



## Improving Water Quality in South Central Texas Four TMDLs for Bacteria and Dissolved Oxygen in Elm and Sandies Creeks

### Water Quality in Elm Creek and Sandies Creek

The state of Texas requires that most streams, lakes, and bays be suitable for swimming, wading, fishing, a healthy aquatic environment, and use as a source of drinking water. These requirements may vary somewhat for specific bodies of water. In Elm and Sandies Creeks, low dissolved oxygen levels indicate that existing conditions are not optimal for aquatic life. In addition, concentrations of bacteria exhibit levels which may pose a potential health risk for swimmers.

In response to these conditions, the TCEQ Total Maximum Daily Load Program is developing a total maximum daily load (TMDL) project to determine the measures necessary to restore water quality in Elm and Sandies Creeks.

The goal of a TMDL is to determine the amount (or load) of a pollutant that a body of water can receive and still support its designated uses. This allowable load is then allocated among all the potential sources of pollution within the watershed, and measures to reduce pollutant loads are developed as necessary.

Oxygen gas, which dissolves in water, is essential for the survival of aquatic life. While the amount of dissolved oxygen in water fluctuates naturally, various human activities can cause unusually or chronically low dissolved oxygen levels, which may harm fish and other aquatic organisms.

Bacteria from human and animal waste may indicate the presence of disease-causing microorganisms, which pose a threat to public health. People who swim or wade in the creek or ingest contaminated shellfish may be at risk.

Learn more about water quality standards and monitoring by reading *Clean Water for Texas: Working Together for Water Quality*, available on the Web at [www.tceq.org/goto/tmdl/](http://www.tceq.org/goto/tmdl/).

### Description of the Elm and Sandies Creek Watersheds

Elm Creek (Segment 1803A) originates west of Nixon in the eastern part of Wilson County, near the intersection of Wilson, Gonzales, and Karnes Counties. The stream flows eastward for approximately 24 miles.



It converges with Sandies Creek just west of the Sandies' crossing with FM 1116. Although Elm Creek flows past the southern outskirts of Smiley, it is essentially a rural waterway. The watershed is characterized by flat to rolling terrain dominated by hardwoods, pines, mesquite, and a variety of grasses.

Sandies Creek (Segment 1803B) originates in southwestern Guadalupe County northwest of Smiley. The stream flows generally southeastward for approximately 65 miles until it joins with the Guadalupe River just west of Cuero in DeWitt County. Although Sandies Creek flows past the northern outskirts of Smiley and through the community of Westhoff, it is essentially a rural waterway. Hardwoods, pines, mesquite, and a variety of grasses dominate the flat to rolling terrain around Sandies Creek.

### Project Development

The TCEQ contracted with the Texas Institute for Applied Environmental Research (TIAER) to conduct TMDLs and coordinate public involvement in the Elm and Sandies Creek Watersheds. Water quality monitoring began in the summer of 2002 and continued through August 2004. The data has been analyzed, and the TCEQ is in the process of developing TMDLs for dissolved oxygen and bacteria on Elm and Sandies Creeks.

## Public Participation

Public participation is an important component of the Atascosa River TMDL project. A formal stakeholder group will be created to address the problems in the watershed. The TCEQ will encourage local involvement with the help of the existing Basin Steering Committees established for the Clean Rivers Program. In general, these committees are made up of representatives from:

- Cities
- State Agencies
- Federal Agencies
- Regional Regulatory Agencies
- Citizen Groups
- Water Utilities
- Universities
- Private Industries
- Independent Consultants
- Agricultural Groups
- Individuals

## For More Information

To find out more about upcoming meetings and progress of the project, contact:

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### Texas State Soil and Water Conservation Board

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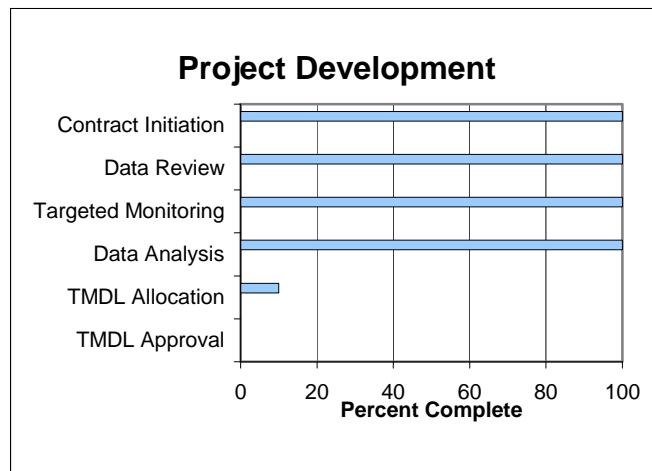
### Guadalupe River Basin

Guadalupe-Blanco River Authority  
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## Project Development Status

**Start:** November 2004

**Projected End:** March 2010



## TMDL Project Highlights

- Flow duration models will be developed for bacterial load allocations. A mechanistic model will be initiated to assess dissolved oxygen dynamics.
- Additional targeted source identification sampling will be currently underway.
- Currently evaluating groundwater sources that could be causing low levels of dissolved oxygen.