

attoyac bayou wpp development

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The Attoyac Bayou, a sub-watershed within the Upper Neches River Watershed, extends approximately 82 miles through Rusk, Nacogdoches, San Augustine and Shelby counties before emptying into Sam Rayburn Reservoir. With several rural communities in the area, the majority of the land in the watershed is used for cattle and poultry operations, forestry or recreational and wildlife uses.

The bayou is one of many rural watersheds listed as an impaired water body on the *Texas Integrated Report for Clean Water Act Sections 305(b) and 303(d)* due to high levels of *E. coli*, the non-pathogenic indicator bacteria found in birds and mammals used by the state to evaluate a water body's ability to support contact recreation. Three monitoring stations managed by the Angelina & Neches River Authority, U.S. Geological Survey, and Texas Commission on Environmental Quality have provided water quality data on the bayou for a number of years. Beginning in 2000, data collected for *E. coli* have consistently shown elevated *E. coli* levels that exceed the applicable Texas Water Quality Standards.

Studies done to understand bacteria and nutrient loading in the area seem to justify the Attoyac's impairment listing, but the limited flow data documented make it difficult to calculate loading rates and identify sources of *E. coli* contamination. The ***Development of a Watershed Protection Plan for Attoyac Bayou*** project is collecting additional water quality and streamflow data that will help to develop a better understanding of *E. coli* loadings in the water body. Local stakeholder input will further facilitate the accurate identification of *E. coli* sources in the watershed and help develop an effective watershed protection plan to restore water quality.

Objectives

- Assess the current water quality conditions and impairments through targeted water quality sampling and analysis
- Conduct a watershed source survey and develop a comprehensive GIS inventory
- Analyze water quality data using load duration curves and spatially explicit modeling
- Conduct bacteria source tracking and evaluate the sources of *E. coli* present in the watershed contributing to the bayou's bacteria load
- Conduct a Recreational Use Attainability Analysis and determine the most appropriate water quality standard for the bayou
- Establish and provide direction for a stakeholder group that will serve as a decision-making body in the assessment of the bayou and develop a watershed protection plan that guides future water body restoration activities

Accomplishments

- Updated watershed land use and land cover map



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- Conducted sanitary survey of the watershed and identified dominant sources of fecal material

Collaborators

- Texas State Soil and Water Conservation Board
- Texas Water Resources Institute
- Texas AgriLife Research
- Texas Forest Service
- Stephen F. Austin State University College of Forestry and Agriculture
- Castilaw Environmental Services, LLC
- Angelina & Neches River Authority
- Nacogdoches Soil and Water Conservation District
- Piney Woods Soil and Water Conservation District
- Rusk Soil and Water Conservation District
- Shelby Soil and Water Conservation District



Funding Agencies

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

