Gills Creek Monitoring Sites

Monitoring Data Summary for December 6th, 2018 – January 8th, 2019

Data Gaps

- The GILA station experienced a brief period of fouling turbidity from January 2nd – 4th, which cleared up after a field visit when the sonde was dunked. This period of data was removed from the dataset.
- The GILB station experienced turbidity fouling beginning on January 6th. The sonde was pulled on January 8th for monthly calibrations, so the fouling turbidity data from January 6th to harvest was removed from the dataset.
- The GILC station experienced a brief period of turbidity fouling on December 10th, which cleared up after a field visit when the sonde was dunked. This period of data was removed from the dataset.

SCDHEC Standards

- None of the Gills Creek stations recorded a pH reading outside of the acceptable SCDHEC range of 6 to 8.5.
- The GILA station recorded an average DO value of 10.9 mg/L, the GILB station recorded an average DO value of 10.4 mg/L, and the GILC station recorded an average DO value of 9.2 mg/L which are all 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 9.8 mg/L, 9 mg/L, and 7.7 mg/L, respectively. None of the Gills Creek stations recorded any DO values below the SCDHEC instantaneous minimum standard of 4.0 mg/L.

Storm Events

- The GILA station recorded 10 storm events resulting in approximately 7.3 inches of rainfall. The GILB station recorded 9 storms that resulted in approximately 6.7 inches of rainfall. The GILC station recorded 6 storms that resulted in approximately 6.6 inches of rainfall.
- The monitored water quality parameters in the Gills Creek watershed all displayed typical storm event response patterns during the recorded storm events.
- The maximum antecedent dry time since the last significant precipitation event (at least 0.1 inches) was approximately 7.1 days at the GILA station, occurring prior to the storm event on December 27th, and 7.3 days at both the GILB and GILC stations, occurring prior to the storm event on December 28th.

Potential Illicit Discharges and Abnormal Events

- Activity at Forest Lake caused notable decreases in stage at the GILA station several times during this monitoring period (observed on January 11th, 16th, and 21st). These activities resulted in an increase pH, specific conductivity, and turbidity levels and a decrease in DO.
- At the GILB station, abnormally high specific conductivity was observed on January 12th, which is likely from the Forest Lake activity that occurred on January 11th.

Flow Measurements

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

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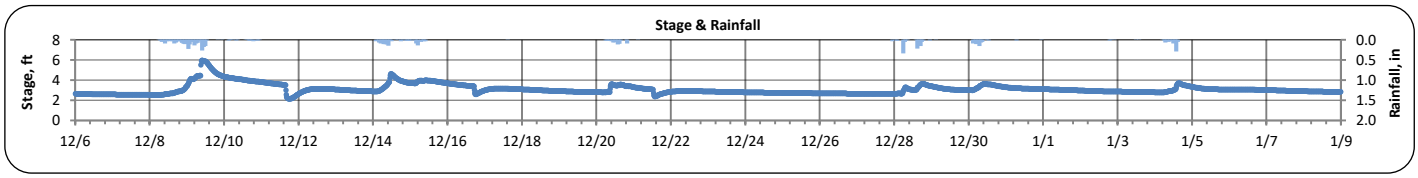
Continuous Water Quality Monitoring Periodic Report

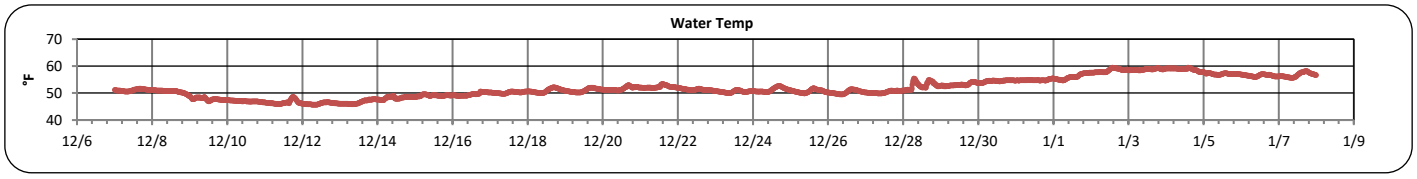
WOOLPERT

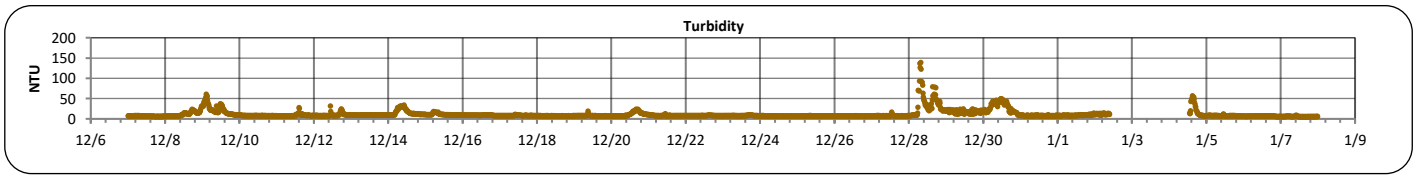
Gills Creek A (December 6, 2018 -- January 8, 2019)

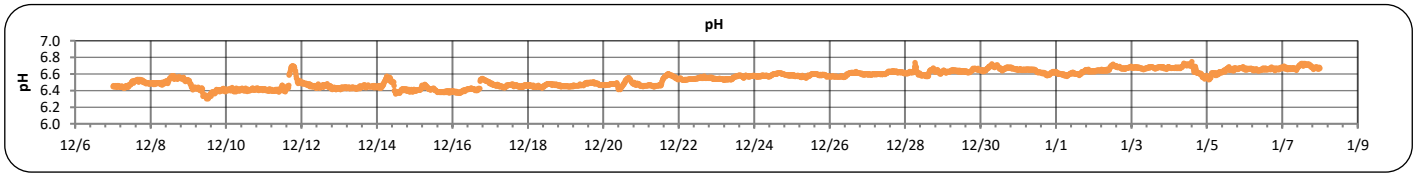
PARAMETER	DESCRIPTION
STREAM NAME:	Gills Creek
LOCATION:	Forest Drive Bridge
ADDRESS:	4840 Forest Drive, Columbia, SC 29206
COORDINATES:	34.019826, -80.963566
TMDL/IMPAIRMENT:	Fecal & Dissolved Oxygen
NEIGHBORING LANDUSE:	Residential and commercial
APPROX. DRAINAGE AREA:	48 square miles
SPATIAL LOCATION:	Most upstream site
TOTAL NO. STORMS OVER 0.1 INCH:	10
MAX. DAILY RAINFALL:	1.5 inches
TOTAL RAINFALL (FOR PERIOD):	7.3 inches

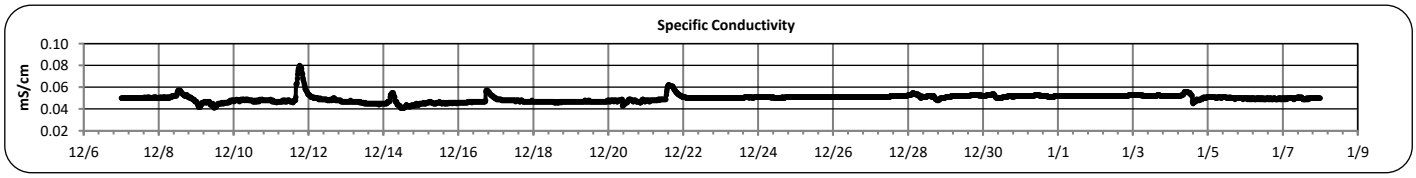
CONTINUOUS WATER QUALITY PARAMETERS:	SUMMARY STATISTICS				
	MINIMUM OBSERVED	MAXIMUM OBSERVED	MEDIAN OBSERVED	MEAN OBSERVED	STANDARD DEVIATION
STAGE (FT):	2.2	6.0	3.0	3.1	0.5
TEMPERATURE (°F):	46	60	51	52	4
TURBIDITY (NTU):	5	140	8	12	10
pH:	6.3	6.8	6.6	6.5	0.1
SPECIFIC CONDUCTIVITY (mS/cm):	0.041	0.08	0.050	0.050	0.003
DISSOLVED OXYGEN (mg/L):	9.8	11.9	11.0	10.9	0.5

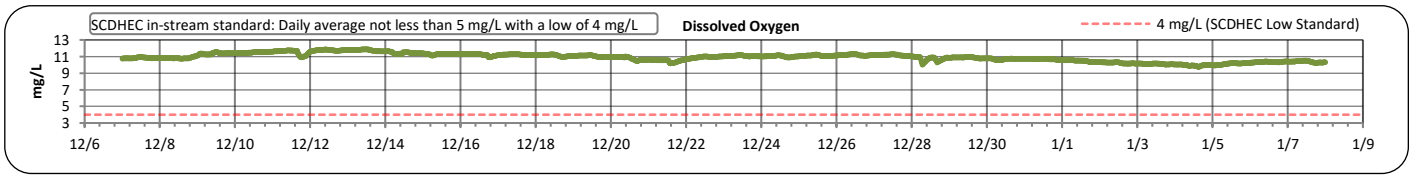












Note: Data gaps appear when the sonde is removed for calibration or when the flow depth is below the sensors

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Continuous Water Quality
Monitoring Periodic Report

Gills Creek A (December 6, 2018 -- January 8, 2019)

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
Escherichia coli (MPN/100mL)								
Total Suspended Solids (mg/L)								
Total Phosphorus (mg/L)								
Total Nitrogen (mg/L)								

Notes:

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

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City of Columbia, SC Stormwater Management
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Continuous Water Quality Monitoring Periodic Report

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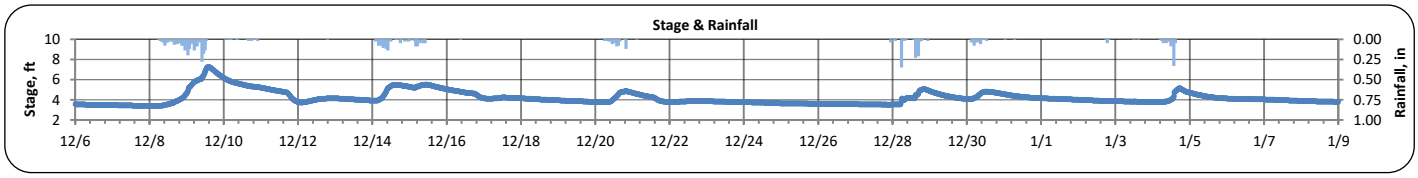
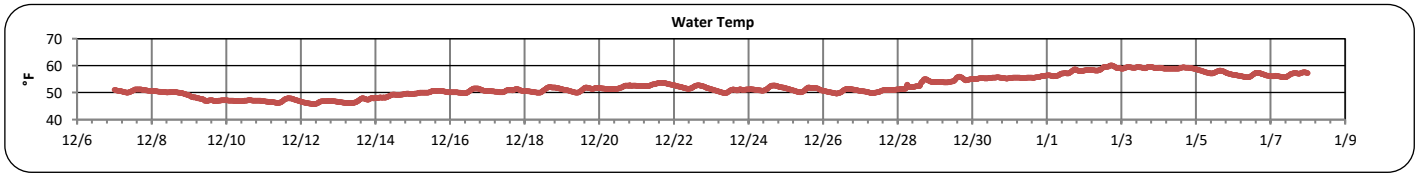
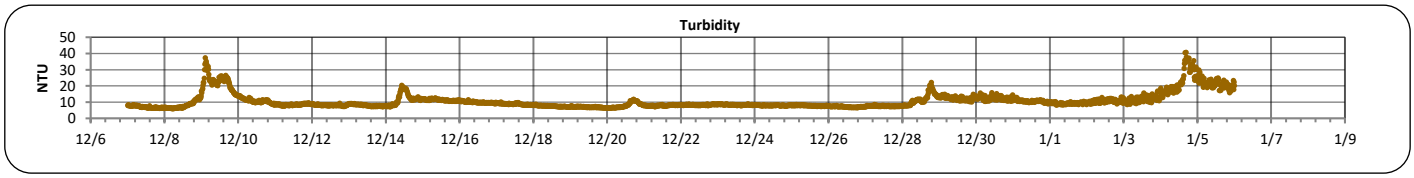
Gills Creek B (December 6, 2018 -- January 8, 2019)

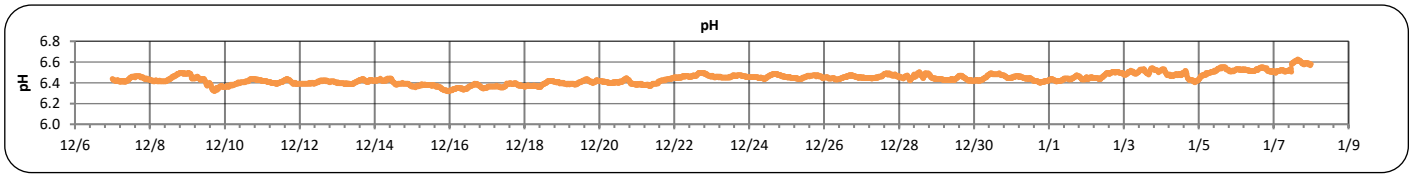
PARAMETER	DESCRIPTION
STREAM NAME:	Gills Creek
LOCATION:	Devine Street bridge
ADDRESS:	4716 Devine Street Columbia, SC 29209
COORDINATES:	33.989656, -80.97433
TMDL/IMPAIRMENT:	Fecal & Dissolved Oxygen
NEIGHBORING LANDUSE:	Residential and commercial
APPROX. DRAINAGE AREA:	59 square miles
SPATIAL LOCATION:	Middle site
TOTAL NO. STORMS OVER 0.1 INCH:	9
MAX. DAILY RAINFALL:	1.4 inches
TOTAL RAINFALL (FOR PERIOD):	6.7 inches

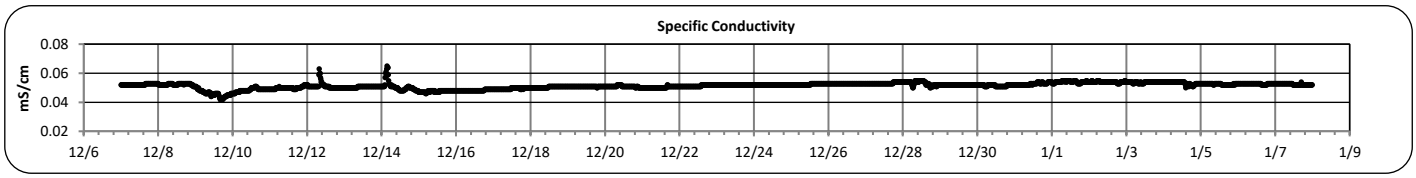
CONTINUOUS WATER QUALITY PARAMETERS:	SUMMARY STATISTICS				
	MINIMUM OBSERVED	MAXIMUM OBSERVED	MEDIAN OBSERVED	MEAN OBSERVED	STANDARD DEVIATION
STAGE (FT):	3.4	7.3	4.0	4.2	0.7
TEMPERATURE (°F):	46	60	51	52	4
TURBIDITY (NTU):	6	41	9	11	5
pH:	6.3	6.6	6.4	6.4	0.1
SPECIFIC CONDUCTIVITY (mS/cm):	0.042	0.065	0.052	0.051	0.002
DISSOLVED OXYGEN (mg/L):	9.0	11.3	10.5	10.4	0.5

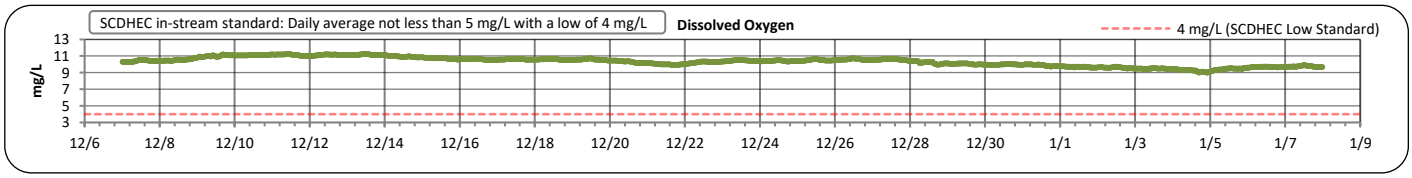












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Continuous Water Quality
Monitoring Periodic Report

Gills Creek B (December 6, 2018 -- January 8, 2019)

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
Escherichia coli (MPN/100mL)								
Total Suspended Solids (mg/L)								
Total Phosphorus (mg/L)								
Total Nitrogen (mg/L)								

Notes:

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

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City of Columbia, SC Stormwater Management — Partnering for clean waterways

Continuous Water Quality Monitoring Periodic Report

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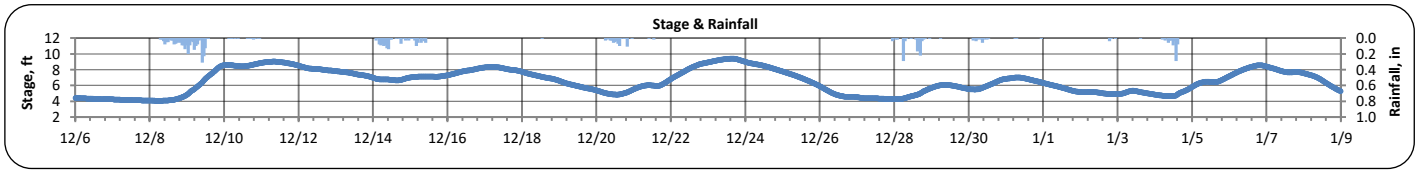
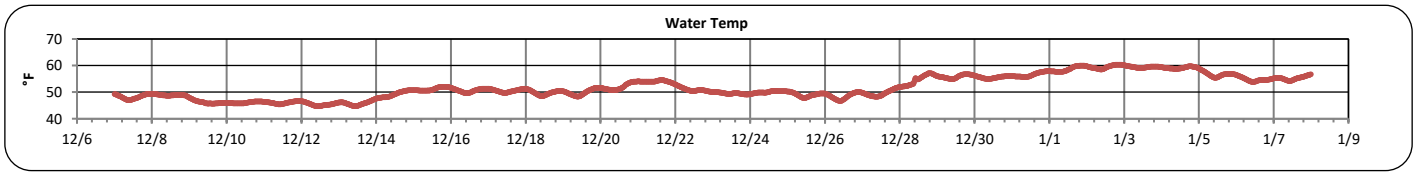
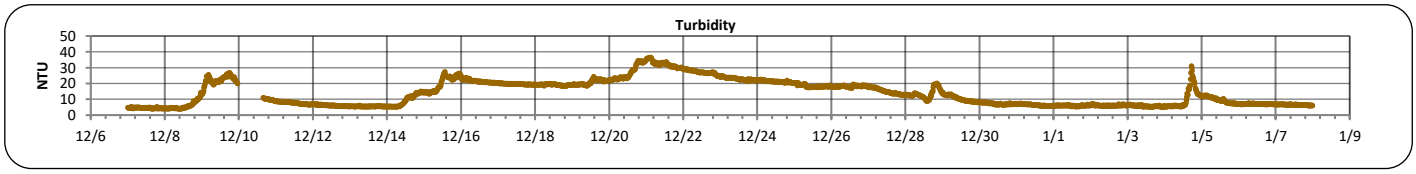
Gills Creek C (December 6, 2018 -- January 8, 2019)

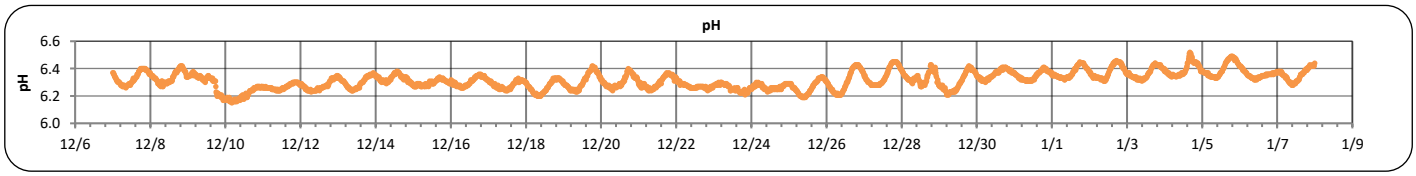
PARAMETER	DESCRIPTION
STREAM NAME:	Gills Creek
LOCATION:	Bluff Road bridge
ADDRESS:	3009 Bluff Rd. Columbia, SC 29209
COORDINATES:	33.948043, -80.9889
TMDL/IMPAIRMENT:	Fecal & Dissolved Oxygen
NEIGHBORING LANDUSE:	Residential and commercial
APPROX. DRAINAGE AREA:	64 square miles
SPATIAL LOCATION:	Most downstream site
TOTAL NO. STORMS OVER 0.1 INCH:	6
MAX. DAILY RAINFALL:	1.44 inches
TOTAL RAINFALL (FOR PERIOD):	6.6 inches

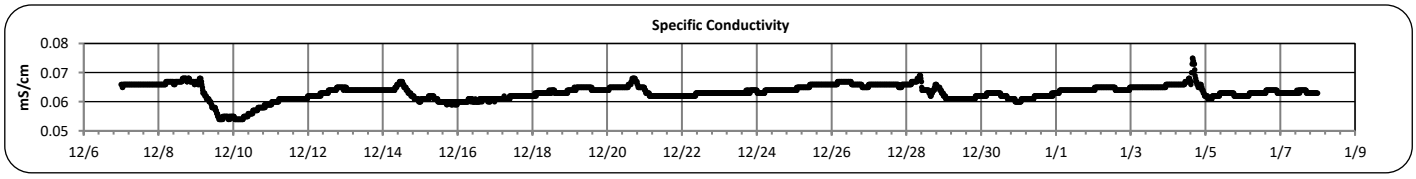
CONTINUOUS WATER QUALITY PARAMETERS:	SUMMARY STATISTICS				
	MINIMUM OBSERVED	MAXIMUM OBSERVED	MEDIAN OBSERVED	MEAN OBSERVED	STANDARD DEVIATION
STAGE (FT):	4.1	9.4	6.6	6.5	1.5
TEMPERATURE (°F):	45	60	51	52	4
TURBIDITY (NTU):	4	37	12	14	8
pH:	6.2	6.5	6.3	6.3	0.1
SPECIFIC CONDUCTIVITY (mS/cm):	0.054	0.075	0.063	0.063	0.003
DISSOLVED OXYGEN (mg/L):	7.7	10.9	9.1	9.2	0.8

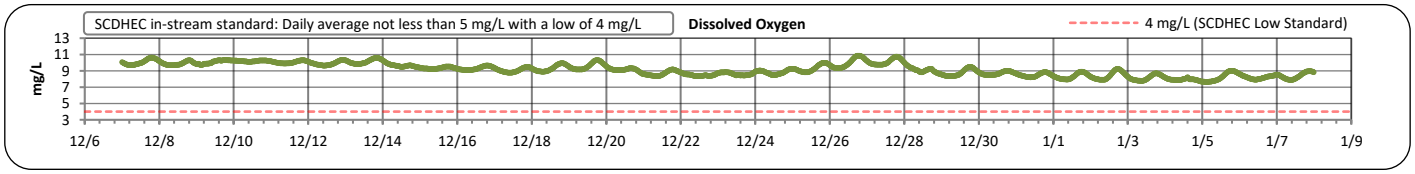












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Continuous Water Quality
Monitoring Periodic Report

Gills Creek C (December 6, 2018 -- January 8, 2019)

Explanation of Statistics:

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

Notes:

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

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