



Improving Water Quality in the Guadalupe River Above Canyon Lake

One TMDL for Bacteria

In 2002, assessment by the TCEQ indicated that high bacteria concentrations might indicate a health risk to people who swim or wade in the water body—activities called “contact recreation” in the state’s standards for water quality. Bacteria are commonly found in the intestines of humans, livestock, wildlife, and pets. These bacteria in water may indicate the presence of disease-causing microorganisms.

The TCEQ completed a TMDL for bacteria and is now working with stakeholders to determine the measures necessary to implement the TMDL and restore water quality in the river. 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. The allowable load is then allocated among categories of sources within the watershed, and stakeholders work with the state to develop an implementation plan (I-Plan) with measures that reduce pollutant loads.

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

Watershed Description

The upstream end of this segment is the confluence of the North and South Forks of the Guadalupe River in Kerr County. The downstream end is Canyon Reservoir, which begins 1.7 miles downstream of Rebecca Creek Road in Comal County. Only a small reach of Segment 1806, located within the City of Kerrville, is impaired for contact recreation. The impaired reach is defined as the Guadalupe River from its confluence with Town Creek downstream to Flat Rock Lake.

The watershed of the Guadalupe River Above Canyon Lake’s is principally a rocky, moderately dissected terrain fed by springs issuing from beds of limestone. The watershed averages 29 inches of rainfall annually and is a semi-arid, sub-humid climate. The land is used for recreation, raising livestock, and small grain crops. During the drier months of summer, pumps are used to divert water for irrigation and domestic purposes. Base flow of the Upper Guadalupe River is sustained entirely by groundwater discharge, the main source of which is Edwards-Trinity aquifer.

TMDL Development

The project was initiated in September 2004. The TCEQ contracted with James Miertschin & Associates,



Inc. to assist in TMDL activities. Project personnel conducted an investigation that identified possible point and nonpoint sources of bacteria and quantified the appropriate reductions necessary to comply with established water quality standards.

The possible bacteria sources include nesting birds at bridge crossings, domestic waterfowl, leaking collection lines in sanitary sewer infrastructure, failing septic systems, livestock, and urban stormwater runoff. The commission adopted the TMDL on July 25, 2007. The EPA approved it on September 25, 2007.

Implementation Plan Development

The stakeholders developed a draft I-Plan, which the TCEQ submitted to the public for comment in May 2011. The ultimate goal of the I-Plan is to reduce bacteria concentrations to within levels that protect the safety of swimmers.

The plan includes these management measures:

- Reduce bird feeding at Louise Hays Park and Kerrville-Schreiner Park.
- Install bird exclusion/deterrent devices on bridges directly over the waterway.
- Manage waterfowl population at Louise Hays Park and Kerrville-Schreiner Park.

- Reduce human contributions through ongoing lateral sewage line replacement, sewer inspection and rehabilitation, ongoing septic system plan review and registration, mapping of the priority OSSF area, and an education program for OSSF owners.
- Implement education program for pet owners and install pet waste stations at public parks.
- Reduce contributions from general urban runoff through street sweeping, river clean ups and storm water education programs.

There is also one control action:

- Monitor and report effluent *E. coli* concentrations from wastewater treatment facilities.

The Upper Guadalupe River Authority will manage the implementation of the plan and encourage continued stakeholder involvement.

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 solicited advice and comment from the public working in partnership with the Upper Guadalupe River Authority.

During the spring 2007, after the TCEQ approved the TMDL, the Upper Guadalupe River Advisory Group began developing the I-Plan. Several public meetings have been held to engage stakeholders in the development of the TMDL and I-Plan.

For More Information

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

<www.tceq.texas.gov/waterquality/tmdl/65-guadalupeabovecanyon.html>

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TMDL Development

TCEQ Adoption: July 25, 2007

EPA Region 6 Approval: September 25, 2007

I-Plan Development

TCEQ Approval: August 31, 2011

Project Highlights

- The commission adopted the TMDL on July 25, 2007. The EPA approved it on September 25, 2007, at which time it became an update to the state's Water Quality Management Plan.
- Development of the I-Plan began in spring 2007.
- Monitoring to identify and verify bacteria sources is ongoing.
- Stakeholders reviewed a draft I-Plan and provided comments during November 2009.
- The TCEQ incorporated stakeholder comments and began the approval process for the I-Plan.
- The TCEQ submitted the final draft of the I-Plan to the public for comment in May 2011.
- The commission approved the final I-Plan on August 31, 2011.

Visit our website at: <www.tceq.texas.gov/goto/tmdl/>