Texas Commission on Environmental Quality
Total Maximum Daily Load Program
GI-497

Improving Water Quality in Elm and Sandies Creek

Evaluating Aquatic Life and Recreational Uses

In 2002, assessment by TCEQ showed that in Elm and Sandies Creeks, dissolved oxygen levels were lower than required to provide an optimal environment for aquatic life. In addition, bacteria concentrations were sometimes elevated, indicating a possible health risk for people who swim or wade in them—activities called "contact recreation" in the state's Texas Surface Water Quality Standards.

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 are commonly found in the intestines of warm-blooded organisms such as humans, livestock, wildlife, and pets. These bacteria in water may indicate the presence of disease-causing microorganisms.

In November 2004, the TMDL Program found, after additional assessment, that high bacteria and low dissolved oxygen were chronic conditions in the creeks.

The contact recreation and aquatic life uses designated for the creeks at the time were presumed, not based on site-specific characteristics. After considering results from the TMDL Program's analysis, TCEQ and area stakeholders decided there should be additional studies of the creeks to determine whether the standards were attainable.

Learn more about water quality standards, monitoring, and TMDLs by reading Preserving and Improving Water Quality[1], available on our website and in print.

Elm and Sandies Creeks 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. Sandies Creek is essentially rural, though it flows past the northern outskirts of Smiley and through the community of Westhoff. Like the watershed of Elm Creek, hardwoods, pines, mesquite, and a variety of grasses dominate the flat to rolling terrain around Sandies Creek.

Project Development

TCEQ contracted with the Texas Institute for Applied Environmental Research (TIAER) to gather and analyze data for the Elm and Sandies Creek watersheds. Monitoring of instream conditions began in the summer of 2002 and continued through August 2004. The data analysis indicated that high bacteria and low dissolved oxygen were chronic conditions, except for bacteria concentrations in Elm Creek. Elm Creek was found to be meeting the contact recreation use. The bacteria impairment for Elm Creek was removed from the state's list of impaired waters in 2006.

In January 2009, TCEQ and stakeholders decided TCEQ should analyze whether the criteria associated with the aquatic life and contact recreation uses assigned to the creeks were attainable. All data related to this project were submitted to the TCEQ Standards Group. No TMDLs were developed.

[1] https://www.tceq.texas.gov/publications/gi/gi-351

Public Participation

In all its projects, TCEQ seeks to gather opinion and information from people who represent government, permitted facilities, agriculture, business, environmental, and community and private interests in the watershed.

TIAER coordinated public involvement in the project on behalf of the TMDL Program. TCEQ also encouraged local involvement with the help of the existing Basin Steering Committee established for the Clean Rivers Program for the Guadalupe River Basin.

For More Information

Visit the project webpage at:

www.tceq.texas.gov/waterquality/tmdl/31-elmsandies.html

E-mail us at tmdl@tceq.texas.gov or call us at 512-239-6682.

To find out more about the evaluation of the recreational use standards for Sandies Creek and the aquatic life use standards for both creeks, email the TCEQ Standards Group at standards@tceq.texas.gov or call 512-239-6682.

Project Dates

Start: November 2004
Project End: January 2009

Project Highlights

- In January 2009, TCEQ and stakeholders decided TCEQ should analyze whether the criteria associated with the aquatic life and contact recreation uses assigned to the creeks were attainable. No TMDLs were developed.
- The Texas State Soil and Water Conservation Board (TSSWCB) worked in the Elm and Sandies Creek is to address agricultural sources of pollutants through voluntary implementation of best management practices by private landowners. Conservation partnerships were developed that included state Soil and Water Conservation Districts, TSSWCB, and the federal Natural Resources Conservation Service.
- Technical assistance for cattlemen and poultry growers was made available to develop and implement Water Quality Management Plans (WQMPs) for agricultural operations in the watershed. Financial assistance was also available through TSSWCB's Environmental Quality Incentive Program (EQIP). Texas AgriLife provided educational programs.
- In 2018, TCEQ proposed changing the aquatic life use standards from high to intermediate for both Elm and Sandies Creek. EPA has not approved or disapproved those changes.
- TCEQ has not begun the recreational use attainability analysis for Sandies Creek.