



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.

Learn more about water quality standards and monitoring by reading [Preserving and Improving Water Quality](#)¹, available on our website and in print.

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 was rapidly becoming urbanized at the time of this study, 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

TCEQ initiated the Mid Cibolo Creek TMDL project in September 2005 through a contract with the Texas Institute for Applied Environmental Research (TIAER). TIAER collected data to characterize dissolved oxygen levels during low flow periods. These data were 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, 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 EPA. Instead, requirements in the discharge facility's permit were changed to restore water quality in the creek.

Upgrades completed to the discharging facility in 2007 improved 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

In all its projects, 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. TCEQ solicits advice from the public at meetings and through print and electronic media notices. TCEQ held a public meeting in Cibolo on April 11, 2007, to solicit public comments on this project.

¹ <https://www.tceq.texas.gov/publications/gi/gi-351>

For More Information

Email us at tmdl@tceq.texas.gov, or call us at 512-239-6682. Or visit the project webpage at:

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

Project Dates

Start Date: September 2005

End Date: April 2008

Project Highlights

- 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.
- In 2007, after completing its TMDL analysis, TCEQ determined that the aquatic life use could be restored through revising requirements to a single wastewater discharge permit, and that it was therefore unnecessary to adopt a TMDL for the creek. Upgrades completed to the discharging facility in 2007 improved 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.

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