



Improving Water Quality in Mid Cibolo Creek A Project to Restore the Aquatic Life Use

Depressed dissolved oxygen levels in Mid Cibolo Creek are sometimes lower than needed to support designated healthy environment for fish and other aquatic life.

Oxygen gas, which dissolves in water, is essential for the survival of aquatic species. 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.

In response to the conditions observed in the creek, the TCEQ completed a total maximum daily load (TMDL) to analyze conditions in the creek and determine the pollutant reductions necessary to restore suitable conditions for aquatic life in Mid Cibolo Creek.

The goal of a TMDL is to determine the amount (or load) of a pollutant that a body of water can assimilate and still support its designated uses. The load is then allocated among the categories of sources within the watershed, and stakeholders develop an implementation plan (I-Plan) with measures to reduce pollutant loads as necessary.

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

Mid Cibolo Creek Watershed

Mid Cibolo Creek is a 19-mile freshwater stream in the San Antonio River Basin. It extends from a point 100 meters downstream of Interstate Highway 10 in Bexar/Guadalupe County to the Missouri-Pacific Railroad Bridge west of Bracken in Comal County. Land use in the area is primarily pasture and forest. The Mid Cibolo Creek watershed is rapidly becoming urbanized due to population growth east of the city of San Antonio.

Since the upper portions of the segment are located in the Edwards Aquifer Recharge zone, there is little or no flow in the creek during the drier portions of the year. Flows in the lower portions of the segment are more stable due to the discharge from the Cibolo Creek Municipal Authority wastewater treatment facility.

The watershed includes portions of Bexar, Guadalupe, and Comal counties, and the cities of Cibolo, Schertz, Universal City, and Garden Ridge.



TMDL Development

The TCEQ initiated the Mid Cibolo Creek TMDL project in September 2005 through a contract with the Texas Institute for Applied Environmental Research (TIAER). The development of the TMDL was preceded by a larger project to collect data and assess whether a TMDL was the appropriate means by which to address the problem. The results of this study are provided in reports which summarize physical, chemical, and biological data collection activities from 2002 through 2004.

Data collection activities to characterize dissolved oxygen levels during low flow periods were completed. This data was used to support models designed to quantify existing loads and determine how the loads are allocated to the sources in the watershed.

The initial loading analysis was completed in December 2006. After completion of the draft TMDL, the TCEQ determined that since a single regulated discharger was likely to be the primary source of the impairment, it was not necessary to complete and submit a TMDL to the EPA. Instead, improvement in the quality of the stream could be accomplished through requirements in the discharge facility's permit.

The TCEQ expects that upgrades completed to the discharging facility in 2007 will ameliorate the low dissolved oxygen conditions in the creek. The state will continue to monitor the stream to ensure that the facility upgrades are sufficient to restore conditions that support a healthy aquatic community.

Subsequently, in 2008, the dissolved oxygen impairment in Mid Cibolo Creek was removed from the state's 303(d) list and reclassified in the state's Water Quality Inventory and List. The dissolved oxygen impairment is assigned to Category 4b, which is the classification for water bodies in which a standard is not met, but for which a TMDL is not required because other control requirements are reasonably expected to result in the attainment of the standards.

Public Participation

The TCEQ held a public meeting in Cibolo on April 11, 2007, to solicit public comments on the project.

For More Information

For more information, contact the project staff listed below. Or visit our website at <www.tceq.texas.gov/waterquality/tmdl/31-midcibolo.html>.

TCEQ Project Manager, TMDL Team

Dania Grundmann

512-239-6238

danial.gundmann@tceq.texas.gov

Nueces River Basin

Rocky Freund, Deputy Executive Director

Nueces River Authority

361-653-2110

TMDL Development Status

Start Date: September 2005

End Date: April 2008

Project Highlights

- Contractual arrangements were completed between the TCEQ and TIAER in October 2005.
- Low flow sampling was initiated in March 2006.
- Targeted monitoring was completed in the summer of 2006.
- Loading allocation analyses were conducted in the fall of 2006.
- TIAER developed a modeling approach to evaluate dissolved oxygen in the segment.
- In 2007, after completing its TMDL analysis, the TCEQ determined that the aquatic life use could be restored through requirements to a single wastewater discharge permit, and that it was therefore unnecessary to adopt a TMDL for the creek.
- In 2008, the dissolved oxygen impairment in Mid Cibolo Creek was removed from the state's 303(d) list and reclassified to Category 4b.
- Routine data collection activities will continue to ensure that conditions improve sufficiently to support a healthy aquatic community.

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