The Bosque River watershed has a drainage area of more than 1,600 square miles, extending northwest from the city of Waco in McLennan County to parts of Bosque, Somervell, Coryell, Hamilton and Erath counties. The Bosque River serves as the primary drinking water supply for more than 200,000 people.

Water quality monitoring in the watershed has shown high levels of nutrients and bacteria that have contributed to excessive growth of algae and other aquatic plants in the river. Total Maximum Daily Load analyses for the river suggest that dairy waste application fields, municipal discharges and other lesser sources contribute to these high nutrient and bacteria loads.

The Texas Water Resources Institute coordinates a project to develop environmental infrastructure improvement alternatives for the North, Middle and South Bosque watersheds. This plan will serve as a guide for potential voluntary environmental improvement projects designed to reduce nutrient and bacterial contamination of the Bosque River.

Objectives

- Assemble data about land characteristics, waterbodies and potential sources of contamination and incorporate this data into a GIS model that can be used to pair suggested best management practices (BMPs) to feasible subwatersheds where the greatest impact will be seen
- Determine the merits of various BMPs, such as constructed wetlands, vegetation buffers and runoff retention structures and evaluate possible sites for specific BMPs
- Develop a document that highlights expected benefits, feasible locations, installation and operation and maintenance costs of the BMPs
- Calibrate and validate the Soil and Water Assessment Tool (SWAT) model for the Bosque River Basin and use it to evaluate effectiveness of implementing selected BMPs

Accomplishments

**Phase I Completed:**
- Final document includes an index used to prioritize BMP implementation for the subwatersheds.
- A list of the 22 feasible BMPs was developed by a scientific advisory committee.
Accomplishments

Phase II Completed:
- Document developed to describe the 22 BMPs in detail. The description includes information on properly locating these BMPs; expected pollutant reductions; estimated installation, operation and maintenance costs; and a listing of agencies that can provide technical assistance for questions regarding the BMPs.
- The modeling report presents results from the SWAT modeling effort. This simulation evaluated the potential impacts of implementing six of the highest ranking BMPs on priority subwatersheds in the Bosque.

Collaborators

- Texas Water Resources Institute, Texas A&M AgriLife
- U.S. Army Corps of Engineers
- Texas AgriLife Research
- Texas AgriLife Extension Service
- Texas Institute for Applied Environmental Research
- Texas A&M University Spatial Sciences Laboratory
- Brazos River Authority
- USDA Natural Resources Conservation Service
- Texas State Soil and Water Conservation Board
- Cross Timbers Soil and Water Conservation District

Funding Agencies

- U.S. Army Corps of Engineers
- U.S. Department of Energy