

big cypress creek modeling and bst

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Located in the Cypress Creek Basin in northeast Texas, Big Cypress Creek flows in an east-southeast direction into Lake Cypress Springs, then into Lake Bob Sandlin, on to Lake O' the Pines, and finally into Caddo Lake before entering Louisiana. Big Cypress Creek and its tributaries, Tankersley and Hart creeks (between Lake Bob Sandlin and Lake O' the Pines) are on the *Texas 303(d) List* for having bacteria levels that exceed water quality standards.

Lake O' the Pines and the other water bodies in its watershed are extremely important to the surrounding region. Lake O' the Pines provides drinking water for seven cities, numerous rural water districts, and several steel manufacturing and electricity generating companies. The city of Longview, with a population of 70,000, is also planning to use the lake as a drinking water source.

The lake is an important resource for the timber industry and for such agricultural enterprises as the poultry industry, dairies, cow/calf operations, and crop irrigation. Recreation and tourism are significant sources of income for residents of the watershed. Boating and fishing for trophy bass, catfish, and crappie lure large numbers of recreational users to the watershed each year.

Lake O' the Pines has already been the focus of a Total Maximum Daily Load (TMDL) project, which determined that low dissolved oxygen concentrations in the reservoir are due to high rates of photosynthesis and respiration in aquatic vegetation, resulting from large amounts of phosphorus. It also determined that a 56 percent reduc-

tion in total phosphorus is needed to restore water quality. An implementation plan was developed to reduce phosphorus in Lake O' the Pines; many of the plan's strategies are also expected to reduce bacterial loads.

Through the Lake O' the Pines TMDL process, local watershed stakeholders became knowledgeable about water quality rules and regulations, as well as approaches to watershed planning. Equipped with this information, they have already expressed interest in actively addressing the bacterial impairments in the Big Cypress Creek Watershed, which serves as a contributing watershed to Lake O' the Pines.

The goal of **Big Cypress Creek Modeling and BST** is to remove Big Cypress Creek and Tankersley and Hart creeks from the *Texas 303(d) List* by providing stakeholders and agencies with sufficient information to address local bacterial impairments through verifying current water body uses, revising water quality standards and/or designated uses, developing a watershed protection plan, or developing a TMDL and TMDL Implementation Plan.



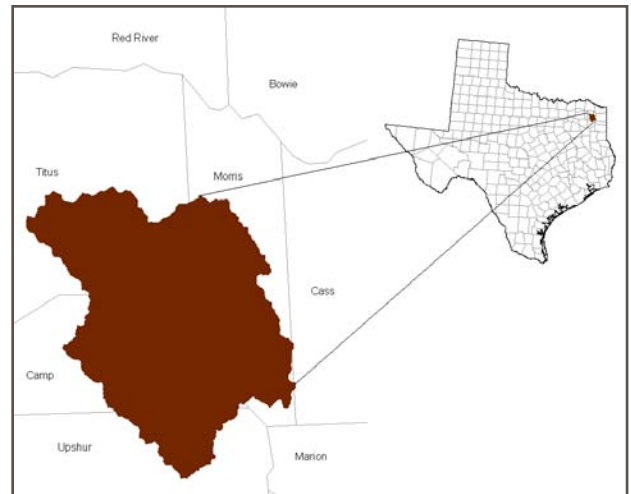
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Objectives

- Conduct bacterial source tracking
- Develop a comprehensive GIS inventory and conduct a watershed source survey
- Analyze data using load duration curves and spatially explicit modeling

Collaborators

- Texas AgriLife Research
- Texas Water Resources Institute
- Texas State Soil and Water Conservation Board
- Northeast Texas Municipal Water District
- Texas A&M University Spatial Sciences Laboratory
- Sulphur-Cypress Soil and Water Conservation District
- Upshur-Gregg Soil and Water Conservation District



Funding Agency

- Texas State Soil and Water Conservation Board



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