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

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**SY2018 Monthly Report**

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*Lake Thunderbird TMDL Monitoring Plan Implementation:*

*May 2018 Monitoring Report*

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Oklahoma Water Resources Board  
Water Quality Programs Division  
Monitoring and Assessment Section  
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## SUMMARY OF MAY WATER QUALITY SAMPLING

Sampling for May 2018 consisted of two separate collections. The first collection occurred on the third of May and was considered a high flow collection. Water samples were collected at seven locations via autosamplers, as well as all seven stormwater outfalls, and discharge was measured at four locations. Mesonet data shows 1.26 inches of precipitation occurring on the third, 1.10 inches in the 72 hours prior to sampling, and no precipitation in the 72 hours after the sampling event. The second collection was also a high flow collection on the twentieth of May. Water samples were collected at two of the locations via autosamplers, as well as four of the stormwater outfalls. Mesonet shows 0.59 inches of precipitation occurring on the twentieth, and 0.27 inches in the 72 hours prior to sampling, and 0.01 inches in the 72 hours after the sampling event. The total rainfall amount in Norman for the month of May was 4.18 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

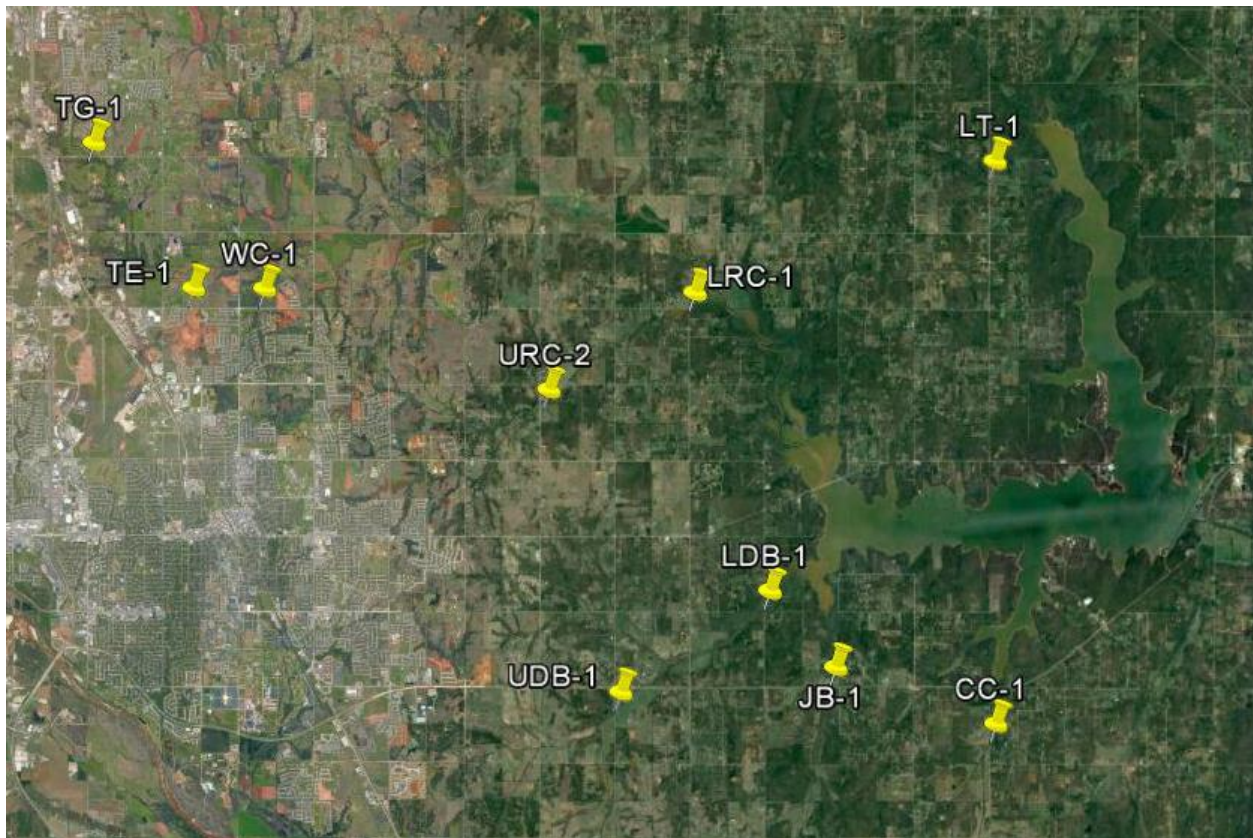


Figure 1 Monitoring Station Map

### 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	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not sampled
lt-1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not sampled
jb-1	5/3/2018	9:35	SD	18.8	6.4	540.0	7.7	82.0	collected from channel at peak. Visible turbid runoff from road.
udb-1	5/2/2018	23:45	SD	N/A	N/A	753.0	8.0	938.0	Autosampler collected T1 at 18.74, first peak 18.93 at 00:15
ldb-1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not sampled
tg-1	5/2/2018	22:15	SD	N/A	N/A	320.0	8.0	1000.0	Autosampler collected T2 at 15.25, first peak 16.33 at 22:45
te-1	5/2/2018	21:15	SD	N/A	N/A	256.0	7.9	479.0	Autosampler collected T1 at 14.2, peak at 14.62 at 22:15
wc-1	5/2/2018	21:30	JM	N/A	N/A	274.0	8.0	1000.0	Autosampler collected T3 at 12.54, peak at 12.56 at 21:45
lrc-1	5/3/2018	13:15	SD	N/A	N/A	537.0	7.9	1000.0	Autosampler collected T3 at 20.08 at 01:15, peak at 21.79 at 12:00
urc-2	5/3/2018	9:15	JM	N/A	N/A	324.0	8.0	1000.0	Autosampler collected T3 at 15.77, peak at 16.37 at 09:45
sw-01	5/3/2018	10:55	JM	N/A	N/A	151.0	N/A	180.0	
sw-02	5/3/2018	11:55	JM	N/A	N/A	319.0	N/A	37.0	
sw-03	5/3/2018	11:40	JM	N/A	N/A	273.0	N/A	181.0	one bottle missing, collected second and mixed sample
sw-04	5/3/2018	10:00	JM	N/A	N/A	14600.0	N/A	1000.0	construction upstream with no sediment fences
sw-05	5/3/2018	9:44	JM	N/A	N/A	383.0	N/A	89.0	one bottle missing, collected second at site and combined for sample
sw-06	5/3/2018	9:54	JM	N/A	N/A	497.0	N/A	27.0	
sw-07	5/3/2018	9:25	JM	N/A	N/A	362.0	N/A	117.0	

Table 1 Field Data Form 5/3/18

Site Name	TKN (mg/L)	Nitrate/Nitrite (mg/L)	TP (mg/L)	TSS (mg/L)
TG-1	3.72	0.31	0.895	1170
CC-1	N/A	N/A	N/A	N/A
JB-1	1.38	0.09	0.196	83.3
UDB-1	2.18	0.21	0.408	740
LDB-1	N/A	N/A	N/A	N/A
LRC-1	4.17	0.20	0.820	1260
URC-2	7.10	0.37	1.200	2310
WC-1	4.70	0.42	1.015	1570
TE-1	2.03	0.59	0.408	307
LT-1	N/A	N/A	N/A	N/A
SW-01	2.37	0.28	0.515	333
SW-02	1.53	0.21	0.180	48.0
SW-03	7.44	0.33	1.805	2360
SW-04	7.52	0.09	1.145	1530
SW-05	4.07	0.65	0.715	455
SW-06	1.31	0.14	0.153	18.0
SW-07	0.88	0.18	0.087	36.0

Table 2 Laboratory Analysis Summary 5/3/18

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

Table 3 QA/QC Data 5/3/18

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
STAGE (ft)	15.25	N/A	17.11	19.03	N/A	21.48	15.77	12.54	13.67	N/A
DISCHARGE (ft <sup>3</sup> /s)	582.0	N/A	19.18	76.20	N/A	101.0	86.12	35.00	74.59	N/A

Table 4 Station Discharge Summary 5/3/18

# Discharge Measurement Summary

Date Generated: Mon Jun 4 2018

<b>File Information</b>		<b>Site Details</b>	
File Name	TE0503.WAD	Site Name	TE
Start Date and Time	2018/05/03 08:15:49	Operator(s)	JW

<b>System Information</b>		<b>Units (English Units)</b>		<b>Discharge Uncertainty</b>		
Sensor Type	FlowTracker	Distance	ft	<b>Category</b>	<b>ISO</b>	<b>Stats</b>
Serial #	P4713	Velocity	ft/s	Accuracy	1.0%	1.0%
CPU Firmware Version	3.9	Area	ft^2	Depth	0.1%	1.3%
Software Ver	2.30	Discharge	cfs	Velocity	0.9%	6.6%
Mounting Correction	0.0%			Width	0.1%	0.1%
				Method	1.6%	-
				# Stations	1.9%	-
				<b>Overall</b>	<b>2.8%</b>	<b>6.8%</b>

<b>Summary</b>			
Averaging Int.	40	# Stations	27
Start Edge	LEW	Total Width	30.000
Mean SNR	41.9 dB	Total Area	42.100
Mean Temp	61.63 °F	Mean Depth	1.403
Disch. Equation	Mid-Section	Mean Velocity	1.7716
		<b>Total Discharge</b>	<b>74.5866</b>

<b>Supplemental Data</b>					
#	Time	Location	Gauge Height	Rated Flow	Comments
1	Thu May 3 08:30:34 CDT 2018	16.000	13.670		

<b>Measurement Results</b>												
St	Clock	Loc	Method	Depth	%Dep	MeasD	Vel	CorrFact	MeanV	Area	Flow	%Q
0	08:15	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>08:15</i>	<i>3.00</i>	<i>0.6</i>	<i>2.500</i>	<i>0.6</i>	<i>1.000</i>	<i>0.6024</i>	<i>1.00</i>	<i>0.6024</i>	<i>5.000</i>	<i>3.0118</i>	<i>4.0</i>
<i>2</i>	<i>08:16</i>	<i>4.00</i>	<i>0.6</i>	<i>2.600</i>	<i>0.6</i>	<i>1.040</i>	<i>0.6778</i>	<i>1.00</i>	<i>0.6778</i>	<i>2.600</i>	<i>1.7624</i>	<i>2.4</i>
<i>3</i>	<i>08:17</i>	<i>5.00</i>	<i>0.6</i>	<i>2.600</i>	<i>0.6</i>	<i>1.040</i>	<i>0.8911</i>	<i>1.00</i>	<i>0.8911</i>	<i>2.600</i>	<i>2.3169</i>	<i>3.1</i>
<i>4</i>	<i>08:19</i>	<i>6.00</i>	<i>0.6</i>	<i>2.500</i>	<i>0.6</i>	<i>1.000</i>	<i>0.8077</i>	<i>1.00</i>	<i>0.8077</i>	<i>2.500</i>	<i>2.0194</i>	<i>2.7</i>
5	08:20	7.00	0.6	2.400	0.6	0.960	1.4406	1.00	1.4406	2.400	3.4574	4.6
6	08:21	8.00	0.6	2.200	0.6	0.880	2.0315	1.00	2.0315	2.200	4.4696	6.0
7	08:22	9.00	0.6	2.000	0.6	0.800	1.6047	1.00	1.6047	2.000	3.2093	4.3
8	08:23	10.00	0.6	2.000	0.6	0.800	2.2995	1.00	2.2995	2.000	4.5991	6.2
<i>9</i>	<i>08:24</i>	<i>11.00</i>	<i>0.6</i>	<i>1.700</i>	<i>0.6</i>	<i>0.680</i>	<i>1.0108</i>	<i>1.00</i>	<i>1.0108</i>	<i>1.700</i>	<i>1.7185</i>	<i>2.3</i>
<i>10</i>	<i>08:25</i>	<i>12.00</i>	<i>0.6</i>	<i>1.300</i>	<i>0.6</i>	<i>0.520</i>	<i>2.7031</i>	<i>1.00</i>	<i>2.7031</i>	<i>1.300</i>	<i>3.5137</i>	<i>4.7</i>
11	08:27	13.00	0.6	1.100	0.6	0.440	2.7241	1.00	2.7241	1.100	2.9967	4.0
12	08:28	14.00	0.6	1.100	0.6	0.440	2.8711	1.00	2.8711	1.100	3.1584	4.2
13	08:29	15.00	0.6	1.200	0.6	0.480	2.3763	1.00	2.3763	1.200	2.8519	3.8
14	08:30	16.00	0.6	1.200	0.6	0.480	3.2700	1.00	3.2700	1.200	3.9244	5.3
15	08:31	17.00	0.6	1.200	0.6	0.480	3.7215	1.00	3.7215	1.200	4.4662	6.0
16	08:32	18.00	0.6	1.200	0.6	0.480	3.3937	1.00	3.3937	1.200	4.0729	5.5
<i>17</i>	<i>08:33</i>	<i>19.00</i>	<i>0.6</i>	<i>0.800</i>	<i>0.6</i>	<i>0.320</i>	<i>2.3547</i>	<i>1.00</i>	<i>2.3547</i>	<i>0.800</i>	<i>1.8834</i>	<i>2.5</i>
18	08:34	20.00	0.6	0.800	0.6	0.320	3.3934	1.00	3.3934	0.800	2.7143	3.6
19	08:35	21.00	0.6	0.800	0.6	0.320	3.3652	1.00	3.3652	0.800	2.6917	3.6
20	08:36	22.00	0.6	0.900	0.6	0.360	3.1545	1.00	3.1545	0.900	2.8389	3.8
<i>21</i>	<i>08:37</i>	<i>23.00</i>	<i>0.6</i>	<i>1.300</i>	<i>0.6</i>	<i>0.520</i>	<i>1.2484</i>	<i>1.00</i>	<i>1.2484</i>	<i>1.300</i>	<i>1.6227</i>	<i>2.2</i>
22	08:38	24.00	0.6	1.500	0.6	0.600	1.8488	1.00	1.8488	1.500	2.7731	3.7
<i>23</i>	<i>08:39</i>	<i>25.00</i>	<i>0.6</i>	<i>1.500</i>	<i>0.6</i>	<i>0.600</i>	<i>1.7011</i>	<i>1.00</i>	<i>1.7011</i>	<i>1.500</i>	<i>2.5517</i>	<i>3.4</i>
24	08:40	26.00	0.6	1.200	0.6	0.480	1.8468	1.00	1.8468	1.200	2.2164	3.0
25	08:41	27.00	0.6	1.000	0.6	0.400	1.8730	1.00	1.8730	2.000	3.7461	5.0
26	08:41	30.00	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 TE-1 5/3/18

# Discharge Measurement Summary

Date Generated: Mon Jun 4 2018

## File Information

File Name JIMB0503.WAD  
Start Date and Time 2018/05/03 07:04:54

## Site Details

Site Name JIMBLUE  
Operator(s) JW

## System Information

Sensor Type FlowTracker  
Serial # P4713  
CPU Firmware Version 3.9  
Software Ver 2.30  
Mounting Correction 0.0%

## Units (English Units)

Distance ft  
Velocity ft/s  
Area ft<sup>2</sup>  
Discharge cfs

## Discharge Uncertainty

Category	ISO	Stats
Accuracy	1.0%	1.0%
Depth	0.1%	0.8%
Velocity	1.0%	5.0%
Width	0.1%	0.1%
Method	1.9%	-
# Stations	2.2%	-
<b>Overall</b>	<b>3.2%</b>	<b>5.2%</b>

## Summary

Averaging Int. 40 # Stations 23  
Start Edge LEW Total Width 15.000  
Mean SNR 42.1 dB Total Area 18.476  
Mean Temp 61.76 °F Mean Depth 1.232  
Disch. Equation Mid-Section Mean Velocity 1.0383  
**Total Discharge 19.1830**

## Supplemental Data

#	Time	Location	Gauge Height	Rated Flow	Comments
1	Thu May 3 07:07:04 CDT 2018	4.000	17.110		

## Measurement Results

St	Clock	Loc	Method	Depth	%Dep	MeasD	Vel	CorrFact	MeanV	Area	Flow	%Q
0	07:04	0.00	None	0.000	0.0	0.0	0.0000	1.00	0.0000	0.000	0.0000	0.0
1	07:06	2.00	0.6	1.100	0.6	0.440	0.0574	1.00	0.0574	1.375	0.0789	0.4
2	<i>07:07</i>	<i>2.50</i>	<i>0.6</i>	<i>1.200</i>	<i>0.6</i>	<i>0.480</i>	<i>0.0837</i>	<i>1.00</i>	<i>0.0837</i>	<i>0.600</i>	<i>0.0502</i>	<i>0.3</i>
3	07:08	3.00	0.6	1.300	0.6	0.520	0.2014	1.00	0.2014	0.650	0.1309	0.7
4	07:09	3.50	0.6	1.400	0.6	0.560	0.3556	1.00	0.3556	0.700	0.2489	1.3
5	07:10	4.00	0.6	1.400	0.6	0.560	1.1624	1.00	1.1624	0.700	0.8136	4.2
6	07:11	4.50	0.6	1.500	0.6	0.600	1.0177	1.00	1.0177	0.750	0.7633	4.0
7	07:12	5.00	0.6	1.700	0.6	0.680	0.8793	1.00	0.8793	0.850	0.7474	3.9
8	07:13	5.50	0.6	1.700	0.6	0.680	1.6644	1.00	1.6644	0.850	1.4148	7.4
9	07:14	6.00	0.6	1.700	0.6	0.680	1.4446	1.00	1.4446	0.850	1.2280	6.4
10	07:15	6.50	0.6	1.700	0.6	0.680	0.8930	1.00	0.8930	0.850	0.7591	4.0
11	07:16	7.00	0.6	1.700	0.6	0.680	0.5994	1.00	0.5994	0.850	0.5095	2.7
12	<i>07:17</i>	<i>7.50</i>	<i>0.6</i>	<i>1.700</i>	<i>0.6</i>	<i>0.680</i>	<i>0.6234</i>	<i>1.00</i>	<i>0.6234</i>	<i>0.850</i>	<i>0.5299</i>	<i>2.8</i>
13	07:18	8.00	0.6	1.900	0.6	0.760	1.3264	1.00	1.3264	0.950	1.2601	6.6
14	07:19	8.50	0.6	1.900	0.6	0.760	1.8110	1.00	1.8110	0.950	1.7204	9.0
15	07:20	9.00	0.6	1.700	0.6	0.680	1.9593	1.00	1.9593	0.850	1.6655	8.7
16	<i>07:21</i>	<i>9.50</i>	<i>0.6</i>	<i>1.600</i>	<i>0.6</i>	<i>0.640</i>	<i>2.1184</i>	<i>1.00</i>	<i>2.1184</i>	<i>0.800</i>	<i>1.6948</i>	<i>8.8</i>
17	07:22	10.00	0.6	1.600	0.6	0.640	2.1273	1.00	2.1273	0.800	1.7019	8.9
18	07:23	10.50	0.6	1.500	0.6	0.600	1.8652	1.00	1.8652	0.750	1.3989	7.3
19	<i>07:24</i>	<i>11.00</i>	<i>0.6</i>	<i>1.500</i>	<i>0.6</i>	<i>0.600</i>	<i>1.3714</i>	<i>1.00</i>	<i>1.3714</i>	<i>0.750</i>	<i>1.0285</i>	<i>5.4</i>
20	07:24	11.50	0.6	1.300	0.6	0.520	0.3881	1.00	0.3881	0.650	0.2523	1.3
21	07:27	12.00	0.6	1.200	0.6	0.480	0.5646	1.00	0.5646	2.100	1.1859	6.2
22	07:27	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 3 Discharge Summary JB-1 5/3/18



Station Number:  
Station Name: udb

Meas. No: 1  
Date: 05/03/2018

Party: sd jw	Width: 23.9 ft	Processed by:
Boat/Motor:	Area: 36.3 ft <sup>2</sup>	Mean Velocity: 2.09 ft/s
Gage Height: 19.03 ft	G.H.Change: 0.000 ft	Discharge: 76.2 ft <sup>3</sup> /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 <sup>2</sup>	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	Type/Freq.: RiverRay / 600 kHz
WT 3-Beam Solution: YES	Serial #: 645654      Firmware: 44.16
BT Error Vel.: 3.28 ft/s	Bin Size: 20 cm      Blank: 16 cm
WT Error Vel.: 32.81 ft/s	BT Mode: Auto      BT Pings: Dyn
BT Up Vel.: 32.81 ft/s	WT Mode: Auto      WT Pings: Dyn
WT Up Vel.: 32.81 ft/s	WZ : 5
Use Weighted Mean Depth: YES	Max. Vel.: 5.28 ft/s
	Max. Depth: 2.03 ft
	Mean Depth: 1.52 ft
	% Meas.: 16.65
	Water Temp.: None
	ADCP Temp.: 67.2 °F

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

Project Name: udb\_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	
001	R	3	3	178	45.8	14.5	17.5	4.03	5.72	87.5	27	42	00:00	00:01	0.31	2.09	62	0
003	R	3	3	154	27.2	8.76	11.1	3.71	5.05	55.8	18	27	00:03	00:04	0.28	2.07	61	0
005	R	3	3	162	41.7	13.2	15.2	3.78	4.73	78.6	25	37	00:06	00:07	0.31	2.12	51	0
006	L	3	3	186	34.2	10.8	12.5	3.71	4.63	65.9	23	35	00:07	00:09	0.26	1.88	73	0
007	R	3	3	130	41.5	13.2	14.8	4.13	4.27	77.8	24	36	00:09	00:10	0.39	2.15	59	0
008	L	3	3	202	39.8	12.6	15.6	4.24	4.56	76.8	24	37	00:10	00:12	0.32	2.09	76	0
009	R	3	3	142	50.6	15.9	16.1	4.27	4.48	91.3	27	41	00:12	00:13	0.38	2.25	61	0
<b>Mean</b>		3	3	164	40.1	12.7	14.7	3.98	4.78	76.2	24	36	<b>Total</b>	00:13	0.32	2.09	63	0
<b>SDev</b>		0	0	25	7.63	2.34	2.18	0.247	0.479	12.2	3.0	4.8			0.05	0.11		
<b>SD/M</b>		0.00	0.00	0.15	0.19	0.18	0.15	0.06	0.10	0.16	0.12	0.13			0.16	0.05		

Figure 4 Discharge Summary UDB-1 5/3/18

Station Number:  
Station Name: lrc

Meas. No: 0  
Date: 05/03/2018

Party: sd jw	Width: 30.9 ft	Processed by:
Boat/Motor:	Area: 146 ft <sup>2</sup>	Mean Velocity: 0.689 ft/s
Gage Height: 21.48 ft	G.H.Change: 0.000 ft	Discharge: 101 ft <sup>3</sup> /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 <sup>2</sup>	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	Type/Freq.: RiverRay / 600 kHz
WT 3-Beam Solution: YES	Serial #: 645654      Firmware: 44.16
BT Error Vel.: 3.28 ft/s	Bin Size: 20 cm      Blank: 16 cm
WT Error Vel.: 32.81 ft/s	BT Mode: Auto      BT Pings: Dyn
BT Up Vel.: 32.81 ft/s	WT Mode: Auto      WT Pings: Dyn
WT Up Vel.: 32.81 ft/s	WZ : 5
Use Weighted Mean Depth: YES	Max. Vel.: 3.92 ft/s
	Max. Depth: 8.62 ft
	Mean Depth: 4.75 ft
	% Meas.: 53.73
	Water Temp.: None
	ADCP Temp.: 67.5 °F

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

Project Name: lrc0503\_0.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	
002	R	3	3	162	17.7	65.6	23.9	11.5	-0.989	118	28	141	01:14	01:16	0.35	0.83	9	0
003	L	3	5	147	14.2	52.5	19.0	8.90	2.75	97.4	29	140	01:16	01:18	0.39	0.69	7	0
004	R	3	5	159	13.9	48.6	19.9	12.9	1.48	96.8	32	153	01:18	01:20	0.31	0.63	9	0
005	L	3	5	128	10.9	41.7	15.6	10.7	-0.953	78.1	28	127	01:20	01:22	0.32	0.61	9	0
006	R	3	5	146	15.9	57.5	24.5	9.32	-2.30	105	29	135	01:22	01:24	0.35	0.78	15	0
007	L	3	3	121	16.5	52.9	21.6	11.6	1.84	104	32	160	01:24	01:25	0.39	0.65	10	0
008	R	3	3	185	14.5	59.4	21.5	10.5	-1.31	104	38	168	01:26	01:28	0.37	0.62	26	0
<b>Mean</b>		3	4	149	14.8	54.0	20.9	10.8	0.076	101	31	146	<b>Total</b>	00:13	0.36	0.69	12	0
<b>SDev</b>		0	1	22	2.17	7.73	3.03	1.38	1.91	12.0	3.7	14.7			0.03	0.09		
<b>SD/M</b>		0.00	0.26	0.15	0.15	0.14	0.15	0.13	25.29	0.12	0.12	0.10			0.09	0.12		

Figure 5 Discharge Summary LRC-1 5/3/18

## 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
udb-1	5/20/2018	4:30	SD	N/A	N/A	658.0	8.2	1000.0	autosampler collected T1 at 18.75, peak at 18.80 at 04:45
wc-1	5/20/2018	2:15	SD	N/A	N/A	338.0	8.17	426.0	autosampler collected T1 at peak
sw-01	5/20/2018	14:10	SD	21.6	8.5	301.0	7.8	206.0	collected early morning. Used small amount of current water to help fill bottles
sw-04	5/20/2018	13:50	SD	20.1	9.4	313.0	8.0	1000.0	collected early morning. Used small amount of current water to help fill bottles
sw-05	5/20/2018	13:15	SD	18.82	7.16	919.0	7.60	573.0	collected early morning
sw-06	5/20/2018	13:00	SD	23.8	3.6	494.0	7.7	44.0	bottles filled early morning

Table 5 Field Data Form 5/20/18

Site Name	TKN (mg/L)	Nitrate/Nitrite (mg/L)	TP (mg/L)	TSS (mg/L)
UDB-1	3.17	0.35	0.650	1250
WC-1	2.51	0.46	0.464	500
SW-01	1.47	0.44	0.246	222
SW-04	4.19	1.74	0.832	1380
SW-05	7.02	2.15	1.311	700
SW-06	0.91	<0.05	0.060	11.0

Table 6 Laboratory Analysis Summary 5/20/18

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

Table 7 QA/QC Data 5/20/18

SITE	UDB-1	WC-1
STAGE (ft)	18.75	10.02
DISCHARGE (ft <sup>3</sup> /s)	44.50	21.18

Table 8 Station Discharge Summary 5/20/18

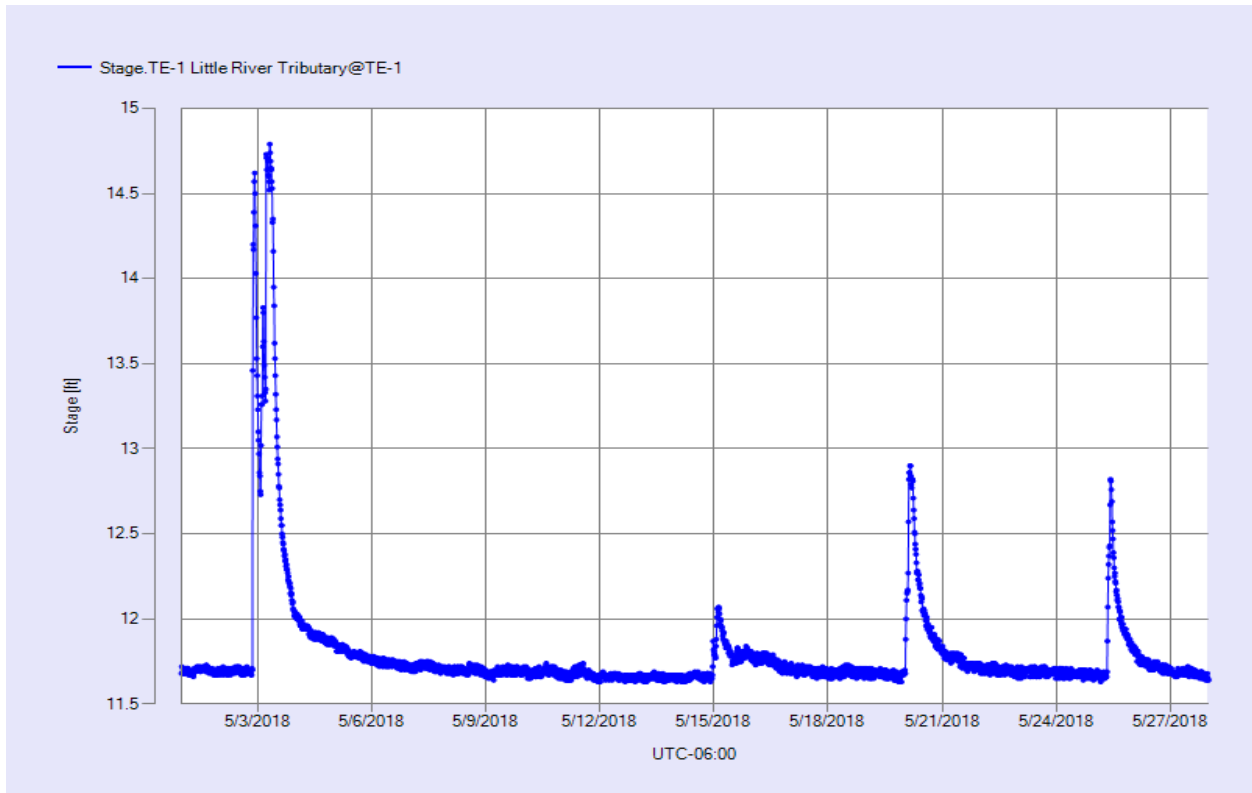


Figure 6 Monthly Hydrograph TE-1

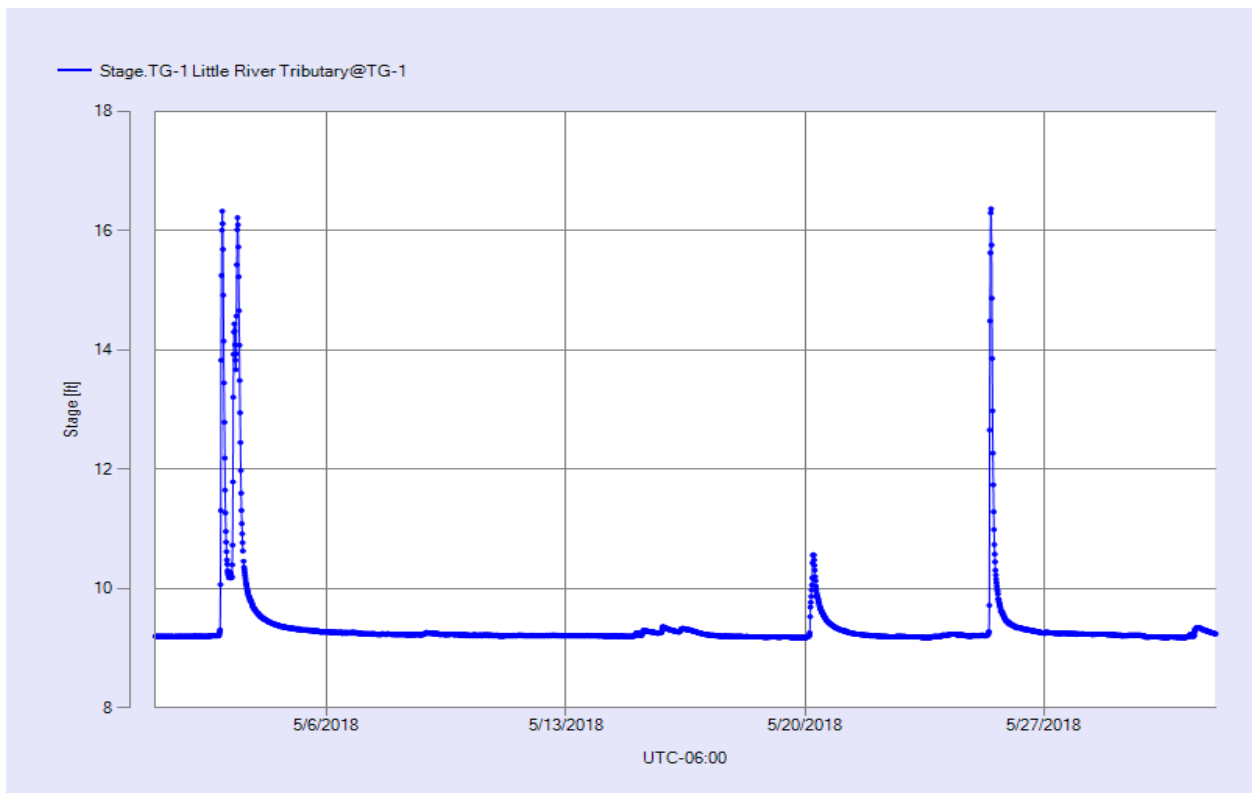


Figure 7 Monthly Hydrograph TG-1

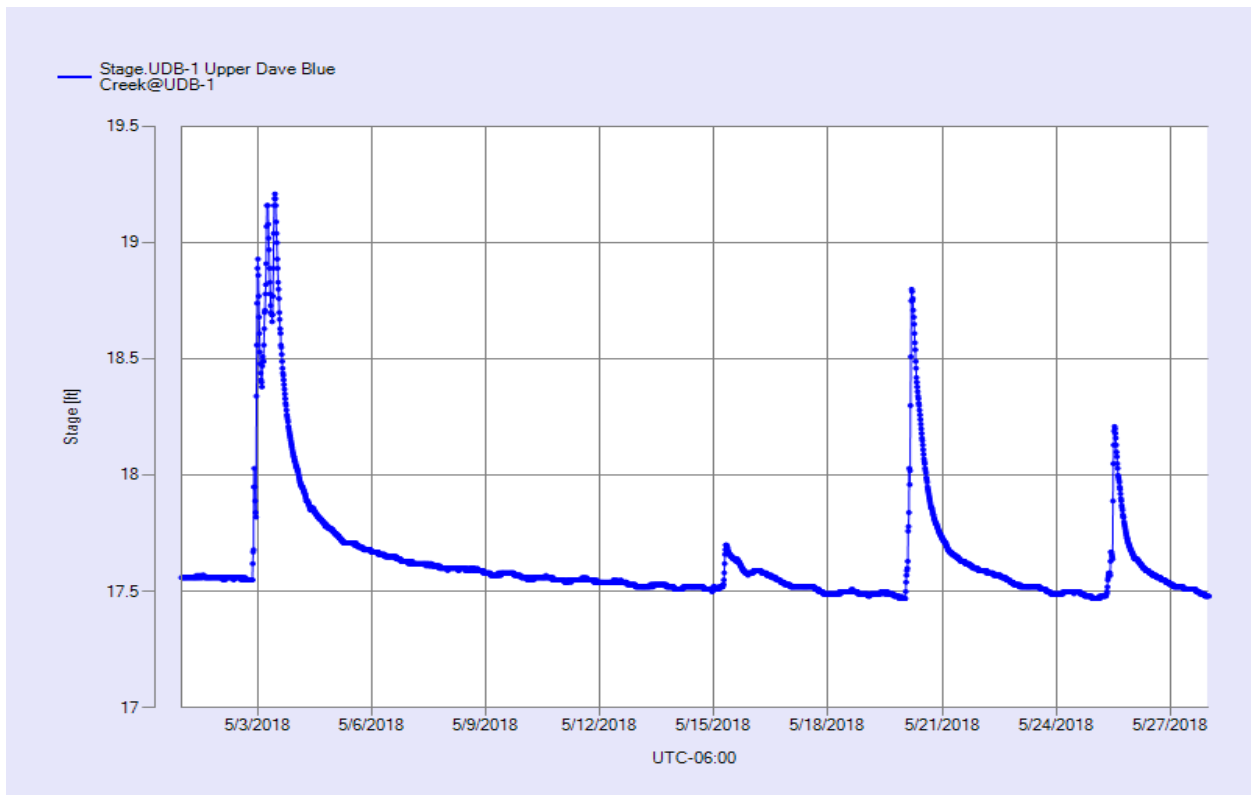


Figure 8 Monthly Hydrograph UDB-1

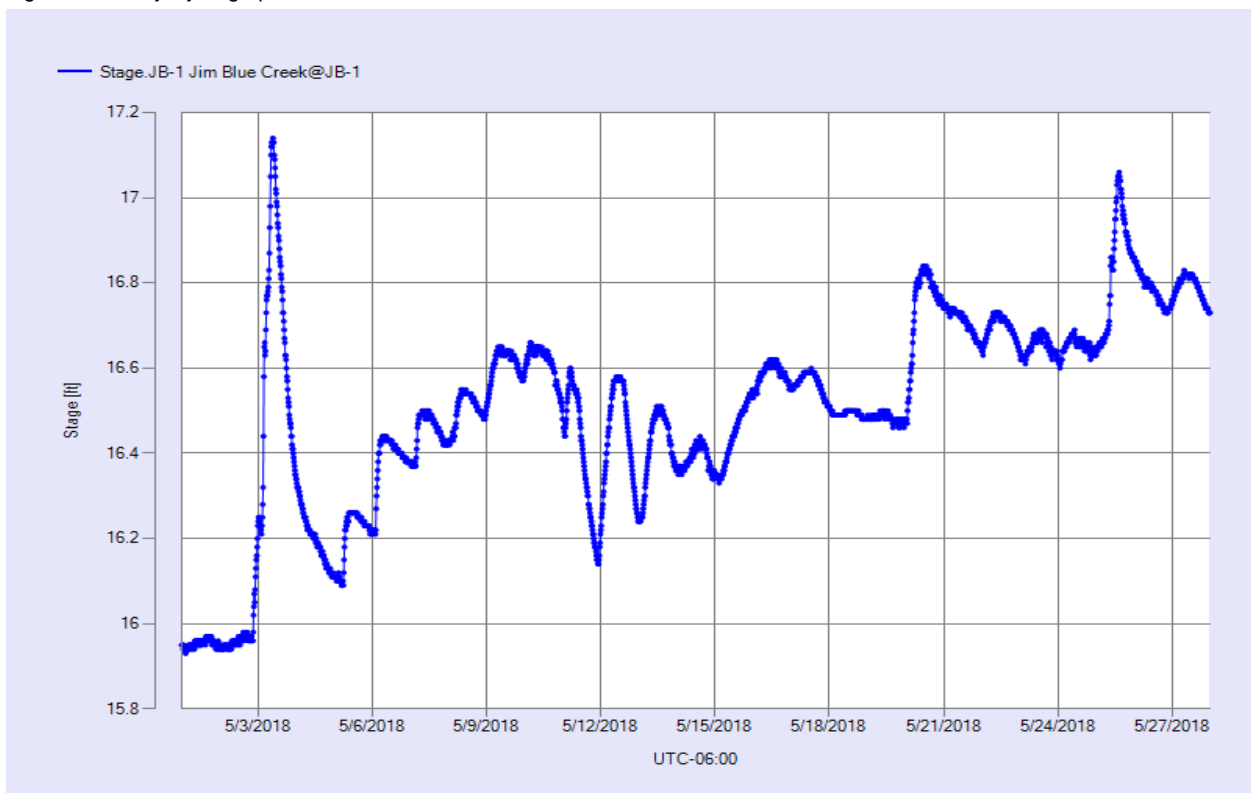


Figure 9 Monthly Hydrograph JB-1

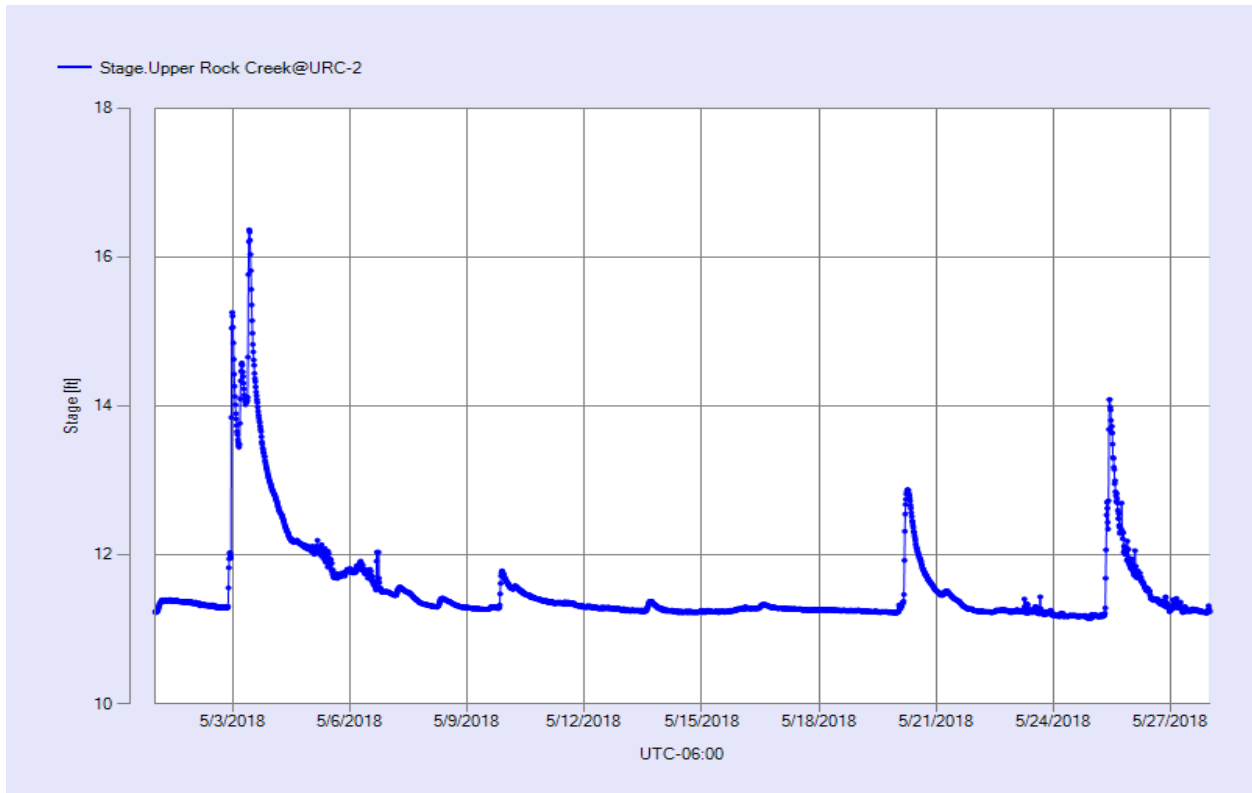


Figure 10 Monthly Hydrograph URC-2

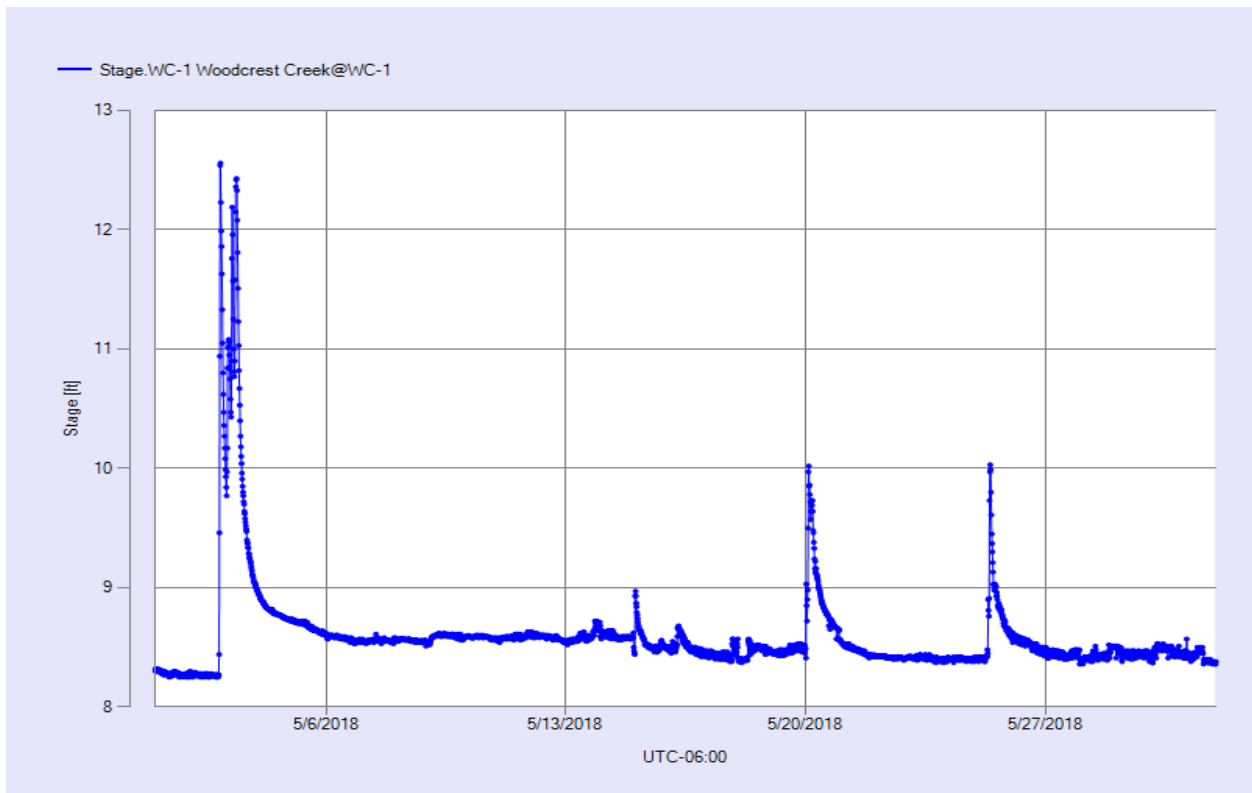


Figure 11 Monthly Hydrograph WC-1

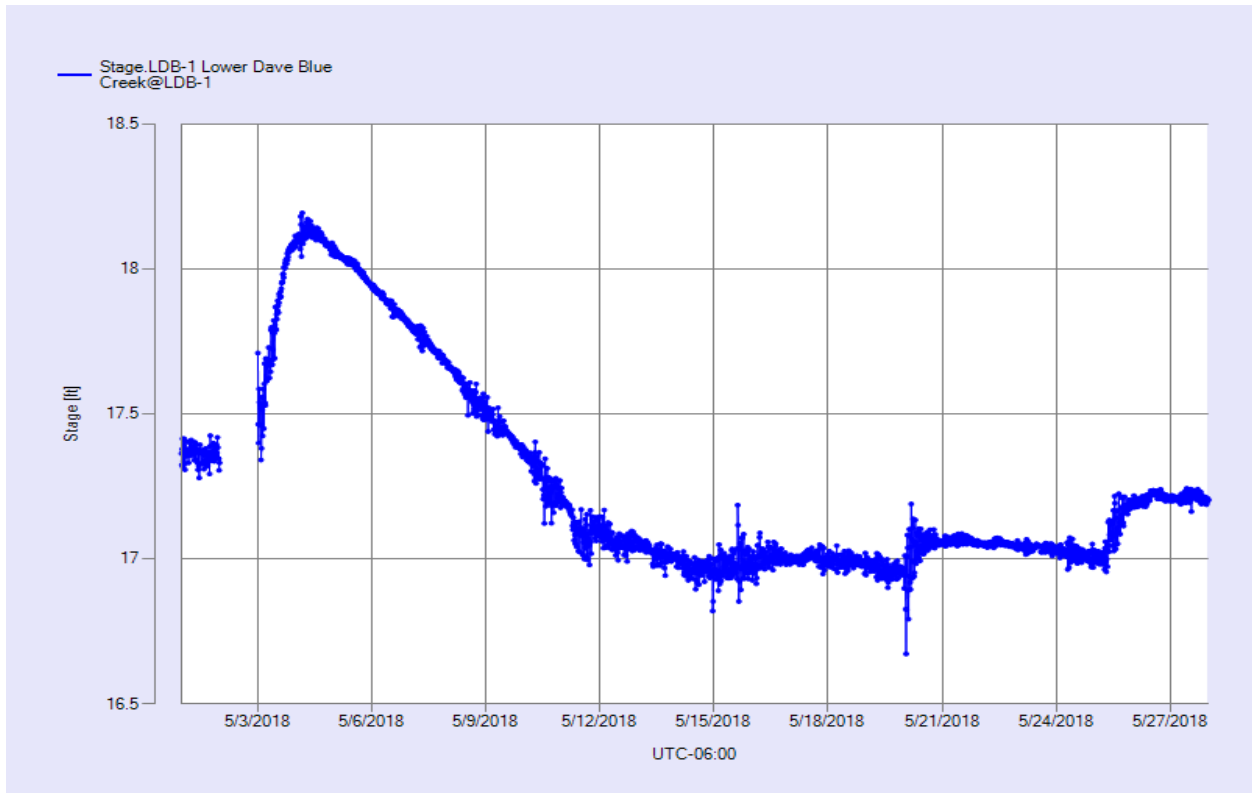


Figure 12 Monthly Hydrograph LDB-1

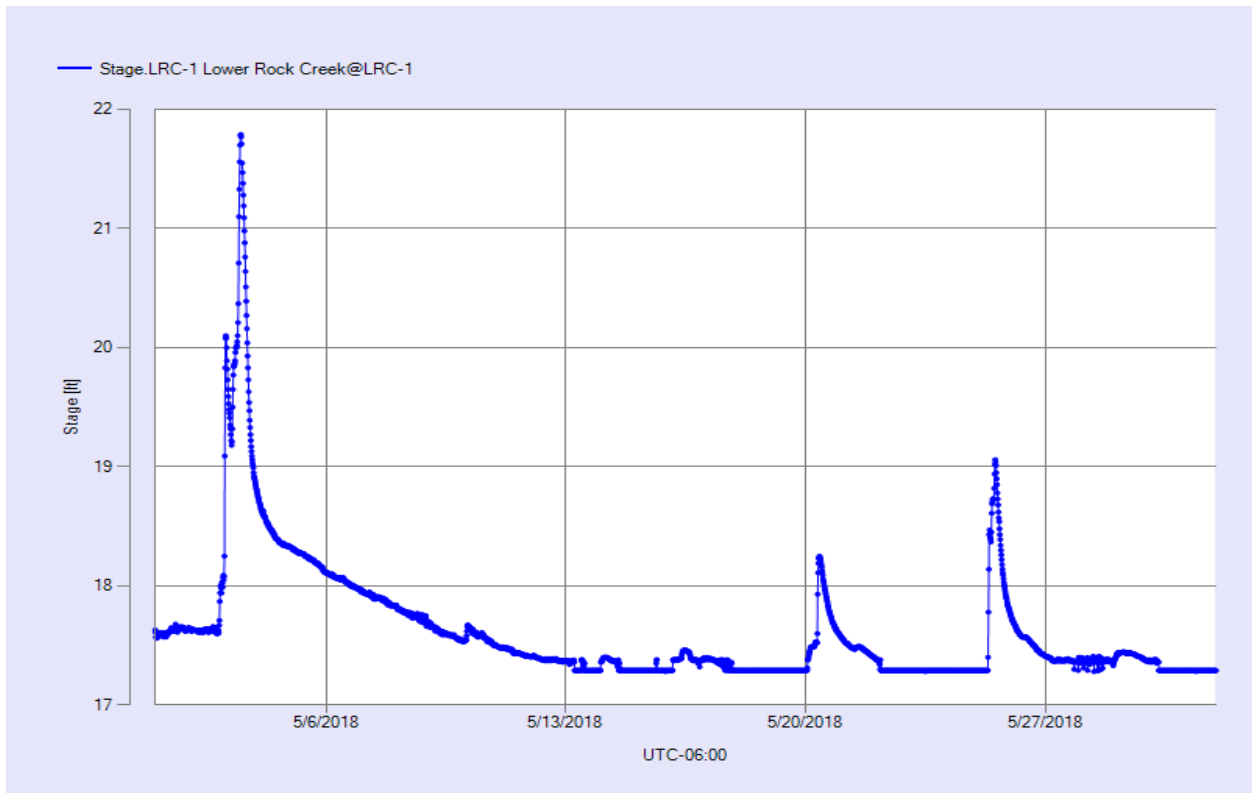


Figure 13 Monthly Hydrograph LRC-1



MESONET CLIMATOLOGICAL DATA SUMMARY				May 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 <sup>2</sup> )	4" SOIL TEMPERATURES				
	MAX	MIN	AVG	DEWPT	HDD	CDD	MAX	MIN	AVG		STN	MSL	DIR	AVG		MAX	SOD	BARE	MAX	MIN
1	78	67	71.8	64.2	0	7	87	66	77	0.00	28.63	29.87	S	14.5	32.4	14.07	65.4	69.6	74	66
2	82	62	73.8	67.0	0	7	99	65	80	1.10	28.65	29.89	S	13.4	52.1	16.74	67.4	72.2	78	68
3	82	62	70.7	64.0	0	7	97	26	82	1.26	28.64	29.89	S	10.5	40.4	20.45	68.0	70.2	76	66
4	74	55	63.9	52.2	0	0	97	44	67	0.00	28.87	30.12	N	7.3	25.9	20.10	67.6	68.4	74	64
5	80	51	67.6	49.0	0	1	92	28	56	0.00	28.88	30.14	NW	3.8	14.8	28.73	67.6	67.7	75	60
6	86	58	73.4	54.8	0	7	77	36	54	0.00	28.85	30.10	SW	7.0	21.7	28.02	68.8	68.0	75	61
7	89	62	77.3	57.2	0	11	95	26	54	0.00	28.81	30.06	SSE	7.3	21.3	26.64	70.7	70.0	76	65
8	86	67	77.1	58.8	0	12	73	40	54	0.00	28.66	29.91	S	12.0	31.6	19.65	70.5	70.8	76	65
9	89	68	77.4	59.1	0	14	67	35	54	0.00	28.67	29.91	S	8.8	21.3	26.71	71.5	75.7	85	68
10	84	65	74.2	58.2	0	9	77	39	58	0.00	28.67	29.91	S	11.1	33.2	21.16	71.4	75.1	81	70
11	84	68	75.5	61.8	0	11	83	48	63	0.00	28.57	29.81	S	15.4	41.2	25.53	71.4	75.5	82	70
12	86	69	76.9	64.2	0	12	84	52	66	0.00	28.64	29.89	S	13.4	34.7	27.39	72.7	77.7	85	71
13	85	69	77.0	66.4	0	12	88	53	71	0.00	28.69	29.94	SSE	10.1	24.7	23.22	73.5	78.3	84	72
14	89	66	78.8	68.0	0	12	91	55	70	0.22	28.65	29.90	S	10.8	29.6	25.33	74.9	80.3	87	74
15	80	64	69.7	64.3	0	7	96	55	84	0.12	28.72	29.96	SE	6.6	34.2	10.66	72.8	73.8	78	71
16	83	64	73.0	63.5	0	9	96	50	74	0.05	28.71	29.96	E	5.5	19.7	26.03	73.4	74.8	82	68
17	85	59	74.6	63.0	0	7	98	48	69	0.00	28.66	29.91	ESE	5.1	22.2	24.73	74.1	77.3	87	68
18	88	66	77.9	66.5	0	12	91	48	69	0.00	28.54	29.78	SE	8.4	21.3	25.31	75.3	80.0	89	72
19	89	65	79.3	65.5	0	12	90	37	65	0.27	28.59	29.83	S	9.1	27.8	24.79	76.6	81.9	89	76
20	74	61	66.1	61.5	0	2	97	63	86	0.59	28.79	30.04	NW	5.8	26.8	15.32	73.7	74.6	80	71
21	82	58	69.5	62.3	0	5	99	54	80	0.01	28.79	30.04	ESE	4.3	13.2	26.66	73.3	73.7	82	66
22	86	62	76.3	66.1	0	9	98	48	72	0.00	28.75	30.00	SE	5.5	17.2	27.71	75.3	75.8	82	69
23	87	68	78.0	68.2	0	12	97	49	74	0.00	28.79	30.04	SSE	7.1	16.4	26.61	76.8	79.4	89	71
24	88	68	78.4	67.6	0	13	95	53	71	0.00	28.79	30.04	SSE	7.3	19.6	28.10	77.7	82.3	91	74
25	84	64	74.1	64.6	0	9	97	49	74	0.54	28.68	29.93	SSE	7.2	33.7	18.56	76.1	77.6	82	73
26	89	64	78.6	68.3	0	11	95	49	72	0.00	28.60	29.84	E	5.2	19.0	28.84	76.7	78.1	85	71
27	90	70	80.3	69.7	0	15	90	50	71	0.00	28.62	29.86	ESE	8.3	21.6	28.49	78.1	81.0	90	73
28	88	68	79.6	68.7	0	13	95	53	71	0.00	28.63	29.87	SE	7.7	19.7	27.62	78.6	83.2	91	75
29	90*	71*	81.1*	68.6*	0*	16*	92*	48*	67*	0.00*	28.54*	29.78*	SSE*	7.7*	26.0*	NA	79.1*	84.8*	93*	77*
30	94	69	82.3	70.1	0	16	92	51	68	0.00	28.49	29.73	SSE	8.8	24.1	27.74	79.6	86.2	94	78
31	91	67	80.4	71.1	0	14	94	55	74	0.02	28.55	29.79	SSE	9.1	27.0	22.22	79.5	85.4	92	79
85* 64* 75.3* 63.7*				<- Monthly Averages ->				28.68* 29.93*		S * 8.5* 52.1*		23.77*		73.5* 76.4* 83* 70*						
Temperature - Highest: 94*				Degree Days - Total HDD: 0*				Number of Days With:				Tmax ≥ 90: 4*				Rainfall ≥ 0.01 inch: 10*				
Lowest: 51*				Total CDD: 305*				Tmax ≤ 32: 0*				Rainfall ≥ 0.10 inch: 7*								
Rainfall: Monthly Total: 4.18* in.				Humidity - Highest: 99*				Tmin ≤ 32: 0*				Avg Wind Speed ≥ 10 mph: 9*								
Greatest 24 Hr: 1.26* in.				Lowest: 26*				Tmin ≤ 0: 0*				Max Wind Speed ≥ 30 mph: 9*								

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\* Denotes incomplete record

Figure 14 May Mesonet Data