Improving Water Quality in the Guadalupe River Above Canyon Lake

Restoring Recreational Uses

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 assisted stakeholders in developing a plan to implement the TMDL and improve 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. Stakeholders 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/>.

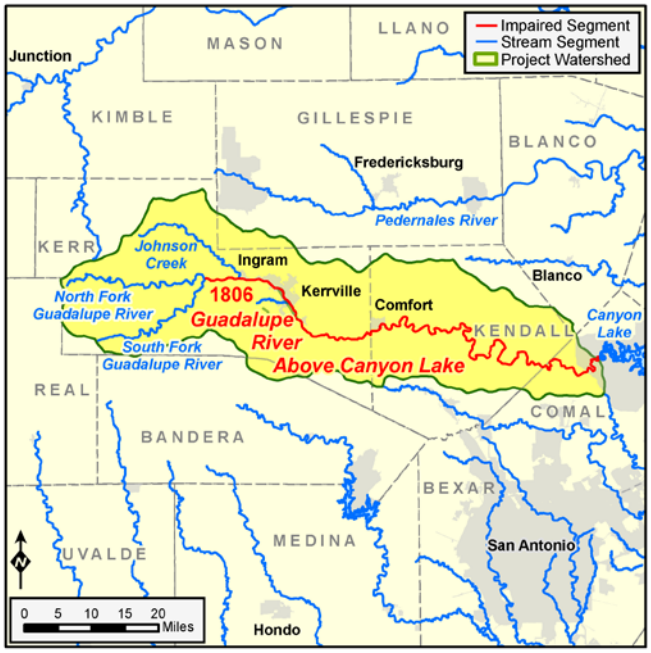
Watershed Description

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 approved in August 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. Several public meetings were 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

Highlights

- The TCEQ NPS program is providing funding support to implement multiple management measures through a federal grant.
- In 2012, *E. coli* bacteria levels in the main stem of the Guadalupe River were mostly below the single sample contact recreation standard. However, concentrations in tributaries were much higher due to low-flow or stagnant conditions.
- Installation of bird deterrent structures began in December 2012.
- The City of Kerrville has spent almost $8 million to improve wastewater collection systems.
- The City monitors pet waste collection stations in Flat Rock Park weekly. They usually collect 80-100 pounds of waste per month. Since November 2010, residents have kept more than 2,700 pounds of pet waste out of the lake through this collection.
- In 2012, the UGRA and local volunteers collected 27,335 pounds of trash and debris at river clean-up events.