# Gills Creek Monitoring Sites

## Monitoring Data Summary for

## January 17th, 2020 – February 19th, 2020

*Data Gaps*

- The GILA station sonde was buried in sediment for a brief period beginning on January 31st. The turbidity, DO, and pH sensors were buried, so the data for those parameters were removed from January 31st until February 5th after a field visit to clear the sonde of sediment.
- The GILB and GILC stations did not have any interruptions in the data during this monitoring period.
- The website experienced reporting issues with the pressure transducers at GILA from January 18th to January 22nd, therefore no CS451 data was recorded during that brief period.

*SCDHEC Standards*

- None of the Gills Creek monitoring stations recorded any pH readings outside of the acceptable SCDHEC range of 6 to 8.5
- The GILA station recorded an average DO value of 10.2 mg/L, the GILB station recorded an average DO value of 10.3 mg/L, and the GILC station recorded an average DO value of 9.4 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 8.9 mg/L, 8 mg/L, and 7.3 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 7 storm events resulting in approximately 6.1 inches of rainfall. The GILB station recorded 7 storms that resulted in approximately 6.4 inches of rainfall. The GILC station recorded 7 storms that resulted in approximately 6.7 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 6.5 days at each of the Gills Creek stations, occurring prior to the February 13th storm event.

*Potential Illicit Discharges and Abnormal Events*

- At the GILB and GILC station, a decrease in stage was observed on January 29th, likely caused by activity occurring in Lake Katherine, upstream of GILB. The stage increased to normal baseflow conditions on January 30th. 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.

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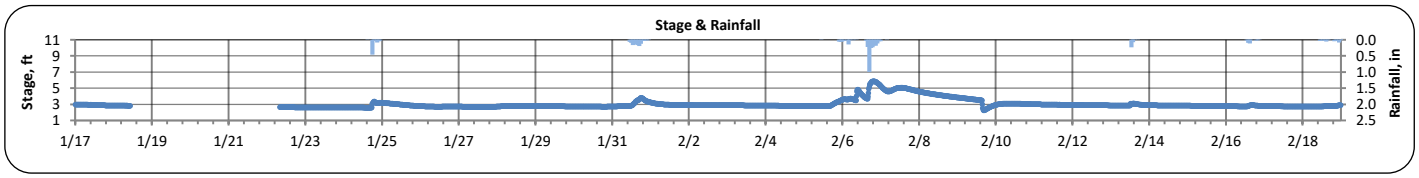
# Continuous Water Quality Monitoring Periodic Report

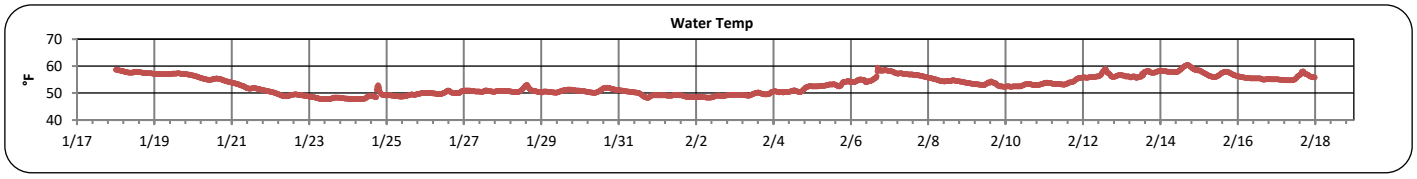
WOOLPERT

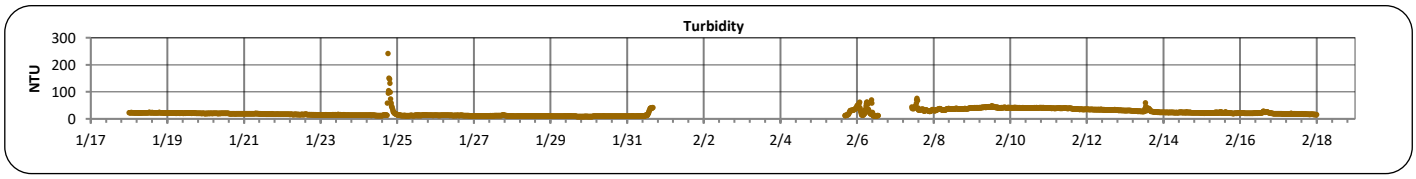
## Gills Creek A (Jan 17, 2020 - Feb 19, 2020)

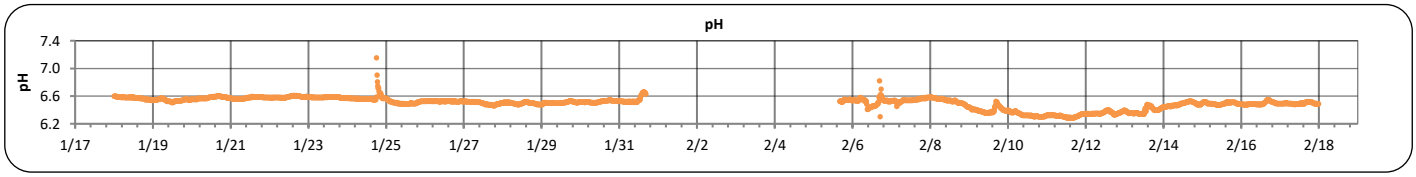
| PARAMETER | DESCRIPTION |
|---|---|
| STREAM NAME: | Gills Creek |
| LOCATION: | Forest Drive Bridge |
| ADDRESS: | 4840 Forest Drive, Columbia, SC 29206 |
| COORDINATES: | 34.019826, -80.963566 |
| TMDL/IMPAIRMENT: | Fecal & Dissolved Oxygen |
| NEIGHBORING LANDUSE: | Residential and commercial |
| APPROX. DRAINAGE AREA: | 48 square miles |
| SPATIAL LOCATION: | Most upstream site |
| TOTAL NO. STORMS OVER 0.1 INCH: | 7 |
| MAX. DAILY RAINFALL: | 2.6 inches |
| TOTAL RAINFALL (FOR PERIOD): | 6.1 inches |

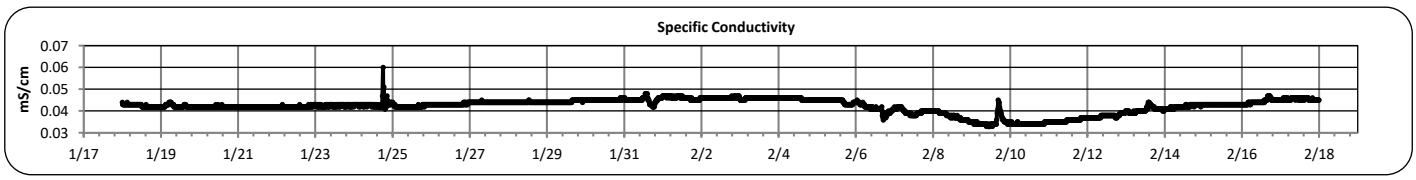
| CONTINUOUS WATER QUALITY PARAMETERS: | SUMMARY STATISTICS | | | | |
|---|---|---|---|---|---|
| | MINIMUM OBSERVED | MAXIMUM OBSERVED | MEDIAN OBSERVED | MEAN OBSERVED | STANDARD DEVIATION |
| STAGE (FT): | 2.3 | 5.9 | 2.9 | 3.0 | 0.6 |
| TEMPERATURE (°F): | 48 | 61 | 53 | 53 | 3 |
| TURBIDITY (NTU): | 9 | 243 | 21 | 23 | 13 |
| pH: | 6.3 | 7.2 | 6.5 | 6.5 | 0.1 |
| SPECIFIC CONDUCTIVITY (mS/cm): | 0.033 | 0.060 | 0.043 | 0.042 | 0.003 |
| DISSOLVED OXYGEN (mg/L): | 8.9 | 11.4 | 10.0 | 10.2 | 0.8 |

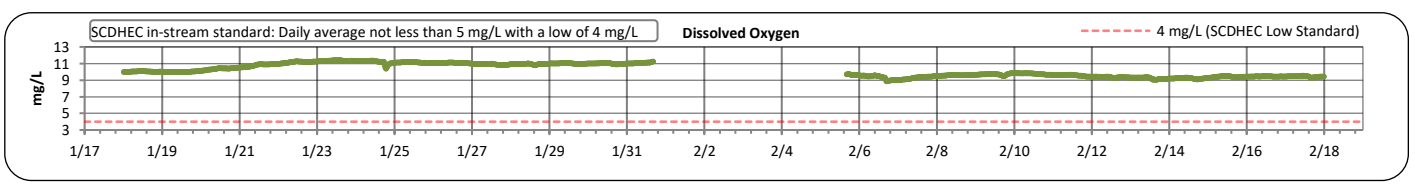



Note: Data gaps appear when the sonde is removed for calibration or when the flow depth is below the sensors

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**Continuous Water Quality**
**Monitoring Periodic Report**

**Gills Creek A (Jan 17, 2020 - Feb 19, 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 | | Sample 2 | | Sample 3 | | Sample 4 | |
|---|---|---|---|---|---|---|---|---|
| | 2/6/2020 | | 2/6/2020 | | 2/6/2020 | | | |
| | Time | Results | Time | Results | Time | Results | Time | Results |
| *Escherichia coli* (MPN/100mL) | 12:04 | 196 | 13:17 | 40 | 15:20 | 148 | | |
| Total Suspended Solids (mg/L) | 12:04 | 7.3 | 13:17 | 7.2 | 15:20 | 7.1 | | |
| Total Phosphorus (mg/L) | 12:04 | 0.022 | | | | | | |
| Total Nitrogen (mg/L) | 12:04 | 0.76 | | | | | | |

Notes: Samples 1, 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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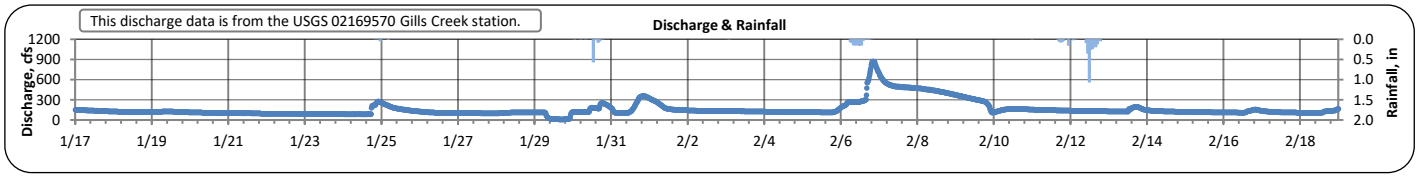
# Continuous Water Quality Monitoring Periodic Report

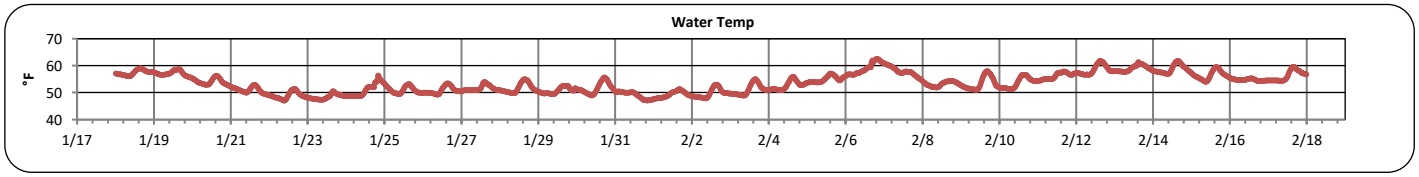
WOOLPERT

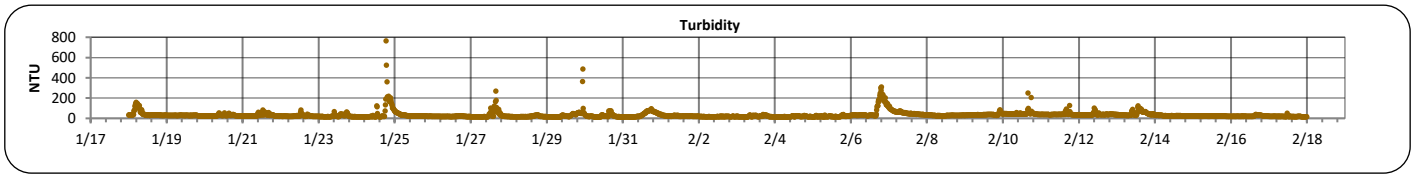
## Gills Creek B (Jan 17, 2020 - Feb 19, 2020)

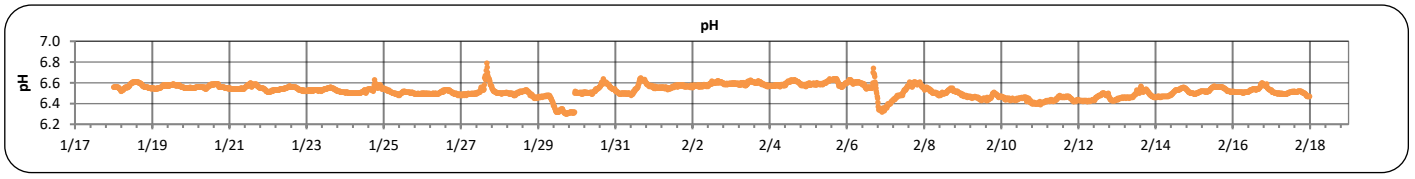
| PARAMETER | DESCRIPTION |
|---|---|
| STREAM NAME: | Gills Creek |
| LOCATION: | Devine Street bridge |
| ADDRESS: | 4716 Devine Street Columbia, SC 29209 |
| COORDINATES: | 33.989656, -80.97433 |
| TMDL/IMPAIRMENT: | Fecal & Dissolved Oxygen |
| NEIGHBORING LANDUSE: | Residential and commercial |
| APPROX. DRAINAGE AREA: | 59 square miles |
| SPATIAL LOCATION: | Middle site |
| TOTAL NO. STORMS OVER 0.1 INCH: | 7 |
| MAX. DAILY RAINFALL: | 2.9 inches |
| TOTAL RAINFALL (FOR PERIOD): | 6.4 inches |

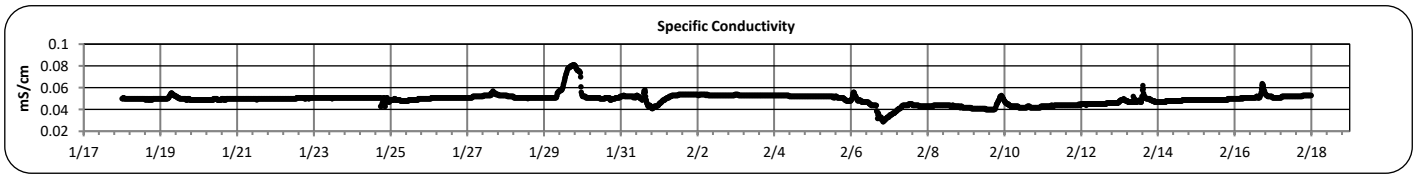
| CONTINUOUS WATER QUALITY PARAMETERS: | SUMMARY STATISTICS | | | | |
|---|---|---|---|---|---|
| | MINIMUM OBSERVED | MAXIMUM OBSERVED | MEDIAN OBSERVED | MEAN OBSERVED | STANDARD DEVIATION |
| DISCHARGE (CFS): | 9.6 | 870.0 | 128.0 | 164.1 | 112.3 |
| TEMPERATURE (°F): | 47 | 63 | 53 | 54 | 4 |
| TURBIDITY (NTU): | 14 | 766 | 27 | 35 | 33 |
| pH: | 6.3 | 6.8 | 6.5 | 6.5 | 0.1 |
| SPECIFIC CONDUCTIVITY (mS/cm): | 0.029 | 0.081 | 0.050 | 0.049 | 0.005 |
| DISSOLVED OXYGEN (mg/L): | 8.0 | 11.4 | 10.4 | 10.3 | 0.5 |

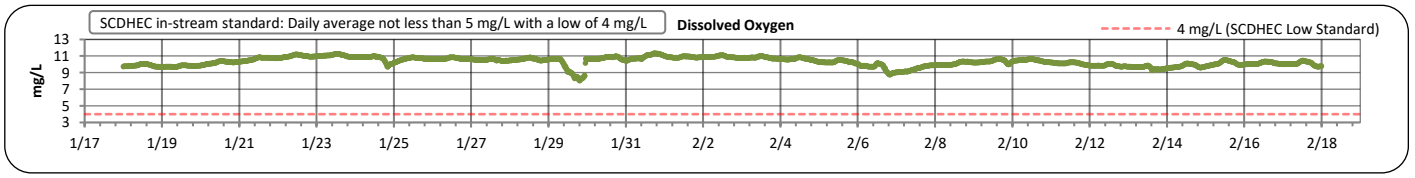



Note: Data gaps appear when the sonde is removed for calibration or when the flow depth is below the sensors

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**Continuous Water Quality**
**Monitoring Periodic Report**

**Gills Creek B (Jan 17, 2020 - Feb 19, 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 | | Sample 2 | | Sample 3 | | Sample 4 | |
|---|---|---|---|---|---|---|---|---|
| | 1/20/2020 | | 2/6/2020 | | 2/6/2020 | | 2/6/2020 | |
| | Time | Results | Time | Results | Time | Results | Time | Results |
| *Escherichia coli* (MPN/100mL) | 11:53 | 524 | 11:47 | 754 | 14:12 | 538 | 15:43 | 728 |
| Total Suspended Solids (mg/L) | 11:53 | 35 | 11:47 | 38 | 14:12 | 32.6 | 15:43 | 46.8 |
| Total Phosphorus (mg/L) | | | 11:47 | 0.037 | | | | |
| Total Nitrogen (mg/L) | | | 11:47 | 1.12 | | | | |

Notes: Sample 1 was taken during dry conditions. Samples 2, 3, and 4 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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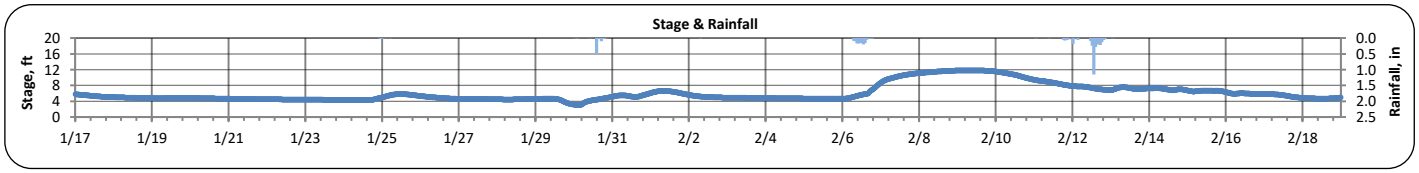
# Continuous Water Quality Monitoring Periodic Report

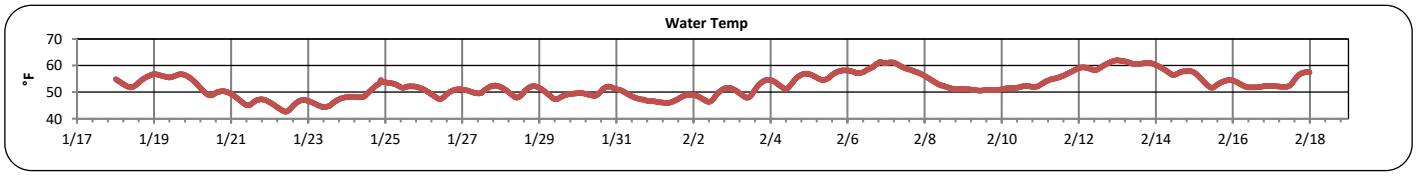
WOOLPERT

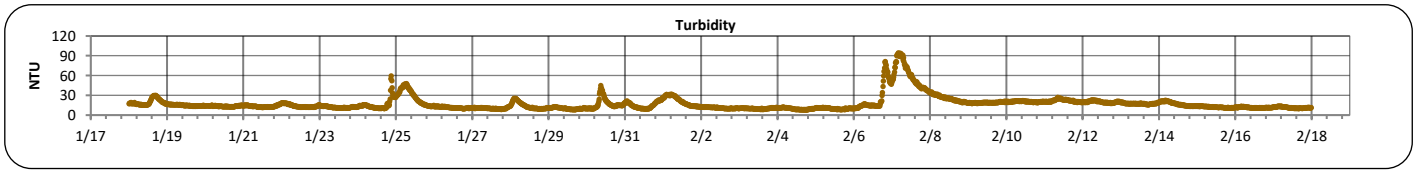
## Gills Creek C (Jan 17, 2020 - Feb 19, 2020)

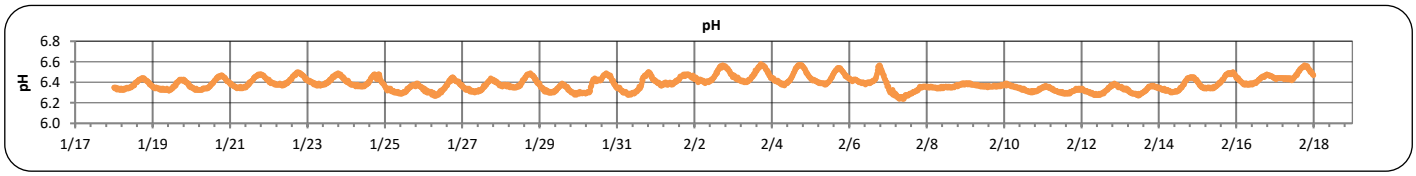
| PARAMETER | DESCRIPTION |
|---|---|
| STREAM NAME: | Gills Creek |
| LOCATION: | Bluff Road bridge |
| ADDRESS: | 3009 Bluff Rd. Columbia, SC 29209 |
| COORDINATES: | 33.948043, -80.9889 |
| TMDL/IMPAIRMENT: | Fecal & Dissolved Oxygen |
| NEIGHBORING LANDUSE: | Residential and commercial |
| APPROX. DRAINAGE AREA: | 64 square miles |
| SPATIAL LOCATION: | Most downstream site |
| TOTAL NO. STORMS OVER 0.1 INCH: | 7 |
| MAX. DAILY RAINFALL: | 2.9 inches |
| TOTAL RAINFALL (FOR PERIOD): | 6.7 inches |

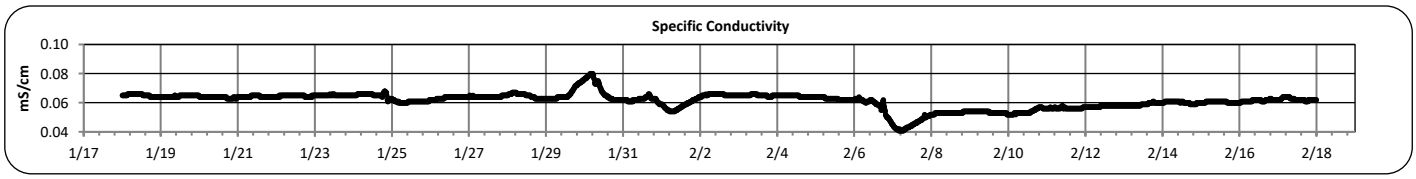
| CONTINUOUS WATER QUALITY PARAMETERS: | SUMMARY STATISTICS | | | | |
|---|---|---|---|---|---|
| | MINIMUM OBSERVED | MAXIMUM OBSERVED | MEDIAN OBSERVED | MEAN OBSERVED | STANDARD DEVIATION |
| STAGE (FT): | 3.0 | 11.8 | 5.1 | 6.1 | 2.1 |
| TEMPERATURE (°F): | 43 | 62 | 52 | 52 | 4 |
| TURBIDITY (NTU): | 8 | 95 | 14 | 17 | 11 |
| pH: | 6.2 | 6.6 | 6.4 | 6.4 | 0.1 |
| SPECIFIC CONDUCTIVITY (mS/cm): | 0.041 | 0.080 | 0.063 | 0.061 | 0.005 |
| DISSOLVED OXYGEN (mg/L): | 7.3 | 11.4 | 9.5 | 9.4 | 0.9 |

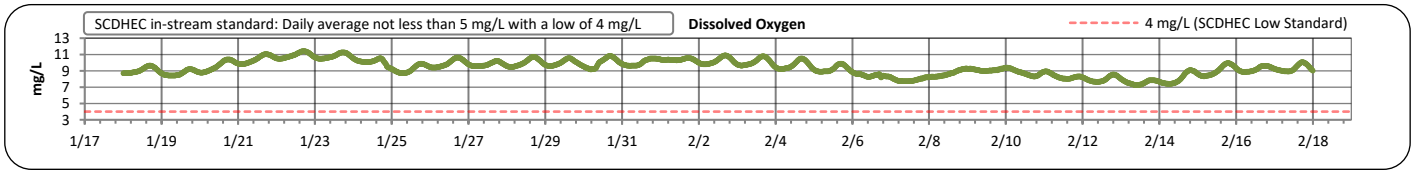



Note: Data gaps appear when the sonde is removed for calibration or when the flow depth is below the sensors

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**Continuous Water Quality**
**Monitoring Periodic Report**

**Gills Creek C (Jan 17, 2020 - Feb 19, 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 | | Sample 2 | | Sample 3 | | Sample 4 | |
|---|---|---|---|---|---|---|---|---|
| | 1/20/2020 | | 2/6/2020 | | 2/13/2020 | | | |
| | Time | Results | Time | Results | Time | Results | Time | Results |
| *Escherichia coli* (MPN/100mL) | 11:11 | 144 | 10:55 | 820 | 12:36 | 216 | | |
| Total Suspended Solids (mg/L) | 11:11 | 6.1 | 10:55 | 9.1 | 12:36 | 6.8 | | |
| Total Phosphorus (mg/L) | | | 10:55 | 0.033 | | | | |
| Total Nitrogen (mg/L) | | | 10:55 | 1.07 | | | | |

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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