AgriLIFE RESEARCH & EXTENSION
Texas A&M System

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buck creek water quality

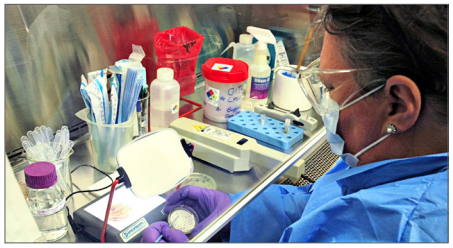
buckcreek.tamu.edu

Buck Creek is a small creek in the Texas Panhandle in the Red River Basin that was considered impaired by elevated levels of E. coli. This impairment was based on a limited data set that did not accurately represent spatial and temporal water quality conditions in the creek. Through a series of intensive water quality monitoring projects, data collected led to the restoration of water quality and the removal of the creek's impaired status.

Efforts to accurately characterize water quality began with the ***Bacterial Monitoring for the Buck Creek Watershed*** project. Through this project, the Texas Water Resources Institute and Texas AgriLife Research worked with the Texas State Soil and Water Conservation Board and cooperating soil and water conservation districts to collect and analyze water samples in Buck Creek. Data collected during this project did indicate that *E. coli* levels were periodically elevated and warranted additional investigation into the sources of these *E. coli* inputs.

Subsequently, the ***Buck Creek Watershed Protection Plan (WPP) Development*** project began. This project paired information from the earlier bacteria monitoring project to identify specific sources of the bacteria in Buck Creek, evaluate potential management alternatives for restoring the water body and educate landowners on the benefits of certain best management practices. Additionally, the ***Modeling Support for Buck Creek WPP Development*** project was conducted to provide additional knowledge on the potential magnitude and distribution of bacteria loading in the watershed. Through these projects, watershed stakeholders were provided the information they needed to make informed decisions about managing bacteria loads in their watershed and were guided through the process of developing a WPP that outlines a voluntary approach to managing the Buck Creek watershed to improve its health and water quality. This WPP is currently awaiting an EPA review to see if it meets EPA's 9 key elements for watershed-based plans.

Currently, water quality monitoring continues across the watershed through the ***Water Quality Monitoring in the Buck Creek Watershed and Facilitation of Buck Creek Watershed Partnership*** project. Monitoring has been scaled back from the original 13 monitoring sites to seven sampling sites in this project, but the monitoring continues to obtain a robust data set. These samples are being collected on a monthly basis to provide continued data,



texas water resources institute

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enabling long-term tracking of water quality improvement. Additionally, this project is providing an avenue to keep watershed partnership members engaged.

Objectives

- Maintain surface water quality monitoring data collection for tracking water quality improvements
- Maintain stakeholder coordination and engagement
- Usher the Buck Creek WPP from the development into implementation

Accomplishments

- Completed six years of intensive monitoring that better describes spatial and temporal water quality in Buck Creek
- Submitted water quality data to the Texas Commission for Environmental Quality for use in its next biannual water quality assessment
- Facilitated the restoration of water quality in the creek leading to the removal of its impaired status
- Developed the Buck Creek Watershed Protection Plan

Collaborators

- Texas Water Resources Institute
- Texas AgriLife Research
- Texas AgriLife Extension Service
- Donley County Soil and Water Conservation District
- Hall-Childress Soil and Water Conservation District
- Salt Fork Soil and Water Conservation District
- Red River Authority

Funding Agencies

- Texas State Soil and Water Conservation Board
- U.S. Environmental Protection Agency

Texas Water Resources Institute
make every drop count

Texas Water Resources Institute
1500 Research Parkway, Suite 110, 2260 TAMU
College Station, TX 77843-2260
979.845.1851
twri@tamu.edu
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