time 2018/06/05 10:13:23

Site Details

Site Name URC
Operator(s) JW

System Information

Sensor Type FlowTracker
Serial # P4709
CPU Firmware Version 3.9
Software Ver 2.30
Mounting Correction 0.0%

Units (English Units)

Distance ft
Velocity ft/s
Area ft²
Discharge cfs

Discharge Uncertainty

Category	ISO	Stats
Accuracy	1.0%	1.0%
Depth	3.9%	80.7%
Velocity	65.6%	289.2%
Width	1.6%	1.6%
Method	24.3%	-
# Stations	6.6%	-
Overall	70.4%	300.2%

Summary

Averaging Int. 40 # Stations 8
Start Edge LEW Total Width 8.000
Mean SNR 46.8 dB Total Area 5.350
Mean Temp 78.52 °F Mean Depth 0.669
Disch. Equation Mid-Section Mean Velocity -0.0012
Total Discharge -0.0063

Measurement Results

St	Clock	Loc	Method	Depth	%Dep	MeasD	Vel	CorrFact	MeanV	Area	Flow	%Q
0	10:13	0.00	None	0.000	0.0	0.0	0.0000	1.00	0.0000	0.000	0.0000	0.0
<i>1</i>	<i>10:14</i>	<i>1.00</i>	<i>0.6</i>	<i>0.600</i>	<i>0.6</i>	<i>0.240</i>	<i>-0.0007</i>	<i>1.00</i>	<i>-0.0007</i>	<i>0.600</i>	<i>-0.0004</i>	<i>6.3</i>
2	10:16	2.00	0.6	0.900	0.6	0.360	-0.0043	1.00	-0.0043	0.900	-0.0038	61.0
3	10:13	3.00	0.6	0.800	0.6	0.320	-0.0184	1.00	-0.0184	0.800	-0.0147	233.4
4	10:18	4.00	0.6	0.600	0.6	0.240	-0.0059	1.00	-0.0059	0.600	-0.0035	56.3
5	10:19	5.00	0.6	1.100	0.6	0.440	0.0115	1.00	0.0115	1.100	0.0126	-200.6
6	10:20	6.00	0.6	0.900	0.6	0.360	0.0026	1.00	0.0026	1.350	0.0035	-56.3
7	10:20	8.00	None	0.000	0.0	0.0	0.0000	1.00	0.0000	0.000	0.0000	0.0

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

Figure 3 Discharge Summary URC-2

Discharge Measurement Summary

Date Generated: Wed Jun 6 2018

File Information

File Name UDB0605.WAD
Start Date and Time 2018/06/05 07:54:45

Site Details

Site Name UDB
Operator(s) JW

System Information

Sensor Type FlowTracker
Serial # P4709
CPU Firmware Version 3.9
Software Ver 2.30
Mounting Correction 0.0%

Units (English Units)

Distance ft
Velocity ft/s
Area ft²
Discharge cfs

Discharge Uncertainty

Category	ISO	Stats
Accuracy	1.0%	1.0%
Depth	0.4%	3.6%
Velocity	0.9%	5.1%
Width	0.1%	0.1%
Method	1.8%	-
# Stations	2.4%	-
Overall	3.3%	6.3%

Summary

Averaging Int. 40 # Stations 21
Start Edge LEW Total Width 11.000
Mean SNR 35.7 dB Total Area 6.550
Mean Temp 70.07 °F Mean Depth 0.595
Disch. Equation Mid-Section Mean Velocity 0.2464
Total Discharge 1.6136

Supplemental Data

#	Time	Location	Gauge Height	Rated Flow	Comments
1	Tue Jun 5 08:20:13 CDT 2018	11.000	17.630		

Measurement Results

St	Clock	Loc	Method	Depth	%Dep	MeasD	Vel	CorrFact	MeanV	Area	Flow	%Q
0	07:54	0.00	None	0.000	0.0	0.0	0.0000	1.00	0.0000	0.000	0.0000	0.0
1	07:54	1.00	0.6	0.700	0.6	0.280	0.3182	1.00	0.3182	0.525	0.1671	10.4
2	07:55	1.50	0.6	0.900	0.6	0.360	0.2080	1.00	0.2080	0.450	0.0936	5.8
3	07:57	2.00	0.6	0.900	0.6	0.360	0.1824	1.00	0.1824	0.450	0.0821	5.1
4	07:58	2.50	0.6	0.900	0.6	0.360	0.2257	1.00	0.2257	0.450	0.1016	6.3
5	07:59	3.00	0.6	0.900	0.6	0.360	0.0728	1.00	0.0728	0.450	0.0328	2.0
6	08:00	3.50	0.6	0.900	0.6	0.360	0.3028	1.00	0.3028	0.450	0.1363	8.4
7	08:01	4.00	0.6	0.700	0.6	0.280	0.2986	1.00	0.2986	0.350	0.1045	6.5
8	08:02	4.50	0.6	0.800	0.6	0.320	0.3156	1.00	0.3156	0.400	0.1262	7.8
9	08:03	5.00	0.6	0.600	0.6	0.240	0.3261	1.00	0.3261	0.300	0.0978	6.1
10	08:04	5.50	0.6	0.400	0.6	0.160	0.3251	1.00	0.3251	0.200	0.0650	4.0
11	08:05	6.00	0.6	0.400	0.6	0.160	0.2979	1.00	0.2979	0.200	0.0596	3.7
12	08:06	6.50	0.6	0.400	0.6	0.160	0.3041	1.00	0.3041	0.200	0.0608	3.8
13	08:07	7.00	0.6	0.500	0.6	0.200	0.2877	1.00	0.2877	0.250	0.0719	4.5
14	08:08	7.50	0.6	0.400	0.6	0.160	0.2979	1.00	0.2979	0.200	0.0596	3.7
15	08:09	8.00	0.6	0.800	0.6	0.320	0.2198	1.00	0.2198	0.400	0.0879	5.4
16	08:10	8.50	0.6	0.800	0.6	0.320	0.1900	1.00	0.1900	0.400	0.0760	4.7
17	08:11	9.00	0.6	0.800	0.6	0.320	0.1709	1.00	0.1709	0.400	0.0684	4.2
18	08:12	9.50	0.6	0.500	0.6	0.200	0.2031	1.00	0.2031	0.250	0.0508	3.1
19	08:13	10.00	0.6	0.300	0.6	0.120	0.3189	1.00	0.3189	0.225	0.0717	4.4
20	08:13	11.00	None	0.000	0.0	0.0	0.0000	1.00	0.0000	0.000	0.0000	0.0

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

Figure 4 Discharge Summary UDB-1

Discharge Measurement Summary

Date Generated: Wed Jun 6 2018

File Information

File Name TG605.WAD
Start Date and Time 2018/06/05 12:44:36

Site Details

Site Name LITTLE RIV TG
Operator(s) JW

System Information

Sensor Type FlowTracker
Serial # P4709
CPU Firmware Version 3.9
Software Ver 2.30
Mounting Correction 0.0%

Units (English Units)

Distance ft
Velocity ft/s
Area ft²
Discharge cfs

Discharge Uncertainty

Category	ISO	Stats
Accuracy	1.0%	1.0%
Depth	0.3%	1.6%
Velocity	0.5%	1.3%
Width	0.1%	0.1%
Method	1.7%	-
# Stations	2.0%	-
Overall	2.9%	2.3%

Summary

Averaging Int.	40	# Stations	25
Start Edge	LEW	Total Width	15.000
Mean SNR	27.2 dB	Total Area	7.900
Mean Temp	80.66 °F	Mean Depth	0.527
Disch. Equation	Mid-Section	Mean Velocity	0.2977
		Total Discharge	2.3517

Supplemental Data

#	Time	Location	Gauge Height	Rated Flow	Comments
1	Tue Jun 5 12:47:33 CDT 2018	4.500	9.240		

Measurement Results

St	Clock	Loc	Method	Depth	%Dep	MeasD	Vel	CorrFact	MeanV	Area	Flow	%Q
0	12:44	0.00	None	0.000	0.0	0.0	0.0000	1.00	0.0000	0.000	0.0000	0.0
1	12:45	1.50	0.6	0.400	0.6	0.160	0.2270	1.00	0.2270	0.400	0.0908	3.9
2	12:46	2.00	0.6	0.500	0.6	0.200	0.2795	1.00	0.2795	0.250	0.0699	3.0
3	12:47	2.50	0.6	0.500	0.6	0.200	0.3415	1.00	0.3415	0.250	0.0854	3.6
4	12:48	3.00	0.6	0.500	0.6	0.200	0.3015	1.00	0.3015	0.250	0.0754	3.2
5	12:50	3.50	0.6	0.700	0.6	0.280	0.2743	1.00	0.2743	0.350	0.0960	4.1
6	12:51	4.00	0.6	0.800	0.6	0.320	0.3448	1.00	0.3448	0.400	0.1379	5.9
7	12:52	4.50	0.6	0.800	0.6	0.320	0.3855	1.00	0.3855	0.400	0.1542	6.6
8	12:53	5.00	0.6	0.700	0.6	0.280	0.4364	1.00	0.4364	0.350	0.1528	6.5
9	12:53	5.50	0.6	0.900	0.6	0.360	0.3983	1.00	0.3983	0.450	0.1792	7.6
10	12:54	6.00	0.6	0.900	0.6	0.360	0.3537	1.00	0.3537	0.450	0.1591	6.8
11	12:56	6.50	0.6	0.900	0.6	0.360	0.3638	1.00	0.3638	0.450	0.1637	7.0
12	12:57	7.00	0.6	0.800	0.6	0.320	0.3596	1.00	0.3596	0.400	0.1438	6.1
13	12:57	7.50	0.6	0.800	0.6	0.320	0.3294	1.00	0.3294	0.400	0.1317	5.6
14	12:58	8.00	0.6	0.800	0.6	0.320	0.3054	1.00	0.3054	0.400	0.1222	5.2
15	12:59	8.50	0.6	0.700	0.6	0.280	0.3094	1.00	0.3094	0.350	0.1083	4.6
16	13:00	9.00	0.6	0.700	0.6	0.280	0.2746	1.00	0.2746	0.350	0.0961	4.1
17	13:01	9.50	0.6	0.700	0.6	0.280	0.2441	1.00	0.2441	0.350	0.0854	3.6
18	13:02	10.00	0.6	0.600	0.6	0.240	0.2470	1.00	0.2470	0.300	0.0741	3.2
19	13:03	10.50	0.6	0.500	0.6	0.200	0.2080	1.00	0.2080	0.250	0.0520	2.2
20	13:04	11.00	0.6	0.500	0.6	0.200	0.1929	1.00	0.1929	0.250	0.0482	2.1
21	13:05	11.50	0.6	0.400	0.6	0.160	0.2018	1.00	0.2018	0.200	0.0403	1.7
22	13:06	12.00	0.6	0.400	0.6	0.160	0.1811	1.00	0.1811	0.200	0.0362	1.5
23	13:06	12.50	0.6	0.300	0.6	0.120	0.1086	1.00	0.1086	0.450	0.0488	2.1
24	13:06	15.00	None	0.000	0.0	0.0	0.0000	1.00	0.0000	0.000	0.0000	0.0

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

Figure 5 Discharge Summary TG-1

Discharge Measurement Summary

Date Generated: Wed Jun 6 2018

File Information

File Name TE0605.WAD
 Start Date and Time 2018/06/05 12:04:24

Site Details

Site Name TE
 Operator(s) JW

System Information

Sensor Type FlowTracker
 Serial # P4709
 CPU Firmware Version 3.9
 Software Ver 2.30
 Mounting Correction 0.0%

Units (English Units)

Distance ft
 Velocity ft/s
 Area ft²
 Discharge cfs

Discharge Uncertainty

Category	ISO	Stats
Accuracy	1.0%	1.0%
Depth	2.9%	30.9%
Velocity	42.9%	181.5%
Width	1.0%	1.0%
Method	14.7%	-
# Stations	5.8%	-
Overall	45.8%	184.1%

Summary

Averaging Int. 40 # Stations 9
 Start Edge LEW Total Width 8.000
 Mean SNR 46.0 dB Total Area 5.300
 Mean Temp 80.28 °F Mean Depth 0.662
 Disch. Equation Mid-Section Mean Velocity -0.0025
Total Discharge -0.0132

Supplemental Data

#	Time	Location	Gauge Height	Rated Flow	Comments
1	Tue Jun 5 12:09:30 CDT 2018	5.000	11.530		

Measurement Results

St	Clock	Loc	Method	Depth	%Dep	MeasD	Vel	CorrFact	MeanV	Area	Flow	%Q
0	12:04	0.00	None	0.000	0.0	0.0	0.0000	1.00	0.0000	0.000	0.0000	0.0
1	12:04	1.00	0.6	0.400	0.6	0.160	-0.0292	1.00	-0.0292	0.400	-0.0117	88.6
2	12:05	2.00	0.6	0.900	0.6	0.360	-0.0157	1.00	-0.0157	0.900	-0.0142	107.5
3	12:07	3.00	0.6	0.900	0.6	0.360	0.0092	1.00	0.0092	0.900	0.0083	-62.7
4	12:08	4.00	0.6	0.900	0.6	0.360	0.0059	1.00	0.0059	0.900	0.0053	-40.3
5	12:09	5.00	0.6	0.800	0.6	0.320	0.0092	1.00	0.0092	0.800	0.0073	-55.7
6	12:10	6.00	0.6	0.800	0.6	0.320	-0.0157	1.00	-0.0157	0.800	-0.0126	95.5
7	12:11	7.00	0.6	0.600	0.6	0.240	0.0072	1.00	0.0072	0.600	0.0043	-32.8
8	12:11	8.00	None	0.000	0.0	0.0	0.0000	1.00	0.0000	0.000	0.0000	0.0

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

Figure 6 Discharge Summary TE-1

Discharge Measurement Summary

Date Generated: Wed Jun 6 2018

File Information

File Name LRC0605.WAD
Start Date and Time 2018/06/05 09:27:38

Site Details

Site Name LRC
Operator(s) JW

System Information

Sensor Type FlowTracker
Serial # P4709
CPU Firmware Version 3.9
Software Ver 2.30
Mounting Correction 0.0%

Units (English Units)

Distance ft
Velocity ft/s
Area ft²
Discharge cfs

Discharge Uncertainty

Category	ISO	Stats
Accuracy	1.0%	1.0%
Depth	0.5%	3.7%
Velocity	8.3%	58.3%
Width	0.3%	0.3%
Method	3.8%	-
# Stations	3.1%	-
Overall	9.8%	58.4%

Summary

Averaging Int.	40	# Stations	16
Start Edge	LEW	Total Width	15.000
Mean SNR	46.0 dB	Total Area	14.500
Mean Temp	76.18 °F	Mean Depth	0.967
Disch. Equation	Mid-Section	Mean Velocity	0.0085
		Total Discharge	0.1228

Supplemental Data

#	Time	Location	Gauge Height	Rated Flow	Comments
1	Tue Jun 5 09:44:43 CDT 2018	15.000	17.250		

Measurement Results

St	Clock	Loc	Method	Depth	%Dep	MeasD	Vel	CorrFact	MeanV	Area	Flow	%Q
0	09:27	0.00	None	0.000	0.0	0.0	0.0000	1.00	0.0000	0.000	0.0000	0.0
1	09:27	1.00	0.6	0.400	0.6	0.160	0.0164	1.00	0.0164	0.400	0.0066	5.3
2	09:30	2.00	0.6	0.800	0.6	0.320	0.0246	1.00	0.0246	0.800	0.0197	16.0
3	09:29	3.00	0.6	1.000	0.6	0.400	0.0184	1.00	0.0184	1.000	0.0184	15.0
4	09:31	4.00	0.6	1.100	0.6	0.440	0.0135	1.00	0.0135	1.100	0.0148	12.1
5	09:33	5.00	0.6	1.400	0.6	0.560	0.0105	1.00	0.0105	1.400	0.0147	12.0
6	09:34	6.00	0.6	1.600	0.6	0.640	-0.0079	1.00	-0.0079	1.600	-0.0126	-10.3
7	09:35	7.00	0.6	1.500	0.6	0.600	0.0226	1.00	0.0226	1.500	0.0340	27.7
8	09:36	8.00	0.6	1.400	0.6	0.560	-0.0023	1.00	-0.0023	1.400	-0.0032	-2.6
9	09:37	9.00	0.6	1.200	0.6	0.480	0.0194	1.00	0.0194	1.200	0.0232	18.9
10	09:38	10.00	0.6	1.100	0.6	0.440	-0.0010	1.00	-0.0010	1.100	-0.0011	-0.9
11	09:39	11.00	0.6	0.800	0.6	0.320	0.0095	1.00	0.0095	0.800	0.0076	6.2
12	09:40	12.00	0.6	0.800	0.6	0.320	0.0226	1.00	0.0226	0.800	0.0181	14.7
13	09:41	13.00	0.6	0.800	0.6	0.320	-0.0276	1.00	-0.0276	0.800	-0.0220	-18.0
14	09:43	14.00	0.6	0.600	0.6	0.240	0.0079	1.00	0.0079	0.600	0.0047	3.8
15	09:43	15.00	None	0.000	0.0	0.0	0.0000	1.00	0.0000	0.000	0.0000	0.0

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

Figure 7 Discharge Summary LRC-1

Discharge Measurement Summary

Date Generated: Wed Jun 6 2018

File Information

File Name CC0605.WAD
Start Date and Time 2018/06/05 06:43:30

Site Details

Site Name C C
Operator(s) JW

System Information

Sensor Type FlowTracker
Serial # P4709
CPU Firmware Version 3.9
Software Ver 2.30
Mounting Correction 0.0%

Units (English Units)

Distance ft
Velocity ft/s
Area ft²
Discharge cfs

Discharge Uncertainty

Category	ISO	Stats
Accuracy	1.0%	1.0%
Depth	0.5%	2.3%
Velocity	2.5%	17.1%
Width	0.2%	0.2%
Method	2.7%	-
# Stations	3.1%	-
Overall	5.0%	17.2%

Summary

Averaging Int.	40	# Stations	16
Start Edge	LEW	Total Width	9.000
Mean SNR	34.1 dB	Total Area	3.024
Mean Temp	68.92 °F	Mean Depth	0.336
Disch. Equation	Mid-Section	Mean Velocity	0.1195
		Total Discharge	0.3615

Supplemental Data

#	Time	Location	Gauge Height	Rated Flow	Comments
1	Tue Jun 5 07:01:18 CDT 2018	9.000	0.680		

Measurement Results

St	Clock	Loc	Method	Depth	%Dep	MeasD	Vel	CorrFact	MeanV	Area	Flow	%Q
0	06:43	0.00	None	0.000	0.0	0.0	0.0000	1.00	0.0000	0.000	0.0000	0.0
1	06:43	1.00	0.6	0.300	0.6	0.120	-0.0082	1.00	-0.0082	0.225	-0.0018	-0.5
2	06:44	1.50	0.6	0.300	0.6	0.120	0.0046	1.00	0.0046	0.150	0.0007	0.2
3	06:45	2.00	0.6	0.300	0.6	0.120	0.0686	1.00	0.0686	0.150	0.0103	2.8
4	06:46	2.50	0.6	0.300	0.6	0.120	0.1834	1.00	0.1834	0.150	0.0275	7.6
5	06:47	3.00	0.6	0.300	0.6	0.120	0.2628	1.00	0.2628	0.150	0.0394	10.9
6	06:48	3.50	0.6	0.300	0.6	0.120	0.1703	1.00	0.1703	0.150	0.0255	7.1
7	06:49	4.00	0.6	0.300	0.6	0.120	0.1614	1.00	0.1614	0.150	0.0242	6.7
8	06:50	4.50	0.6	0.300	0.6	0.120	0.2339	1.00	0.2339	0.150	0.0351	9.7
9	06:50	5.00	0.6	0.300	0.6	0.120	0.1388	1.00	0.1388	0.150	0.0208	5.8
10	06:51	5.50	0.6	0.400	0.6	0.160	0.3704	1.00	0.3704	0.200	0.0741	20.5
11	06:52	6.00	0.6	0.500	0.6	0.200	0.3094	1.00	0.3094	0.250	0.0773	21.4
12	06:53	6.50	0.6	0.500	0.6	0.200	0.0886	1.00	0.0886	0.250	0.0221	6.1
13	06:54	7.00	0.6	0.600	0.6	0.240	-0.0033	1.00	-0.0033	0.300	-0.0010	-0.3
14	06:56	7.50	0.6	0.600	0.6	0.240	0.0121	1.00	0.0121	0.600	0.0073	2.0
15	06:56	9.00	None	0.000	0.0	0.0	0.0000	1.00	0.0000	0.000	0.0000	0.0

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

Figure 8 Discharge Summary CC-1

Station Number:
Station Name: lowerdaveblue

Meas. No: 1
Date: 06/25/2018

Party: sd lo	Width: 46.5 ft	Processed by:
Boat/Motor:	Area: 172 ft ²	Mean Velocity: 0.465 ft/s
Gage Height: 18.03 ft	G.H.Change: 0.000 ft	Discharge: 80.1 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.270 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.: 10	Adj. Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (0.0°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth: Composite (BT)	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:		ADCP:
BT 3-Beam Solution: YES	Max. Vel.: 10.7 ft/s	Type/Freq.: RiverRay / 0 kHz
WT 3-Beam Solution: YES	Max. Depth: 6.13 ft	Serial #: 645650 Firmware: 44.16
BT Error Vel.: 3.28 ft/s	Mean Depth: 3.71 ft	Bin Size: 50 cm Blank: 50 cm
WT Error Vel.: 32.81 ft/s	% Meas.: 49.91	BT Mode: 0 BT Pings: 1
BT Up Vel.: 32.81 ft/s	Water Temp.: None	WT Mode: 1 WT Pings: 1
WT Up Vel.: 32.81 ft/s	ADCP Temp.: 71.5 °F	WV : 170
Use Weighted Mean Depth: YES		

Performed Diag. Test: NO
Performed Moving Bed Test: NO
Performed Compass Calibration: NO Evaluation: NO
Meas. Location:

Project Name: lowerdave0625_1.mmt
Software: 2.17

Tr.#	Edge Distance		#Ens.	Discharge						Width	Area	Time		Mean Vel.		% Bad		
	L	R		Top	Middle	Bottom	Left	Right	Total			Start	End	Boat	Water	Ens.	Bins	
000	R	3	3	125	17.9	42.4	17.2	-0.177	1.52	78.8	47	179	14:43	14:45	0.61	0.44	40	0
001	L	3	3	95	19.0	37.3	18.6	0.494	2.58	77.9	49	173	14:45	14:46	0.72	0.45	42	0
003	L	3	3	94	17.3	39.8	18.1	0.141	1.20	76.5	44	168	14:47	14:48	0.73	0.46	34	0
005	L	3	3	79	20.0	41.0	18.9	0.671	1.94	82.5	44	167	14:49	14:50	0.83	0.50	39	0
007	L	3	3	95	23.2	39.3	19.2	1.52	1.38	84.6	49	176	14:52	14:53	0.68	0.48	39	1
Mean		3	3	97	19.5	40.0	18.4	0.530	1.72	80.1	47	172	Total	00:09	0.71	0.46	39	0
SDev		0	0	17	2.31	1.90	0.796	0.642	0.551	3.38	2.5	5.3			0.08	0.02		
SD/M		0.00	0.00	0.17	0.12	0.05	0.04	1.21	0.32	0.04	0.05	0.03			0.11	0.05		

Figure 9 Discharge Summary LDB-1

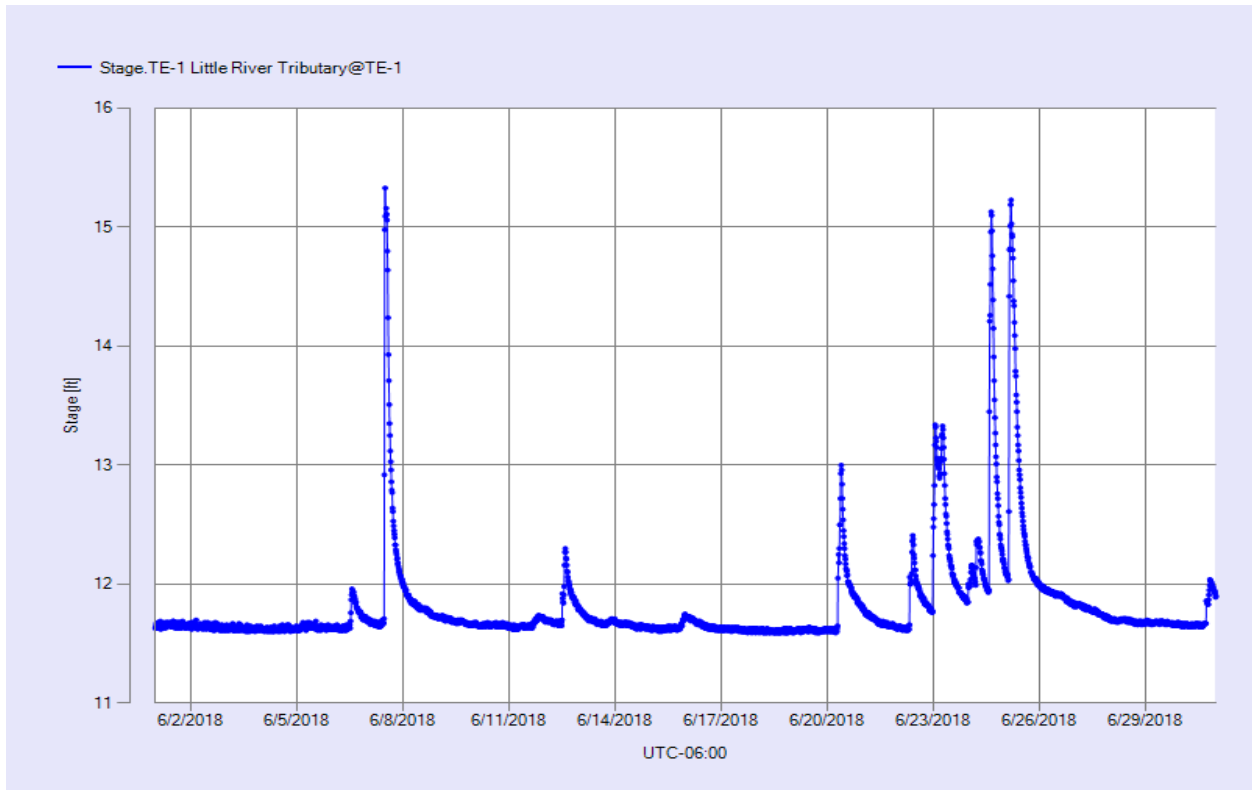


Figure 10 Monthly Hydrograph TE-1

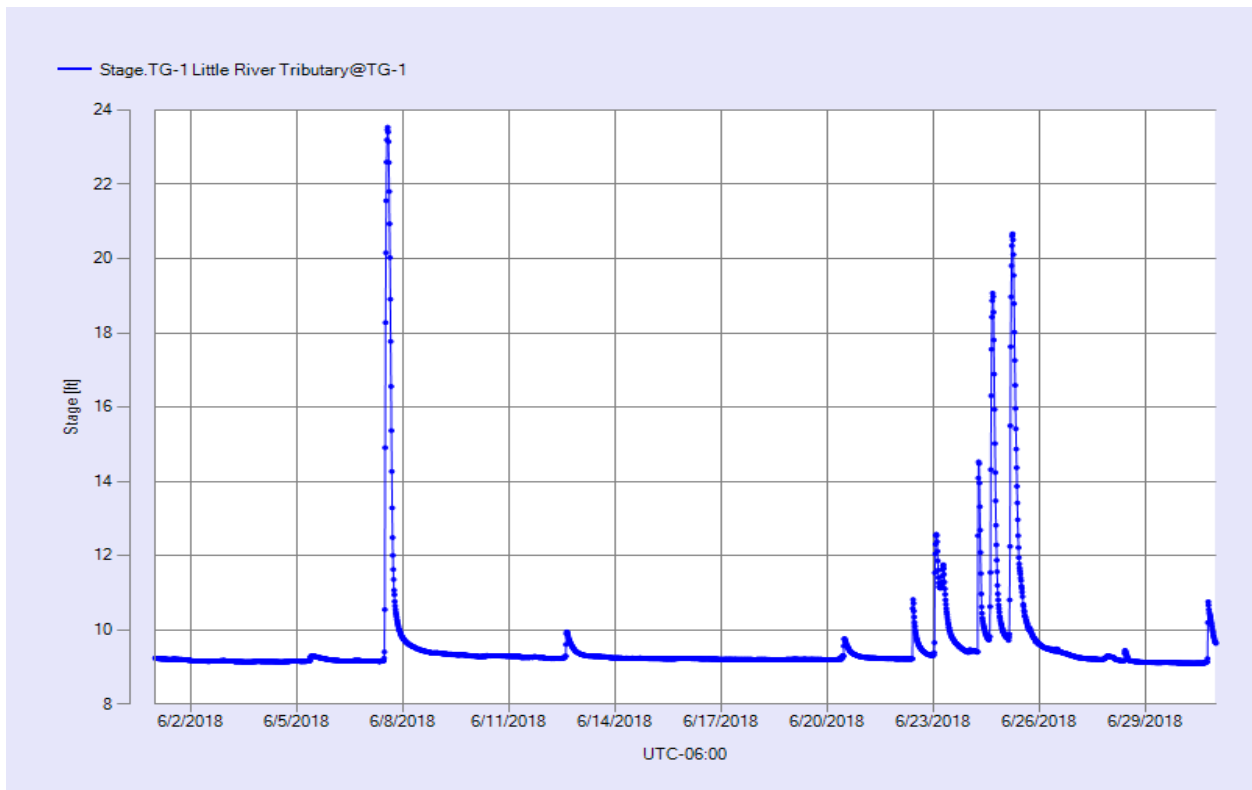


Figure 11 Monthly Hydrograph TG-1

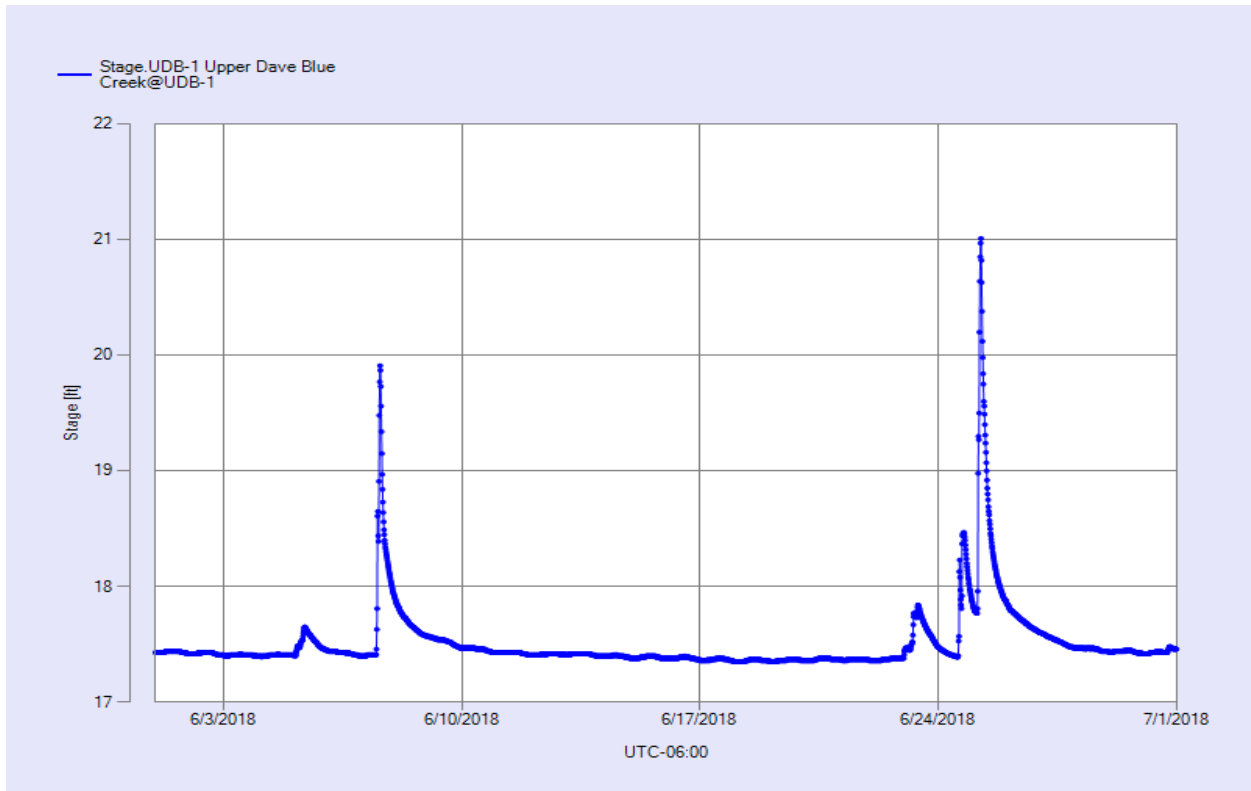


Figure 12 Monthly Hydrograph UDB-1

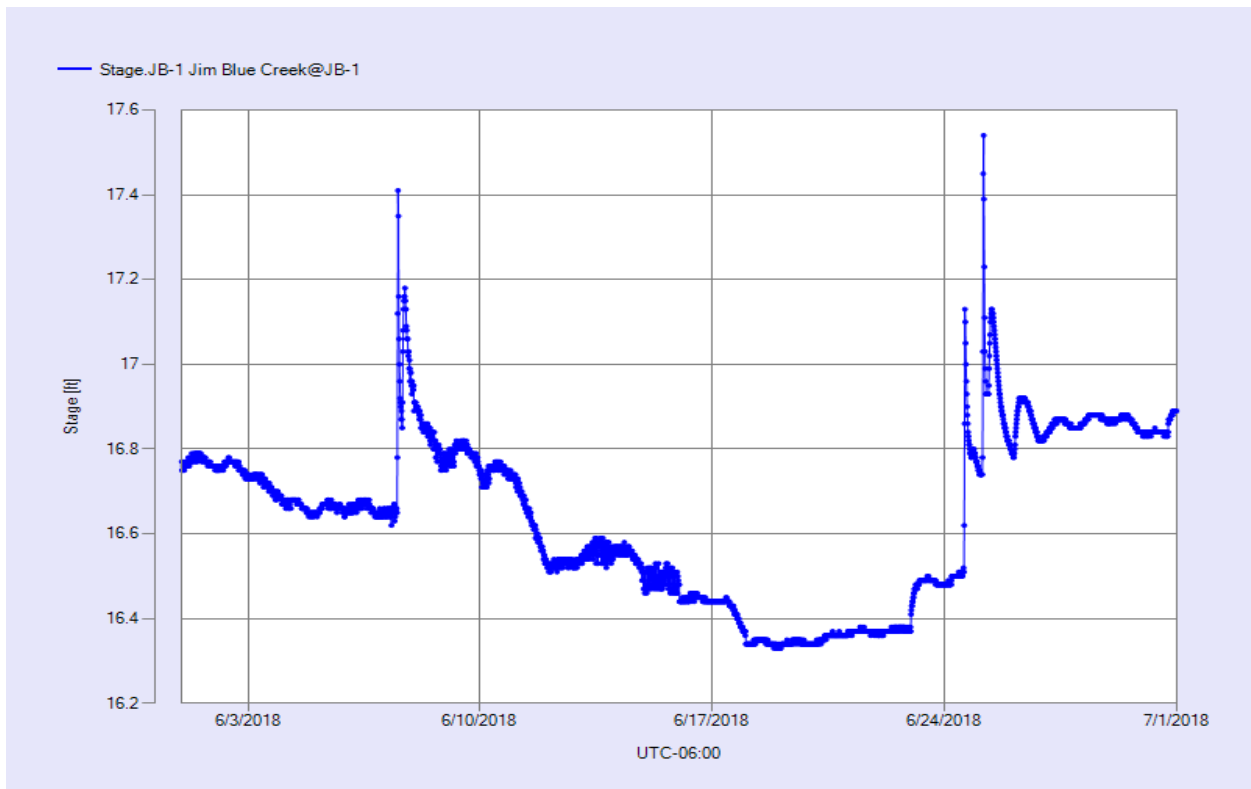


Figure 13 Monthly Hydrograph JB-1

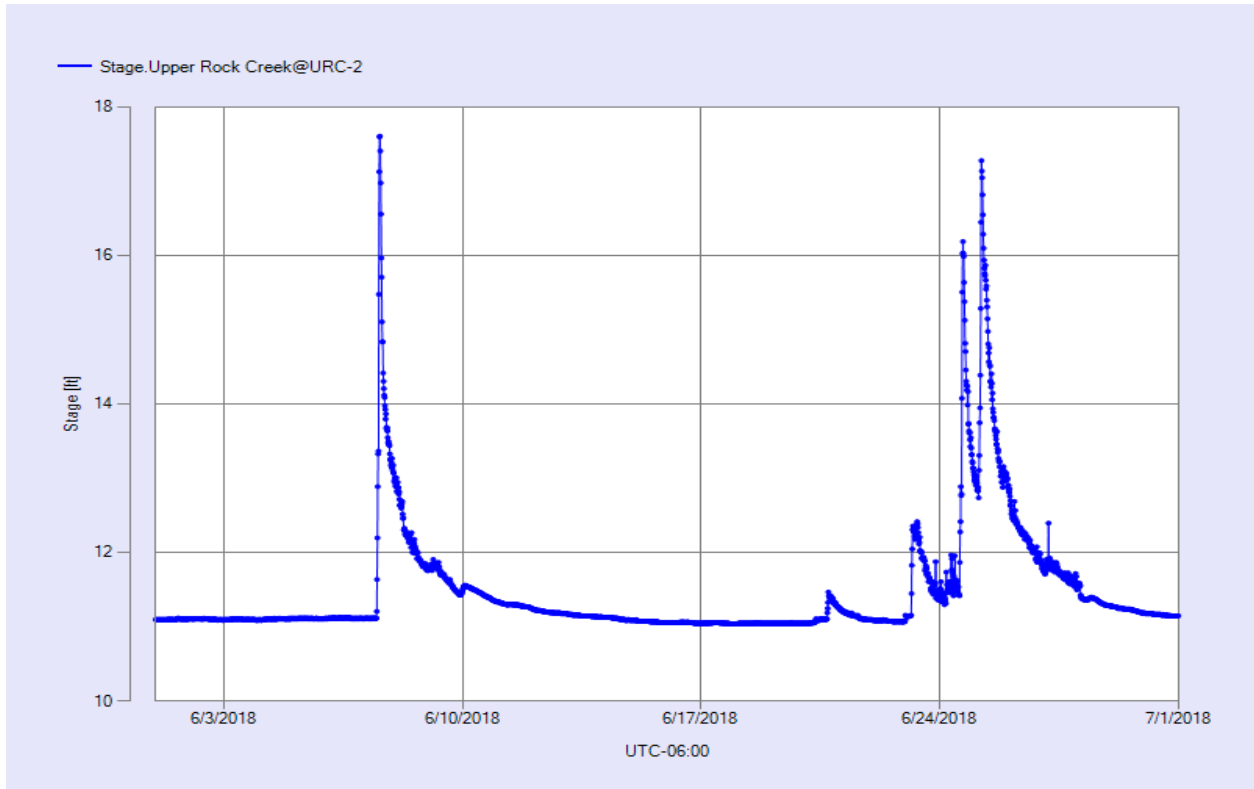


Figure 14 Monthly Hydrograph URC-2

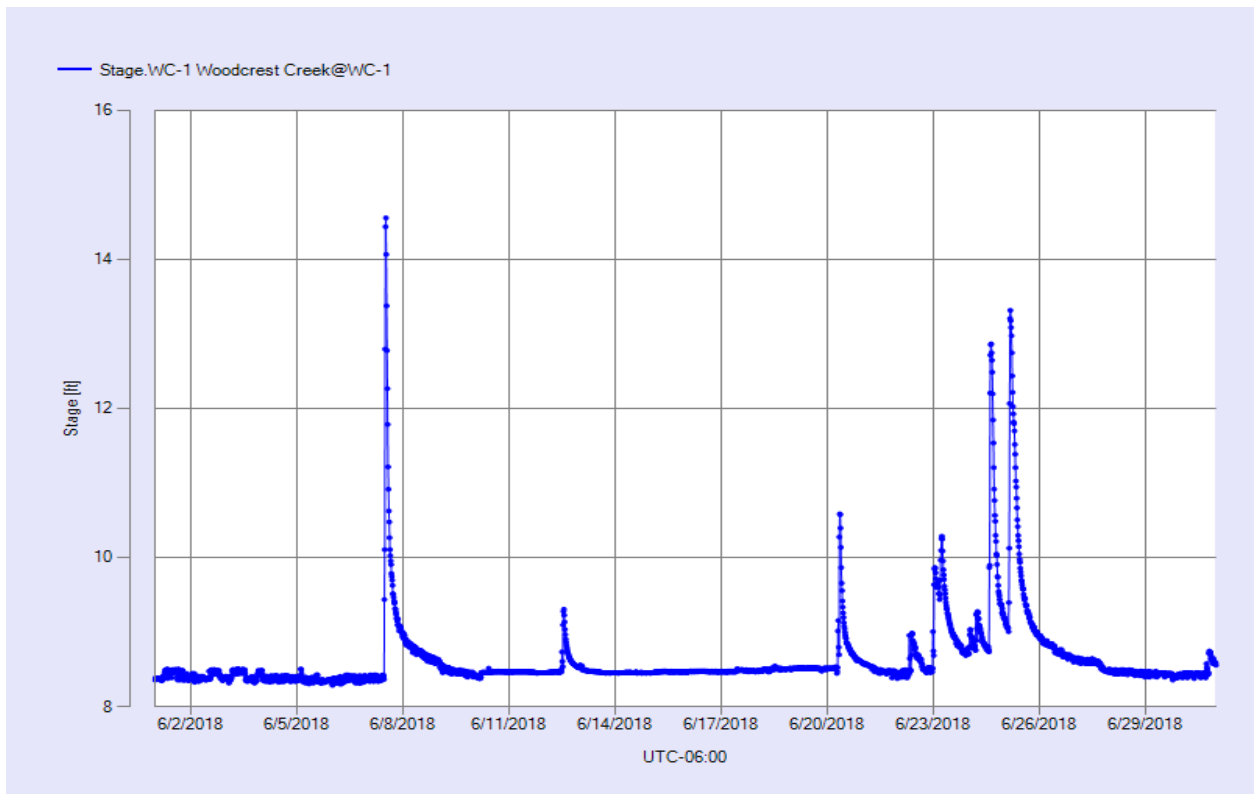


Figure 15 Monthly Hydrograph WC-1

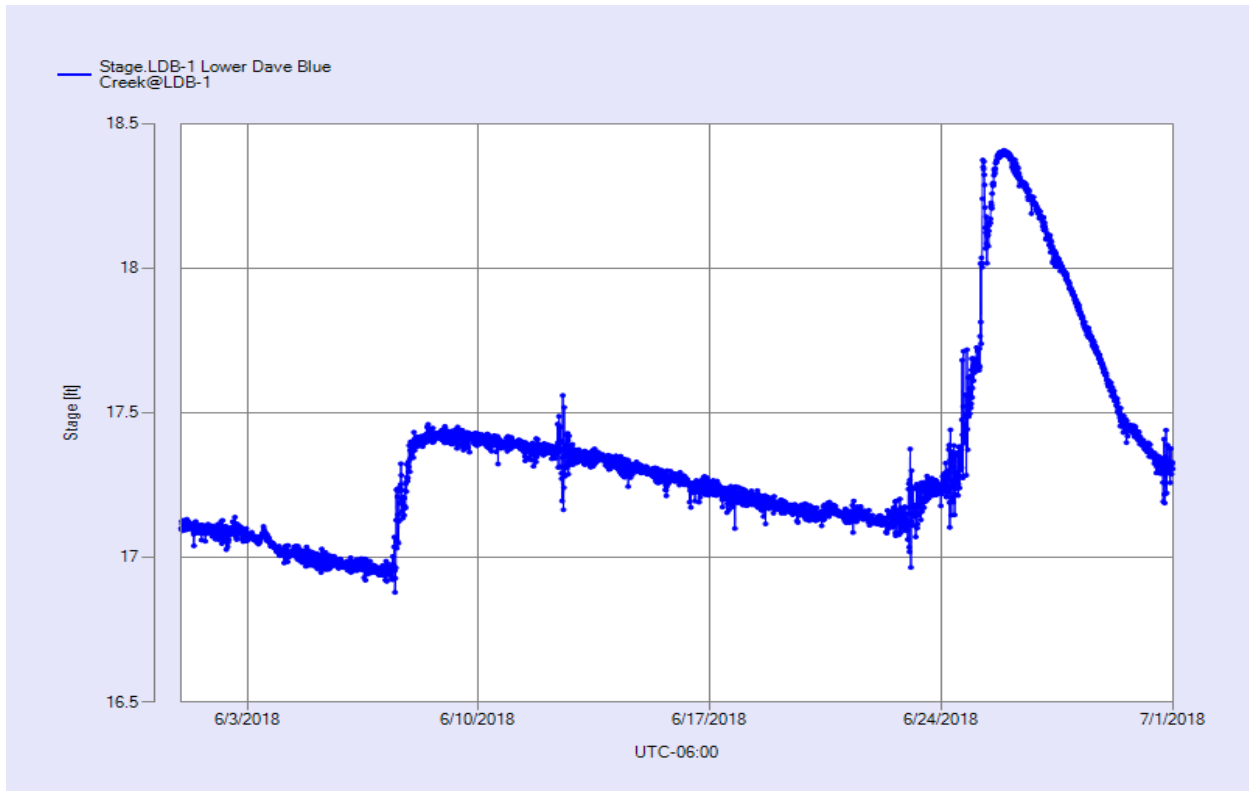


Figure 16 Monthly Hydrograph LDB-1

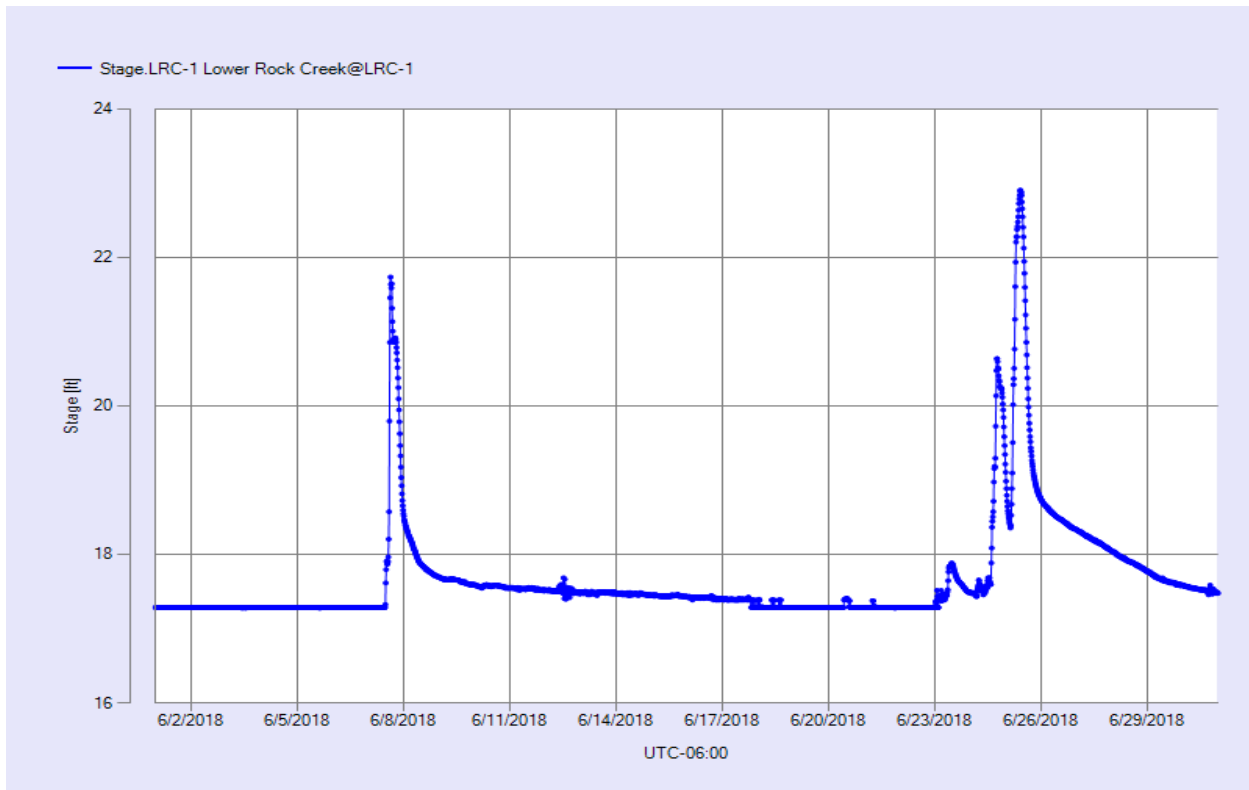


Figure 17 Monthly Hydrograph LRC-1

MESONET CLIMATOLOGICAL DATA SUMMARY				June 2018				Time Zone: Midnight-Midnight CST														
(NRMN) Norman				Nearest City: 2.1 NW Norman				County: Cleveland														
Latitude: 35-14-09				Longitude: 97-27-53				Elevation: 1171 feet														
DAY	TEMPERATURE (°F)				DEG DAYS		HUMIDITY (%)			RAIN (in)		PRESSURE (in)			WIND SPEED (mph)		SOLAR (MJ/m ²)	4" SOIL TEMPERATURES				
	MAX	MIN	AVG	DEWPT	HDD	CDD	MAX	MIN	AVG		STN	MSL	DIR	AVG	MAX	SOD		BARE	MAX	MIN		
1	95	76	84.9	72.9	0	20	85	51	68	0.00	28.57	29.81	SSE	9.7	24.2	28.12	80.6	87.2	95	80		
2	93	72	83.0	69.3	0	18	82	48	64	0.00	28.65	29.89	NNE	11.5	31.3	27.50	81.2	87.5	94	81		
3	84	63	74.3	55.4	0	9	77	35	54	0.00	28.89	30.14	NE	7.6	29.1	30.11	78.9	84.3	92	77		
4	83	58	72.5	61.5	0	6	90	53	69	0.00	28.78	30.03	SE	7.6	21.3	19.96	76.9	81.0	87	75		
5	89*	66*	77.6*	68.2*	0*	12*	93*	56*	74*	0.05*	28.63*	29.88*	SE *	8.0*	20.6*	NA	78.3*	82.6*	91*	75*		
6	93	73	82.3	72.3	0	18	91	52	73	0.00	28.61	29.86	SE	9.1	24.1	27.29	80.5	86.0	94	79		
7	79	65	72.4	67.4	0	7	99	66	85	1.65	28.70	29.94	SE	9.9	29.0	4.28	76.4	79.0	86	74		
8	88	64	77.6	68.2	0	11	98	53	75	0.00	28.76	30.01	SSE	6.0	18.5	23.39	76.3	77.0	83	71		
9	91	71	81.9	67.9	0	16	90	48	64	0.00	28.73	29.98	SSE	9.5	24.6	28.39	79.1	78.4	84	73		
10	92	72	82.3	70.0	0	17	79	55	67	0.00	28.59	29.83	SSE	10.1	23.6	27.85	80.0	80.4	89	73		
11	91	75	83.6	72.2	0	18	82	58	69	0.00	28.53	29.77	SSE	10.3	23.5	27.86	81.1	84.9	93	77		
12	86	70	77.7	69.4	0	13	96	57	76	0.17	28.66	29.91	S	9.1	37.5	13.48	79.6	80.7	85	77		
13	93	73	83.2	71.6	0	18	96	49	70	0.00	28.72	29.97	SSE	7.4	17.8	27.68	80.4	83.0	93	75		
14	93	74	84.1	66.5	0	19	75	39	57	0.00	28.69	29.94	S	9.6	23.2	27.46	81.1	85.9	94	78		
15	92	75	83.9	67.6	0	19	74	44	59	0.00	28.64	29.89	SSE	10.5	27.1	28.62	81.2	87.1	95	80		
16	90	75	82.8	68.7	0	18	78	53	63	0.00	28.64	29.89	SSE	10.6	27.9	25.47	81.2	87.1	94	81		
17	91	75	82.8	69.2	0	18	82	51	64	0.00	28.70	29.95	SSE	10.5	28.3	27.32	81.2	87.1	94	81		
18	89	75	81.5	70.9	0	17	86	54	71	0.00	28.74	29.98	SSE	8.9	21.9	20.91	81.2	86.8	92	82		
19	86	71	78.5	69.9	0	14	92	60	76	0.00	28.71	29.95	SSE	8.5	20.0	20.31	80.5	85.2	90	80		
20	89	69	77.8	67.7	0	14	98	44	74	0.53	28.65	29.90	SSE	5.3	18.8	21.26	79.7	82.2	86	79		
21	92	68	78.2	63.2	0	15	91	34	63	0.00	28.67	29.92	N	6.2	23.9	23.90	79.1	80.4	89	74		
22	88	65	74.7	65.1	0	11	98	49	73	0.93	28.61	29.85	ENE	7.0	65.5	18.57	78.0	78.7	84	74		
23	89	67	77.0	69.8	0	13	97	55	80	0.62	28.57	29.81	E	6.8	22.8	22.33	77.9	78.7	85	73		
24	83	66	71.9	67.2	0	9	98	68	85	1.08	28.59	29.83	SE	10.2	45.3	9.79	77.2	76.4	80	74		
25	86	65	75.2	67.9	0	10	99	59	80	1.26	28.72	29.96	ESE	8.6	37.9	21.72	76.2	76.8	85	71		
26	93	74	83.9	72.0	0	18	90	49	69	0.00	28.68	29.93	SSW	10.2	26.4	28.56	79.6	81.1	87	76		
27	96	77	86.5	71.3	0	21	77	45	62	0.00	28.65	29.90	SSW	10.8	24.9	28.43	81.1	80.7	86	75		
28	96	76	86.1	70.0	0	21	75	43	60	0.00	28.66	29.90	S	10.4	23.6	29.21	82.0	81.3	88	75		
29	93	76	84.9	70.5	0	20	79	48	63	0.00	28.65	29.89	S	11.2	28.7	28.68	82.1	84.6	93	77		
30	92	70	78.9	71.2	0	16	95	60	78	0.26	28.64	29.88	S	9.0	37.6	17.74	81.6	84.3	93	79		
	90*	71*	80.1*	68.5*	<- Monthly Averages ->				28.67*	29.91*	SSE*	9.0*	65.5*	23.66*	79.7*	82.5*	89*	77*				
Temperature - Highest: 96*				Degree Days - Total HDD: 0*				Number of Days With:				Tmax ≥ 90: 17*				Rainfall ≥ 0.01 inch: 9*						
Lowest: 58*				Total CDD: 456*				Tmax ≤ 32: 0*				Rainfall ≥ 0.10 inch: 8*										
Rainfall: Monthly Total: 6.55* in.				Humidity - Highest: 99*				Tmin ≤ 32: 0*				Avg Wind Speed ≥ 10 mph: 11*										
Greatest 24 Hr: 1.65* in.				Lowest: 34*				Tmin ≤ 0: 0*				Max Wind Speed ≥ 30 mph: 6*										

Figure 18 June Mesonet Data