

Raleigh Watershed Monitoring Strategy and Implementation Plan



Background

Since 2010, the city of Raleigh has collected quarterly grab samples at fixed locations within 18 of its major watersheds.

Challenge

Although the city was meeting National Pollutant Discharge Elimination System Municipal Separate Stormwater System requirements, it still desired a third-party review and enhancement of its program, complete with suggestions for improvement and dual-purpose objectives for other city departments.

Solution

The Woolpert team identified opportunities to improve the program by first evaluating the city council's strategic and business plans. By conducting a detailed statistical analysis of and trend assessment from the 10-year collection program, the team identified watersheds with elevated parameters for nutrients, bacteria and metals. Woolpert used maps and a summary matrix to compile the existing water quality regulatory drivers, such as total maximum daily loads, impairments, stream gauge station readings, volunteer samples and historic trends.

Outcome

Woolpert recommended program improvements including collecting grab samples during storm events, considering alternative sampling locations and piloting a continuous monitoring station with real-time water quality sensors. To further support these enhancement efforts, Woolpert developed a detailed monitoring implementation plan with sample frequency recommendations, variable watershed analysis parameters, resource estimates, standard reporting templates, and equipment and analytical method recommendations. The team also developed a standard reporting template for the city's historic macroinvertebrate data and provided detailed recommendations to improve standard operation procedures for data collection.

CLIENT

City of Raleigh

LOCATION

Raleigh, NC

CHALLENGE

Enhance current watershed monitoring plan

SOLUTION

- Evaluate existing watershed data
- Develop recommendations for improvement

SERVICES

- Audit of sampling program
- Field inspections
- Program level consulting

BENEFITS

- Identification of possible pollutant contributors
- Improved value compared to existing sampling program

Benefits

The city of Raleigh was excited to receive recommendations for enhancing its citywide monitoring program and the benefits it will provide to identify pollutant sources and improve water quality. Soon, the city will implement the recommended improvements to its ongoing grab sample program. Additionally, the monitoring implementation plan is being used to leverage cost estimates and budget for a pilot real-time monitoring station.