

Gills Creek Monitoring Sites

August 26, 2014

Monitoring Data Analysis for July 7, 2014 – August 12, 2014

SCDHEC Standards

- During this monitoring period, the average DO at all three GIL sites was above the 5 mg/L limit.
- The instantaneous DO limit was contravened at GILB during the period from July 13th to July 16th. This period also showed warm water temperatures, low flow conditions, and a large diurnal swing in DO levels. These factors could indicate high periphyton growth which may be a significant contributor to the low DO readings captured by the sonde.
- The pH lower limit of 6 was contravened at all three sites during this monitoring period. At all sites, these low pH values were recorded following some of the more intense storm events of the period, with the exception of GILB which also recorded low pH values during the dry periods of July 30th-31st and August 7th-8th.
- The upper pH limit of 9 was not exceeded at any of the GIL sites during this period.

Storm Events

- During this period, the GILA station recorded 12 storm events, the GILB station recorded 13 storm events, and the GILC station recorded 15 storm events. This variation is a reflection of the scattered nature of summer storms in the area.
- The total recorded rainfall varied significantly as well, with GILA recording only 5 inches, GILB recording 7.6 inches, and GILC recording 13.8 inches.
- An especially significant rain event occurred at the GILC station this month. On August 10th, a storm delivered 4.51 inches of precipitation at the GILC station in less than 3 hours. This event would be classified as a 50-Year storm event¹.

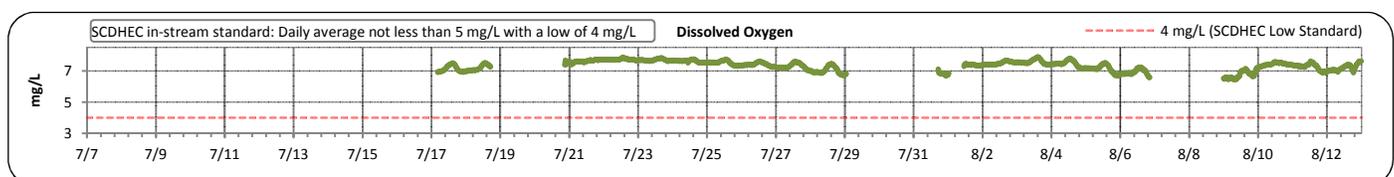
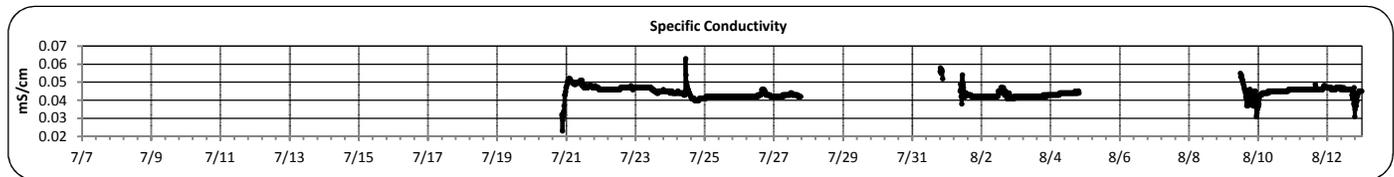
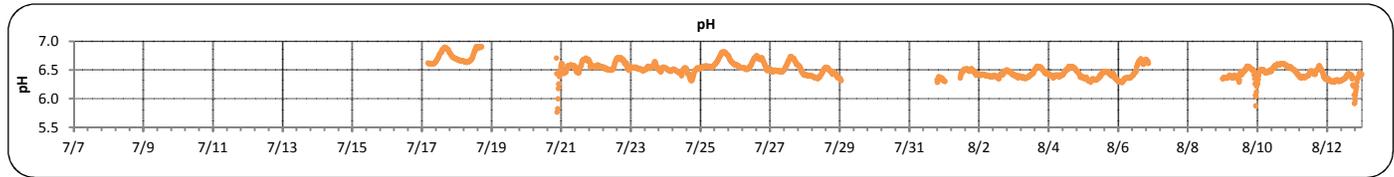
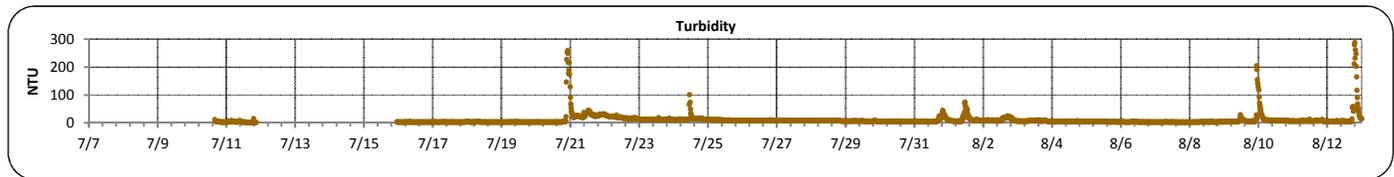
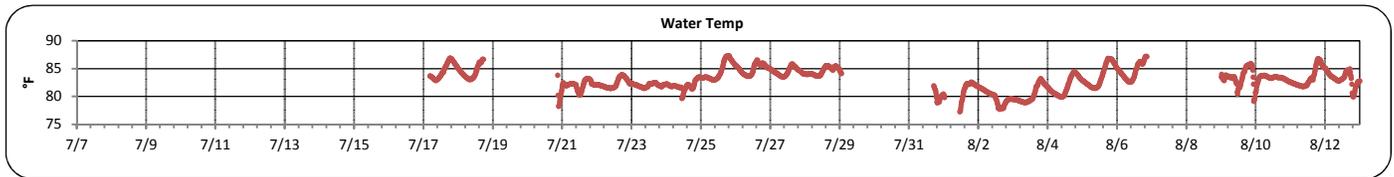
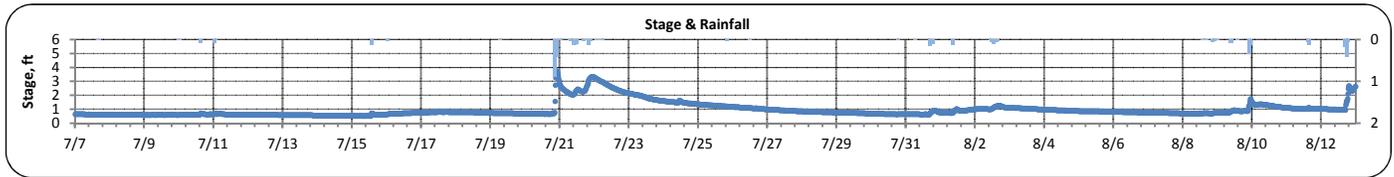
1 http://hdsc.nws.noaa.gov/hdsc/pfds/pfds_map_cont.html?bkmrk=sc

Potential Illicit Discharges

- The GILA site recorded a potential illicit discharge on July 24th, an abnormal occasion at this site. This event caused a drop in water temperature, pH, and DO, and an increase in turbidity and specific conductivity.
- At GILB, one potential illicit event occurred on August 1st. The specific conductivity increased briefly, and the turbidity was very slightly elevated.
- No suspected illicit events occurred at the GILC site.

Gills Creek A (July 7, 2014 -- Aug 12, 2014)

PARAMETER	DESCRIPTION	CONTINUOUS WATER QUALITY PARAMETERS:	SUMMARY STATISTICS				
			MINIMUM OBSERVED	MAXIMUM OBSERVED	MEDIAN OBSERVED	MEAN OBSERVED	STANDARD DEVIATION
STREAM NAME:	Gills Creek	STAGE (FT):	0.5	3.7	0.8	1.0	0.5
LOCATION:	Forest Drive Bridge	TEMPERATURE (°F):	77	87	83	83	2
ADDRESS:	4840 Forest Drive, Columbia, SC 29206	TURBIDITY (NTU):	2	289	6	10	21
COORDINATES:	34.019826, -80.963566	pH:	5.8	6.9	6.5	6.5	0.1
TMDL/IMPAIRMENT:	Fecal & Dissolved Oxygen	SPECIFIC CONDUCTIVITY (mS/cm):	0.023	0.063	0.044	0.044	0.003
NEIGHBORING LANDUSE:	Residential and commercial	DISSOLVED OXYGEN (mg/L):	6.5	7.9	7.4	7.4	0.3
APPROX. DRAINAGE AREA:	48 square miles						
SPATIAL LOCATION:	Most upstream site						
TOTAL NO. STORMS OVER 0.1 INCH:	12						
MAX. DAILY RAINFALL:	1.3 inches						
TOTAL RAINFALL (FOR PERIOD):	5.0 inches						



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 A (July 7, 2014 -- Aug 12, 2014)

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.

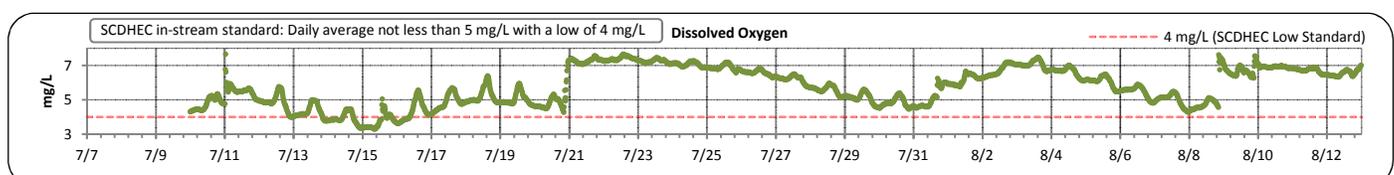
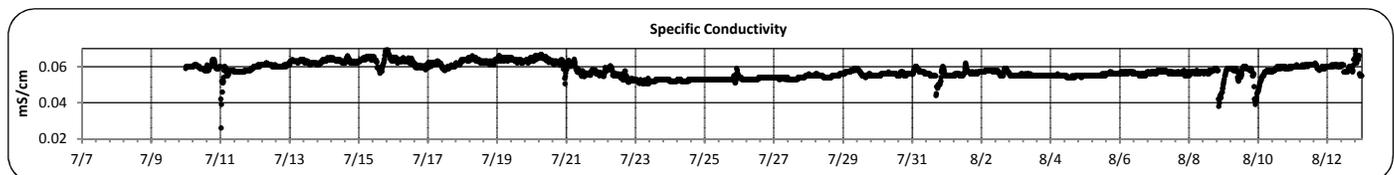
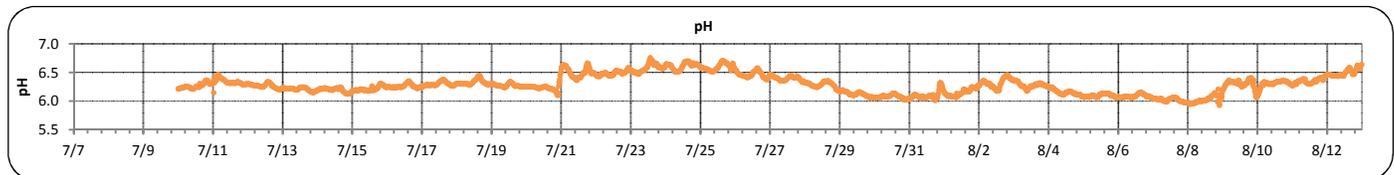
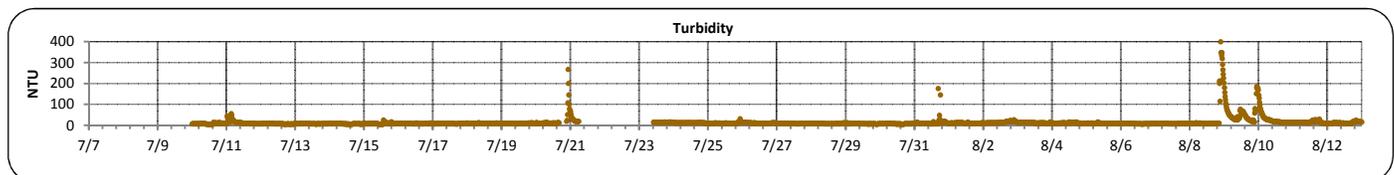
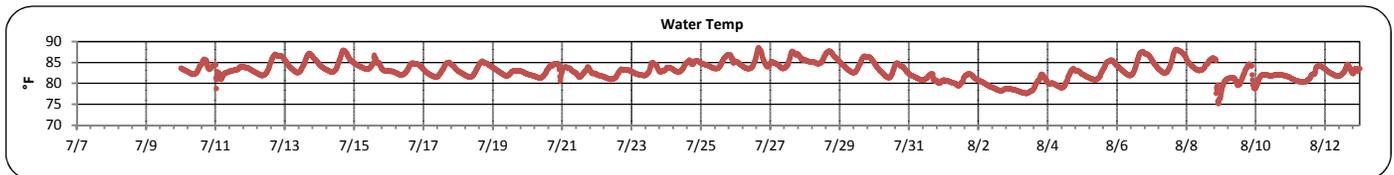
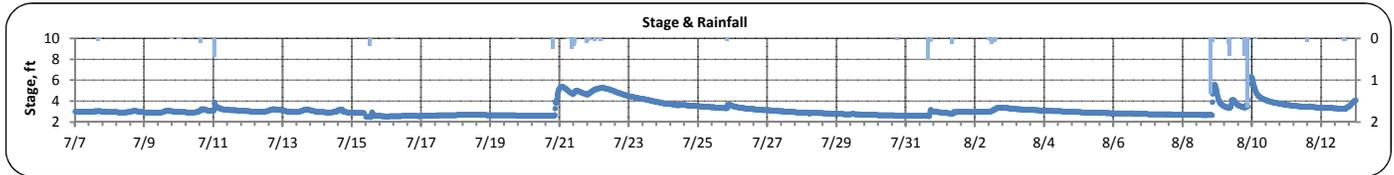
Sampled Data:

Analyte (units)	Sample 1		Sample 2		Sample 3		Sample 4	
	Time	Results	Time	Results	Time	Results	Time	Results
<i>Escherichia coli</i> (MPN/100mL)								
Total Suspended Solids (mg/L)								
Total Phosphorus (mg/L)								
Total Nitrogen (mg/L)								

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

Gills Creek B (July 7, 2014 -- Aug 12, 2014)

PARAMETER	DESCRIPTION	CONTINUOUS WATER QUALITY PARAMETERS:	SUMMARY STATISTICS				
			MINIMUM OBSERVED	MAXIMUM OBSERVED	MEDIAN OBSERVED	MEAN OBSERVED	STANDARD DEVIATION
STREAM NAME:	Gills Creek	STAGE (FT):	2.5	6.3	3.0	3.2	0.6
LOCATION:	Devine Street bridge	TEMPERATURE (°F):	75	89	83	83	2
ADDRESS:	4716 Devine Street Columbia, SC 29209	TURBIDITY (NTU):	5	399	9	14	24
COORDINATES:	33.989656, -80.97433	pH:	5.9	6.8	6.3	6.3	0.2
TMDL/IMPAIRMENT:	Fecal & Dissolved Oxygen	SPECIFIC CONDUCTIVITY (mS/cm):	0.026	0.070	0.057	0.058	0.004
NEIGHBORING LANDUSE:	Residential and commercial	DISSOLVED OXYGEN (mg/L):	3.3	7.7	5.8	5.8	1.1
APPROX. DRAINAGE AREA:	59 square miles						
SPATIAL LOCATION:	Middle site						
TOTAL NO. STORMS OVER 0.1 INCH:	13						
MAX. DAILY RAINFALL:	2.7 inches						
TOTAL RAINFALL (FOR PERIOD):	7.6 inches						



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 B (July 7, 2014 -- Aug 12, 2014)

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.

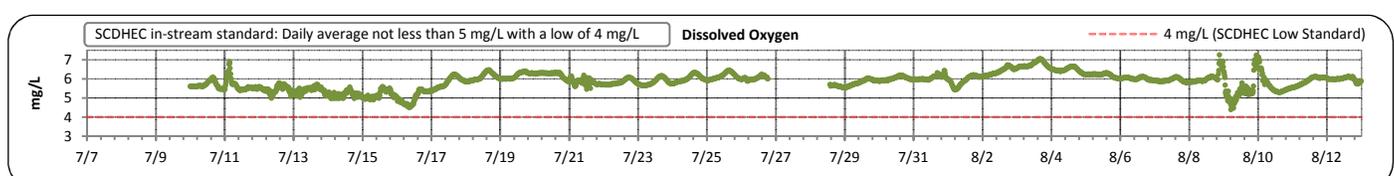
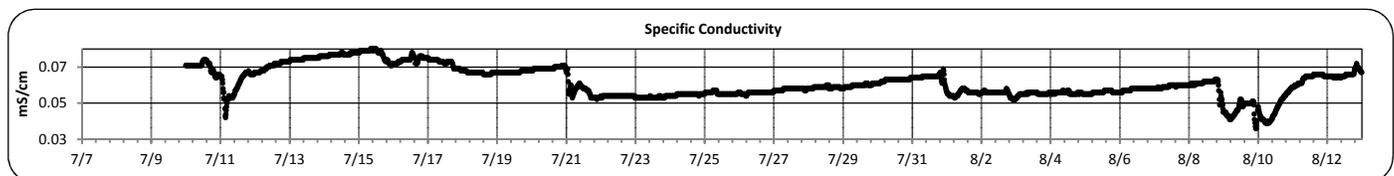
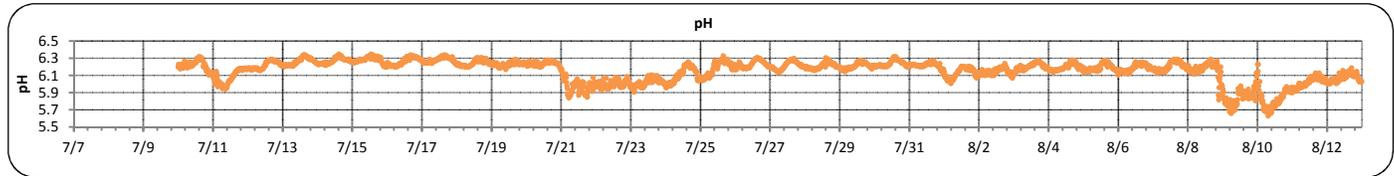
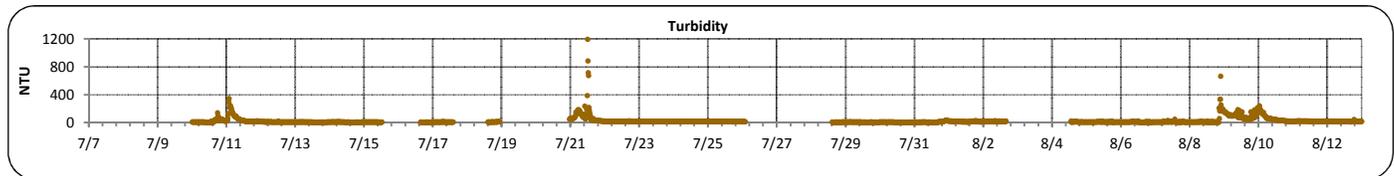
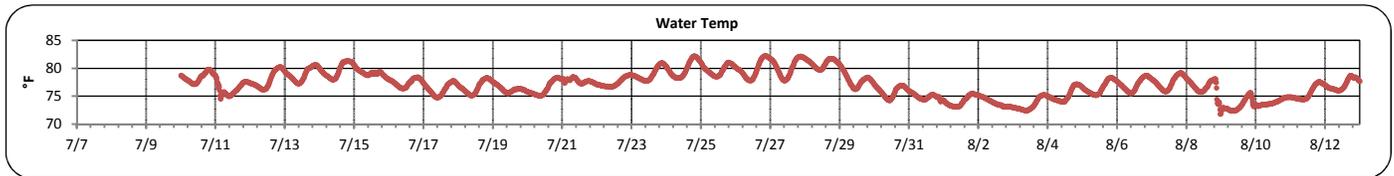
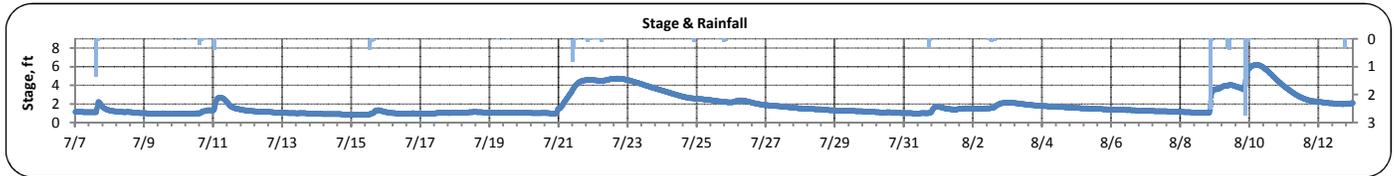
Sampled Data:

Analyte (units)	Sample 1		Sample 2		Sample 3		Sample 4	
	Time	Results	Time	Results	Time	Results	Time	Results
<i>Escherichia coli</i> (MPN/100mL)								
Total Suspended Solids (mg/L)								
Total Phosphorus (mg/L)								
Total Nitrogen (mg/L)								

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

Gills Creek C (July 7, 2014 -- Aug 12, 2014)

PARAMETER	DESCRIPTION	CONTINUOUS WATER QUALITY PARAMETERS:	SUMMARY STATISTICS				
			MINIMUM OBSERVED	MAXIMUM OBSERVED	MEDIAN OBSERVED	MEAN OBSERVED	STANDARD DEVIATION
STREAM NAME:	Gills Creek	STAGE (FT):	0.8	6.2	1.4	1.8	1.2
LOCATION:	Bluff Road bridge	TEMPERATURE (°F):	72	82	77	77	2
ADDRESS:	3009 Bluff Rd. Columbia, SC 29209	TURBIDITY (NTU):	4	1191	11	24	52
COORDINATES:	33.948043, -80.9889	pH:	5.6	6.4	6.2	6.2	0.1
TMDL/IMPAIRMENT:	Fecal & Dissolved Oxygen	SPECIFIC CONDUCTIVITY (mS/cm):	0.036	0.08	0.059	0.062	0.008
NEIGHBORING LANDUSE:	Residential and commercial	DISSOLVED OXYGEN (mg/L):	4.4	7.3	6.0	5.9	0.4
APPROX. DRAINAGE AREA:	64 square miles						
SPATIAL LOCATION:	Most downstream site						
TOTAL NO. STORMS OVER 0.1 INCH:	15						
MAX. DAILY RAINFALL:	5.25 inches						
TOTAL RAINFALL (FOR PERIOD):	13.8 inches						



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 (July 7, 2014 -- Aug 12, 2014)

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		Sample 2		Sample 3		Sample 4	
	Time	Results	Time	Results	Time	Results	Time	Results
<i>Escherichia coli</i> (MPN/100mL)								
Total Suspended Solids (mg/L)								
Total Phosphorus (mg/L)								
Total Nitrogen (mg/L)								

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