Gills Creek Monitoring Sites
Monitoring Data Summary for
December 12th, 2019 – January 16th, 2020

Data Gaps
- The GILA station sonde was buried in sediment for a brief period beginning on January 13th. The turbidity, DO, and pH sensors were buried, so the data for those parameters were removed from January 13th until the end of the deployment period.
- The GILB and GILC stations did not have any interruptions in the data during this monitoring period.

SCDHEC Standards
- The GILA and GILB stations did not record any pH readings outside of the acceptable SCDHEC range of 6 to 8.5
- The GILC station recorded a minimum pH reading of 5.7, which is below the acceptable SCDHEC minimum value.
- The GILA station recorded an average DO value of 10.8 mg/L, the GILB station recorded an average DO value of 10.2 mg/L, and the GILC station recorded an average DO value of 8.9 mg/L, all of which are above the SCDHEC daily average DO standard of 5 mg/L.
- During this deployment period, the GILA, GILB, and GILC stations recorded minimum DO levels of 9.5 mg/L, 8.6 mg/L, and 7.1 mg/L, respectively. All the stations in the Gills Creek watershed recorded DO values above the SCDHEC instantaneous minimum standard of 4 mg/L.

Storm Events
- The GILA station recorded 8 storm events resulting in approximately 12.9 inches of rainfall. The GILB station recorded 10 storms that resulted in approximately 12 inches of rainfall. The GILC station recorded 11 storms that resulted in approximately 12.2 inches of rainfall.
- The monitored water quality parameters all displayed typical storm event response patterns during the recorded storm events in the Gills Creek watershed.
- The maximum antecedent dry time since the last significant precipitation event (at least 0.1 inches) was approximately 8.3 days at GILA, 8.2 days at GILB, and 8.1 days at GILC, all occurring prior to the January 12th storm event.

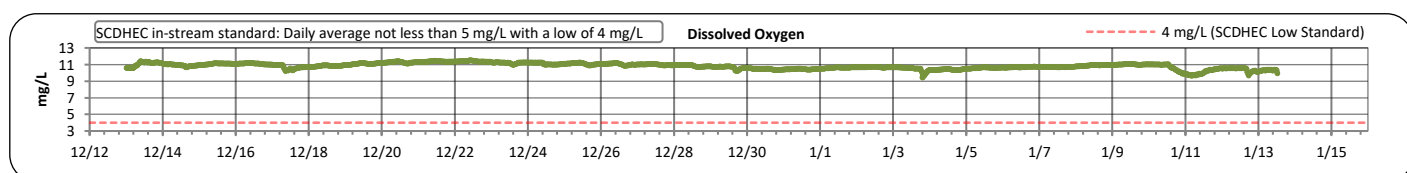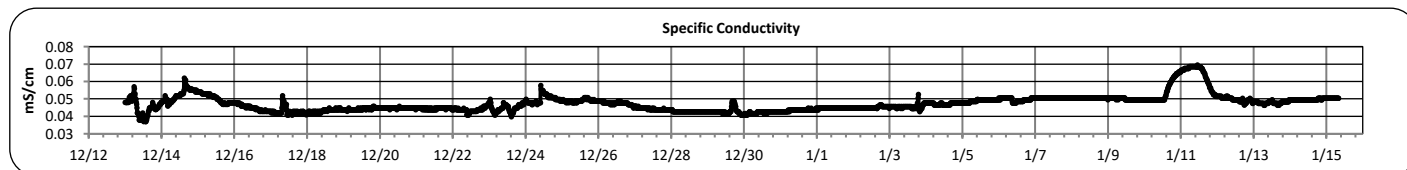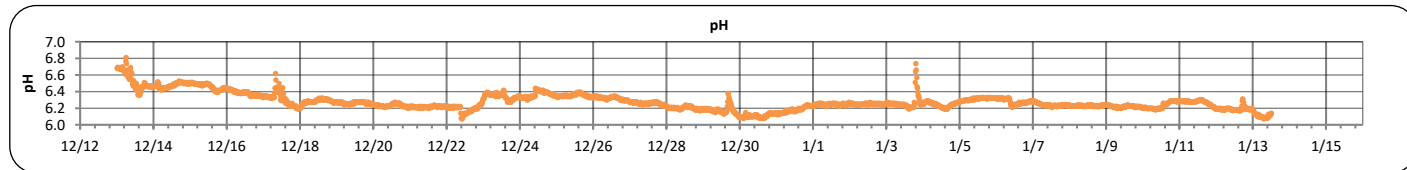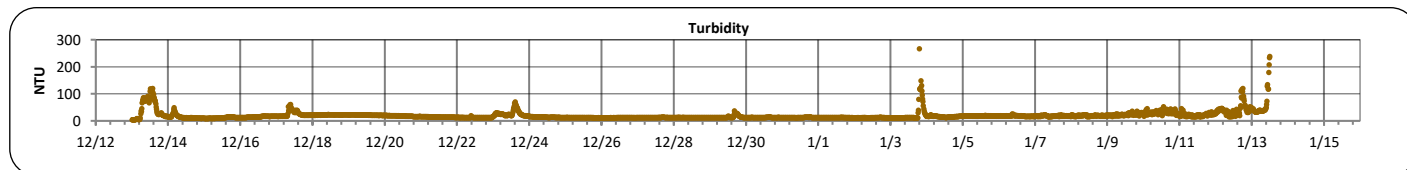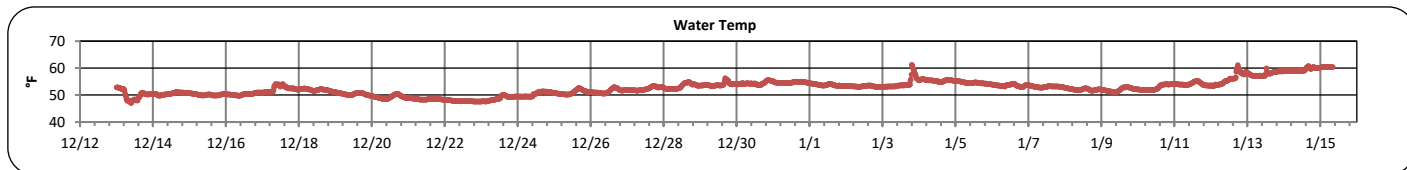*Potential Illicit Discharges and Abnormal Events*
- At all three Gills Creek stations, a decrease in stage was observed on January 10th, likely caused by activity occurring in Forest Lake, upstream of GILA. The stage began increasing to normal baseflow conditions on January 12th. During this brief period of low stage, some water quality parameters were impacted as follows: specific conductivity increased, DO decreased, and pH increased.

Flow Measurements
- No flow measurements were taken in Gills Creek during this monitoring period.

City of Columbia, SC
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Continuous Water Quality
Monitoring Periodic Report

WOOLPERT

Gills Creek A (Dec 12, 2019 - Jan 16, 2020)

PARAMETER	DESCRIPTION
STREAM NAME:	Gills Creek
LOCATION:	Forest Drive Bridge
ADDRESS:	4840 Forest Drive, Columbia, SC 29206
COORDINATES:	34.019826, -80.963566
TMDL/IMPAIRMENT:	Fecal & Dissolved Oxygen
NEIGHBORING LANDUSE:	Residential and commercial
APPROX. DRAINAGE AREA:	48 square miles
SPATIAL LOCATION:	Most upstream site
TOTAL NO. STORMS OVER 0.1 INCH:	8
MAX. DAILY RAINFALL:	3.5 inches
TOTAL RAINFALL (FOR PERIOD):	12.9 inches

CONTINUOUS WATER QUALITY PARAMETERS:	SUMMARY STATISTICS				
	MINIMUM OBSERVED	MAXIMUM OBSERVED	MEDIAN OBSERVED	MEAN OBSERVED	STANDARD DEVIATION
STAGE (FT):	2.0	6.6	2.9	3.1	0.8
TEMPERATURE (°F):	47	61	53	53	3
TURBIDITY (NTU):	5	267	16	20	16
pH:	6.1	6.8	6.3	6.3	0.1
SPECIFIC CONDUCTIVITY (mS/cm):	0.037	0.070	0.047	0.047	0.005
DISSOLVED OXYGEN (mg/L):	9.5	11.5	10.9	10.8	0.4

Stage & Rainfall

Water Temp

Turbidity

pH

Specific Conductivity

Dissolved Oxygen

SCDHEC in-stream standard: Daily average not less than 5 mg/L with a low of 4 mg/L

4 mg/L (SCDHEC Low Standard)

Note: Data gaps appear when the sonde is removed for calibration or when the flow depth is below the sensors

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Explanation of Statistics:

MINIMUM OBSERVED	The minimum of the values recorded by the datasonde in 15 minute intervals.
MAXIMUM OBSERVED	The maximum of the values recorded by the datasonde in 15 minute intervals.
MEDIAN OBSERVED	The median of all the values recorded by the datasonde in 15 minute intervals.
MEAN OBSERVED	The average of all the values recorded by the datasonde in 15 minute intervals.
STANDARD DEVIATION	The standard deviation of all the values recorded by the datasonde in 15 minute intervals.

Sampled Data:

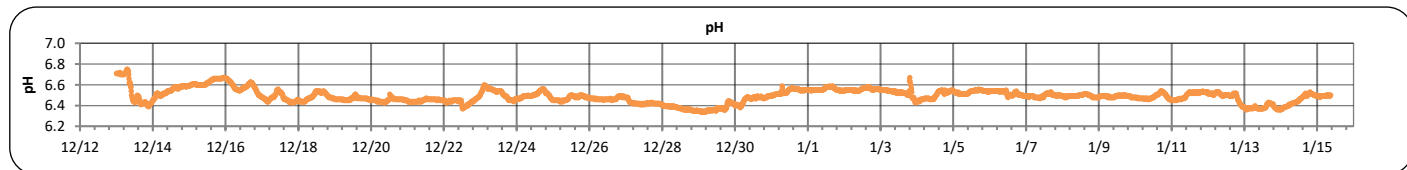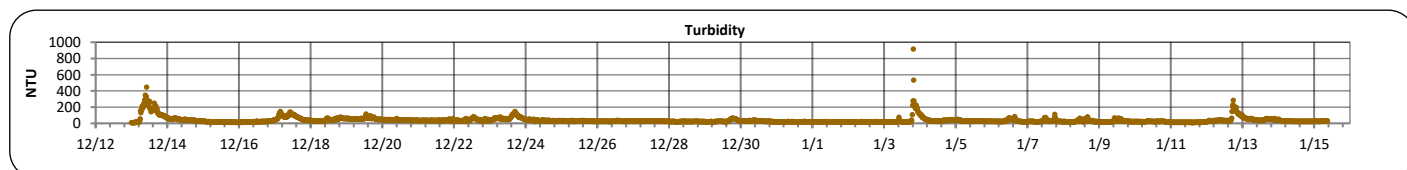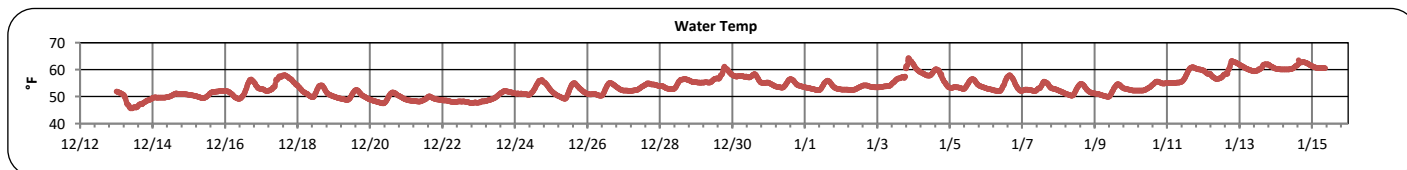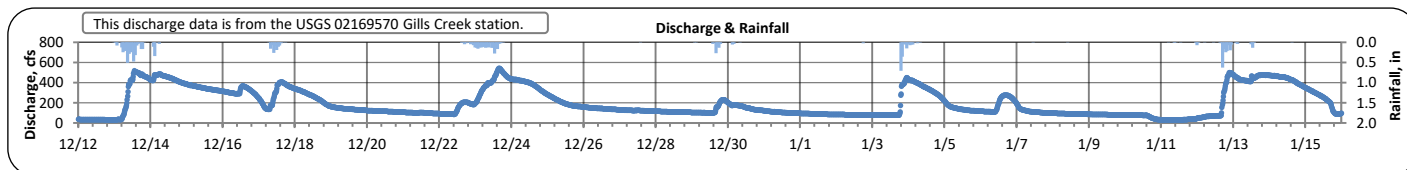| Analyte (units)	Sample 1 1/13/2020		Sample 2 1/13/2020		Sample 3		Sample 4	
	Time	Results	Time	Results	Time	Results	Time	Results
Escherichia coli (MPN/100mL)	10:31	370	14:44	4,284				
Total Suspended Solids (mg/L)	10:31	11.6	14:44	27.1				
Total Phosphorus (mg/L)	10:31	0	14:44	0.04				
Total Nitrogen (mg/L)	10:31	5.27	14:44	0.53				

Notes: Samples 1 and 2 were taken during wet weather conditions.

Note: Data gaps appear when the sonde is removed for calibration or when the flow depth is below the sensors

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Gills Creek B (Dec 12, 2019 - Jan 16, 2020)

PARAMETER	DESCRIPTION
STREAM NAME:	Gills Creek
LOCATION:	Devine Street bridge
ADDRESS:	4716 Devine Street Columbia, SC 29209
COORDINATES:	33.989656, -80.97433
TMDL/IMPAIRMENT:	Fecal & Dissolved Oxygen
NEIGHBORING LANDUSE:	Residential and commercial
APPROX. DRAINAGE AREA:	59 square miles
SPATIAL LOCATION:	Middle site
TOTAL NO. STORMS OVER 0.1 INCH:	10
MAX. DAILY RAINFALL:	3.3 inches
TOTAL RAINFALL (FOR PERIOD):	12.0 inches

CONTINUOUS WATER QUALITY PARAMETERS:	SUMMARY STATISTICS				
	MINIMUM OBSERVED	MAXIMUM OBSERVED	MEDIAN OBSERVED	MEAN OBSERVED	STANDARD DEVIATION
DISCHARGE (CFS):	31.6	545.0	136.0	197.6	135.7
TEMPERATURE (°F):	46	64	53	54	4
TURBIDITY (NTU):	10	919	30	41	38
pH:	6.3	6.8	6.5	6.5	0.1
SPECIFIC CONDUCTIVITY (mS/cm):	0.031	0.084	0.052	0.052	0.007
DISSOLVED OXYGEN (mg/L):	8.6	11.3	10.3	10.2	0.5

This discharge data is from the USGS 02169570 Gills Creek station.

Discharge & Rainfall

Water Temp

Turbidity

pH

Specific Conductivity

SCDHEC in-stream standard: Daily average not less than 5 mg/L with a low of 4 mg/L

Dissolved Oxygen

4 mg/L (SCDHEC Low Standard)

Note: Data gaps appear when the sonde is removed for calibration or when the flow depth is below the sensors

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Continuous Water Quality
Monitoring Periodic Report

Gills Creek B (Dec 12, 2019 - Jan 16, 2020)

Explanation of Statistics:

MINIMUM OBSERVED	The minimum of the values recorded by the datasonde in 15 minute intervals.
MAXIMUM OBSERVED	The maximum of the values recorded by the datasonde in 15 minute intervals.
MEDIAN OBSERVED	The median of all the values recorded by the datasonde in 15 minute intervals.
MEAN OBSERVED	The average of all the values recorded by the datasonde in 15 minute intervals.
STANDARD DEVIATION	The standard deviation of all the values recorded by the datasonde in 15 minute intervals.

Sampled Data:

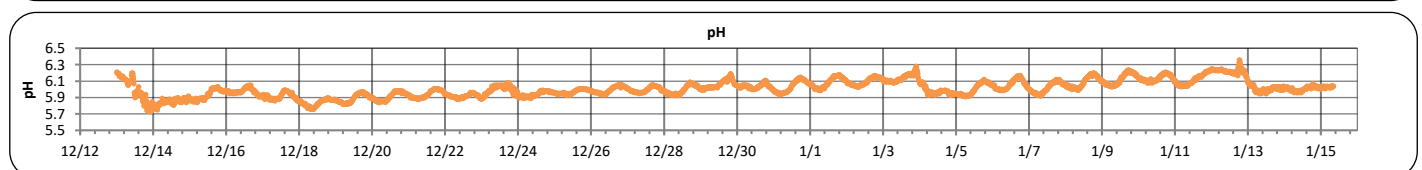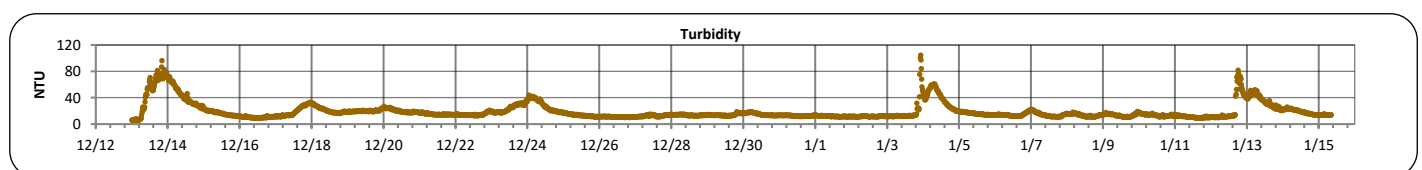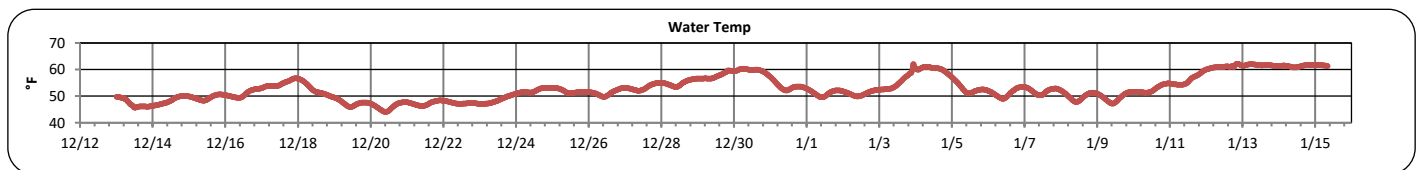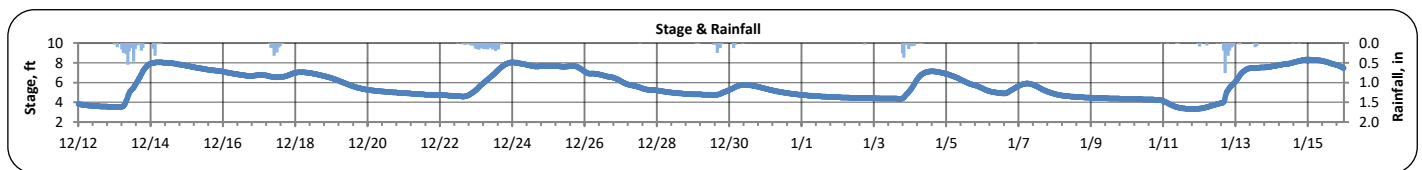| Analyte (units)	Sample 1 12/20/2019		Sample 2 1/13/2020		Sample 3 1/13/2020		Sample 4	
	Time	Results	Time	Results	Time	Results	Time	Results
Escherichia coli (MPN/100mL)	12:39	220	11:01	1,632	15:05	9,222		
Total Suspended Solids (mg/L)	12:39	36	11:01	24	15:05	27.4		
Total Phosphorus (mg/L)			11:01	0	15:05	0.04		
Total Nitrogen (mg/L)			11:01	0.58	15:05	0.7		

Notes: Sample 1 was taken during dry conditions. Samples 2 and 3 were taken during wet weather conditions.

Note: Data gaps appear when the sonde is removed for calibration or when the flow depth is below the sensors

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Continuous Water Quality
Monitoring Periodic Report

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Gills Creek C (Dec 12, 2019 - Jan 16, 2020)

PARAMETER	DESCRIPTION
STREAM NAME:	Gills Creek
LOCATION:	Bluff Road bridge
ADDRESS:	3009 Bluff Rd. Columbia, SC 29209
COORDINATES:	33.948043, -80.9889
TMDL/IMPAIRMENT:	Fecal & Dissolved Oxygen
NEIGHBORING LANDUSE:	Residential and commercial
APPROX. DRAINAGE AREA:	64 square miles
SPATIAL LOCATION:	Most downstream site
TOTAL NO. STORMS OVER 0.1 INCH:	11
MAX. DAILY RAINFALL:	3.03 inches
TOTAL RAINFALL (FOR PERIOD):	12.2 inches
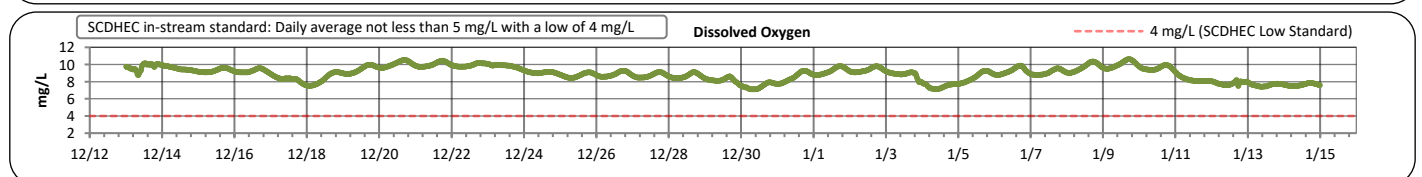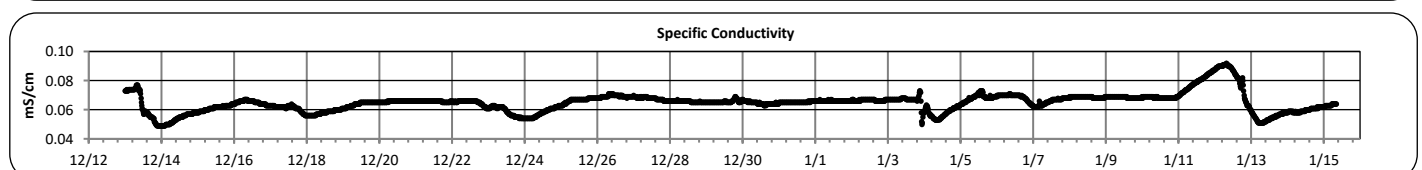
CONTINUOUS WATER QUALITY PARAMETERS:	SUMMARY STATISTICS				
	MINIMUM OBSERVED	MAXIMUM OBSERVED	MEDIAN OBSERVED	MEAN OBSERVED	STANDARD DEVIATION
STAGE (FT):	3.3	8.3	5.5	5.8	1.4
TEMPERATURE (°F):	44	62	52	53	5
TURBIDITY (NTU):	6	105	14	19	12
pH:	5.7	6.4	6.0	6.0	0.1
SPECIFIC CONDUCTIVITY (mS/cm):	0.049	0.092	0.066	0.065	0.006
DISSOLVED OXYGEN (mg/L):	7.1	10.6	9.1	8.9	0.8

Note: Data gaps appear when the sonde is removed for calibration or when the flow depth is below the sensors

Continuous Water Quality
Monitoring Periodic Report

Gills Creek C (Dec 12, 2019 - Jan 16, 2020)

Explanation of Statistics:

MINIMUM OBSERVED	The minimum of the values recorded by the datasonde in 15 minute intervals.
MAXIMUM OBSERVED	The maximum of the values recorded by the datasonde in 15 minute intervals.
MEDIAN OBSERVED	The median of all the values recorded by the datasonde in 15 minute intervals.
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STANDARD DEVIATION	The standard deviation of all the values recorded by the datasonde in 15 minute intervals.

Sampled Data:

Analyte (units)	Sample 1 12/20/2019		Sample 2 1/13/2020		Sample 3		Sample 4	
	Time	Results	Time	Results	Time	Results	Time	Results
Escherichia coli (MPN/100mL)	13:17	218	11:38	2,900				
Total Suspended Solids (mg/L)	13:17	8.6	11:38	17.5				
Total Phosphorus (mg/L)			11:38	0.047				
Total Nitrogen (mg/L)			11:38	5.88				

Notes: Sample 1 was taken during dry conditions and Sample 2 was taken during wet weather conditions.

Note: Data gaps appear when the sonde is removed for calibration or when the flow depth is below the sensors

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