Improving Water Quality in Mid Cibolo Creek

Assessing 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's Total Maximum Daily Load (TMDL) Program carried out a project to analyze conditions in the creek and determine the pollutant reductions necessary to restore suitable conditions for aquatic life in Mid Cibolo Creek.

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

Mid Cibolo Creek Watershed

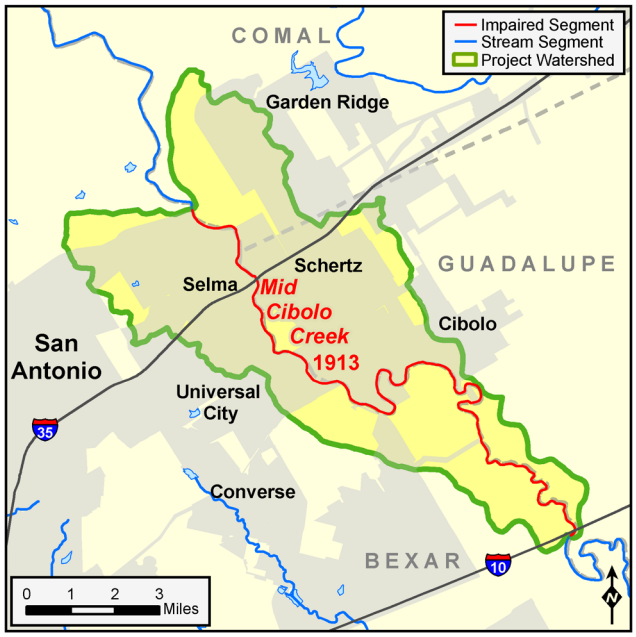
Mid Cibolo Creek (Segment 1913) is a 19-mile freshwater stream in the San Antonio River Basin. It extends from a point 100 meters downstream of Interstate Highway 10 in Bexar/Guadalupe County to the Missouri-Pacific Railroad Bridge west of Bracken in Comal County. Land use in the area is primarily pasture 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.

Project 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. During development 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 was accomplished through requirements in the discharge facility's permit.

Upgrades completed to the discharging facility in 2007 ameliorated the low dissolved oxygen conditions in the creek. Subsequently, in 2010, the dissolved oxygen impairment in Mid Cibolo Creek was removed from the state's list of impaired waters.

Public Participation

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

For More Information

Contact us by e-mail at tmdl@tceq.texas.gov, or call us at 512-239-6682. Or visit our project webpage at:

<www.tceq.texas.gov/waterquality/tmdl/31-midcibolo.html>.

Project Dates

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.
- Subsequently, in 2010, the dissolved oxygen impairment in Mid Cibolo Creek was removed from the state's list of impaired waters.