

Greenville County Sampling and Monitoring Network



Background

Greenville County's original continuous water monitoring network along the Reedy River included six temporary monitoring sites with YSI 6600 multi-parameter data sondes to monitor pH, temperature, dissolved oxygen, turbidity, ammonium, conductivity and flow depth.

Challenge

Updated continuous monitoring equipment was required to meet MS4 permit requirements and evaluate watershed quality conditions.

Solution

The Woolpert/YSI team enhanced four continuous monitoring stations with permanent monitoring platforms, expanded the network to include additional watersheds, and designed and installed a countywide permanent rain gauge network. Remote telemetry added to all permanent stations enabled data analysis every 15 minutes and live data hosting on project-specific webpages. The team also installed real-time water quality monitoring buoys in Boyd's Millpond, the regulatory point of compliance for the Reedy River Water Quality Group, as well as in the Saluda and Enoree River watersheds.

Outcome

Using real-time data, the Woolpert/YSI team continues to perform the following tasks:

- Analysis and correction of real-time non-representative stream conditions
- Identification of unusual baseflow water quality conditions and patterns indicative of illicit discharge activity
- Confirmation of discharge makeup using identical YSI 6600 water quality data sondes to track unusual parameter concentrations to a suspected source upstream
- Supply of real-time rainfall and river stage elevations to the National Weather Service and city of Greenville for incorporation into forecasting models and situational awareness systems

CLIENT

Greenville County

LOCATION

Greenville County, SC

CHALLENGE

Enhance current continuous water monitoring network

SOLUTION

- Develop permanent monitoring and rain gauge networks
- Install real-time water quality monitoring buoys

BENEFITS

Progressive, community-owned monitoring network

Additionally, the team provides the following services associated with the continuous monitoring network:

- Periodic collection of direct discharge measurements to determine flow rates from flow depths recorded at permanent stations
- Analysis of relationships between continuous monitoring parameters and nutrients to estimate continuous total phosphorus and total nitrogen, allowing for detailed interpretation of nutrients and sources
- Development of a quality assurance project plan to ensure consistent, high-quality data and standard operating procedures for field, calibration and maintenance activities
- Qualitative aquatic macroinvertebrate stream assessments at continuous monitoring stations
- Collection of sediment samples that could impact other sediment and associated nutrient loads
- Collection of rainfall samples for analysis to characterize pollution concentrations
- Collection and shipping of manual grab samples to be analyzed for host organisms that may be sources of bacteria

Benefits

A YSI audit confirmed that the county's quality assurance/quality control and standard operating procedures meet or exceed all factory calibration and maintenance recommendations. With a real-time network of 17 water quality stations that covers most of the county, Greenville County now boasts one of the most progressive, community-owned monitoring networks in the southeast.