Texas Commission on Environmental Quality
Total Maximum Daily Load Program

Improving Water Quality in the Clear Creek Watershed

A TMDL Project for Bacteria

Water quality assessment by the TCEQ found that bacteria levels are sometimes elevated in several segments in the Clear Creek watershed. High concentrations of bacteria can pose a health risk to adults and children who swim or wade in water bodies—activities called "contact recreation" in the state's standards for water quality—meaning all recreation in which people are likely to swallow natural waters.

Bacteria are commonly found in the intestines of warm-blooded organisms such as humans, livestock, poultry, cats, and dogs. Bacteria from human and animal waste often indicate the presence of disease-causing microorganisms, which can pose a health threat to people who engage in contact recreation.

The TCEQ completed a total maximum daily load (TMDL) project to determine the measures necessary to restore water quality in the streams. A TMDL determines the amount (or load) of a pollutant that a body of water can receive and still support its designated uses. The allowable load is then allocated among categories of sources within the watershed.

Stakeholders then work to develop an implementation plan (I-Plan). The I-Plan outlines measures intended to reduce pollutant loads, a schedule for their implementation, a review strategy to track whether water quality is improving, and a commitment to continue the process with the goal of meeting the water quality standard.

Learn more about water quality standards and monitoring, and TMDLs by reading *Preserving and Improving Water Quality*, available on our website at <www.tceq.state.tx.us/goto/tmdl/>.

Clear Creek Watersheds

This project focuses on the watersheds of nine stream segments in the San Jacinto-Brazos Coastal Basin:

- **Clear Creek Tidal** (Segment 1101): a 12-mile long tidal stream in Galveston/Harris County
- **Clear Creek Above Tidal** (Segment 1102): a 30-mile long freshwater stream in Galveston/Harris and Fort Bend Counties
- **Chigger Creek** (Segment 1101B): a 10-mile long freshwater stream in Galveston County
- **Cowert Creek** (Segment 1102A): an 8-mile long freshwater intermittent stream in Brazoria County

- **Hickory Slough** (Segment 1102C): a 7-mile long freshwater stream in Brazoria County
- **Mary's Creek/North Fork Mary's Creek** (Segment 1102B): an 11-mile long freshwater stream in Brazoria County
- **Mud Gully** (Segment 1102E): a 1-mile long freshwater stream in Harris County
- **Robinson Bayou** (Segment 2425): a 1-mile long tidal stream in Galveston County
- **Turkey Creek** (Segment 1102D): a 3-mile long freshwater stream in Harris County

The Clear Creek watershed lies in the southernmost part of the Houston metropolitan area. The segments being addressed in this project have a combined drainage area of about 165 square miles and are located in portions of Brazoria, Galveston, Harris, and Fort Bend counties.

The eastern and central portions of the watershed are largely urban and residential, with some commercial and industrial uses. The western and southern parts of the watershed are primarily rural and agricultural. The project watershed includes the cities of Brookside Village, Pearland, Friendswood, Alvin, League City, Webster, Nassau Bay, Manvel, Fresno, Houston, Kemah, and Clear Lakes Shores.

TMDL Development

The TMDL was completed in 2008. The focus of the project is now on developing an implementation plan.

I-Plan Development

The Bacteria Implementation Group (BIG) was formed to develop the I-Plan to improve water quality in these TMDL watersheds and several others in the greater Houston area. The BIG includes representatives of local residents, nongovernmental organizations, industry, and various local, state, and federal governments. The Houston–Galveston Area Council (H–GAC) is coordinating the BIG's activities.

Stakeholders have developed a draft regional I-Plan. The plan addresses 72 TMDLs for bacteria in waterways. It encompasses the TMDLs in this project, and in the projects for Clear Creek, Buffalo and Whiteoak Bayous, and Watersheds Upstream of Lake Houston.

See information about the BIG on our website at <www.tceq.texas.gov/waterquality/tmdl/big_houstonarea.html>, or visit the BIG website at <www.h-gac.com/community/water/tmdl/big/default.aspx>.

For more information about the implementation plan, visit the H–GAC's website at <www.h-gac.com/ community/water/tmdl/default.aspx>.

Public Participation

In all its projects, the 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. The TCEQ solicits advice and comment from the public at meetings and through print and media notices.

The Houston-Galveston Area Council coordinated public participation for this TMDL project.

For More Information

Contact one of the people listed below, or visit the project website at:

<www.tceq.state.tx.us/waterquality/tmdl/68-clearcreekbacteria.html>

TCEQ Technical Project Manager:
Jason Leifester
512-239-6457, jason.leifester@tceq.texas.gov

Public Participation:
Rachel Powers, Houston-Galveston Area Council
713-993-4559, rachel.powers@h-gac.com

Chip Morris, TCEQ
512-239-6686, chip.morris@tceq.texas.gov

TMDL Development Status

TCEQ Adoption: September 10, 2008
EPA Region 6 Approval: March 6, 2009

I-Plan Development Status

Stakeholder Draft Completed: August 2011
Projected TCEQ Approval: August 2012

Project Highlights

- The commission adopted the TMDLs on September 10, 2008, for the nine stream segments in the TMDL report published on the same date.
- Stakeholders formed the BIG, coordinated by the H-GAC, to develop the I-Plan for these and other bacteria TMDLs for the Houston area.
- The BIG completed a draft I-Plan in March 2011. After receiving and responding to comments from the public, the BIG completed and approved its final draft I-Plan on August 16, 2011. The H-GAC submitted the I-Plan to the TCEQ for review and concurrence.
- See information about the BIG on our website at <www.tceq.texas.gov/waterquality/tmdl/big_houstonarea.html>, or visit the BIG website at <www.h-gac.com/community/water/tmdl/big/default.aspx>.