



Improving Water Quality in the North Bosque River

Two TMDLs for Phosphorus

Water Quality in the North Bosque River

The state of Texas requires water quality in the North Bosque River to be suitable for swimming, wading, fishing, drinking (with treatment), and a healthy aquatic ecosystem. However, water quality testing found that in the North Bosque River (Segment 1226) and the Upper North Bosque River (Segment 1255), high levels of nutrients have contributed to excessive growth of algae and other aquatic plants in the river. This condition can impair the river's aesthetic value, may cause taste and odor problems in drinking water, and under certain circumstances result in fish kills. In addition, bacteria levels are occasionally elevated, indicating a potential health risk to people who swim or wade in the river.

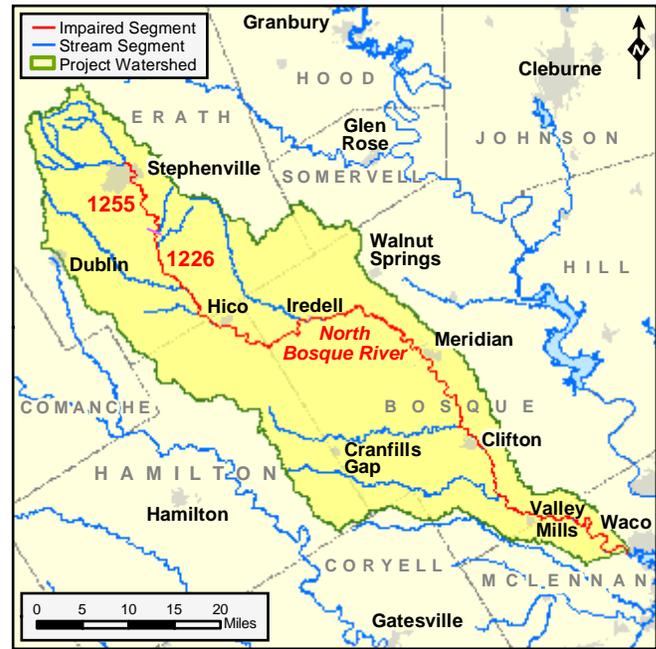
To address the high level of nutrients, total maximum daily loads (TMDLs) for phosphorus (the limiting nutrient in the watershed) were established for the Upper North Bosque and North Bosque River. The TMDLs determined the amount (or load) of phosphorus that the streams can receive and still support their designated uses. This allowable load was then allocated among all the potential sources of pollution within the watershed. An implementation plan establishing measures to reduce pollutant loads was developed and is available on the TCEQ Web site at www.tceq.state.tx.us/implementation/water/tmdl/06-bosque.html.

Learn more about water quality standards and monitoring by reading *Clean Water for Texas: Working Together for Water Quality*, available on the Web at www.tceq.org/goto/tmdl/.

Description of the North Bosque River Watershed

The North Bosque River is located in the Brazos River Basin. It originates in central Erath County northwest of Stephenville. From Stephenville, it flows southeast through the towns of Hico, Meridian, Clifton, and Valley Mills before entering Waco Lake in McLennan County. The watershed contains 1,190 square miles and is characterized by Cross Timbers in the western portion, and Grand Prairie and Blackland Prairie in the eastern part.

The North Bosque River is an important resource to the surrounding region. The North Bosque River and Waco Lake are the surface water supplies for the cities of Waco, Clifton, and soon, Meridian. These cities



serve more than 200,000 people, for whom the river and lake are the primary drinking water supplies. The river also provides water for a variety of agricultural activities and has been used for recreational fishing and swimming by local residents.

Public Participation

The Texas Institute for Applied Environmental Research (TIAER) performed most of the technical and administrative tasks associated with development of the TMDLs. TIAER worked in coordination with the Brazos River Authority (BRA) and under the guidance of the TCEQ. Representatives from those agencies and from the City of Waco, USDA Natural Resources Conservation Service, Texas State Soil and Water Conservation Board (TSSWCB), Texas Agricultural Extension Service (Blackland Research Center), Baylor University, the University of Texas Center for Research in Water Resources, and the Texas A&M University Water Resources Institute have served as an ad hoc technical work group assisting TIAER in developing project tasks and reviewing results.

Public participation in the project was coordinated through the Bosque River Advisory Committee (BRAC), which convened in 1995 to provide a forum for public discussion and coordination of water quality issues. The BRAC had representatives from:

- Texas State Legislature (5)
- County Governments (6)
- City Governments (small and large)
- Concerned Citizens
- Dairies (large and small)
- Farmers, Ranchers, and Agriculture Groups
- Industries
- Environmental Groups

For More Information

For more information on upcoming meetings and documents available for review, contact one of the individuals listed on this page. Or visit the TCEQ Web site at www.tceq.org/goto/tmdl/.

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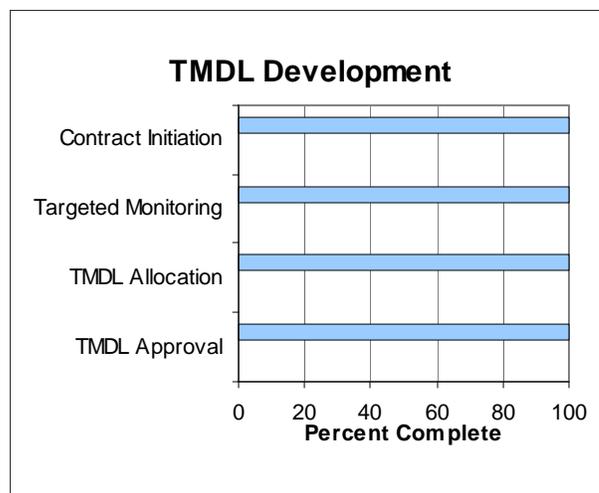
TMDL Development Status

Start: 1994

TCEQ Adoption: February 9, 2001

Submitted to EPA Region 6: February 28, 2001

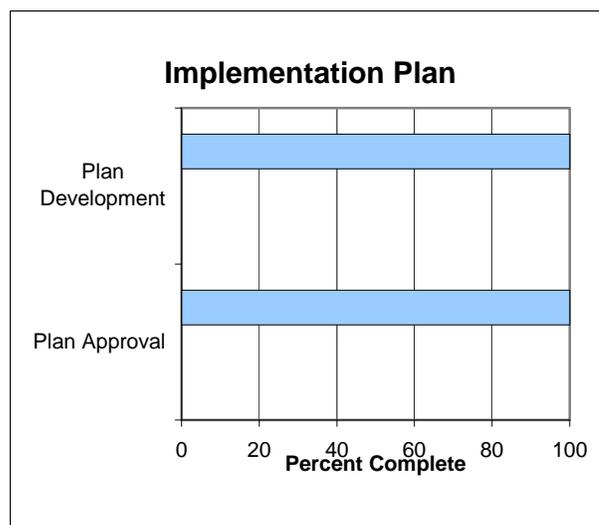
EPA Region 6 Approval: December 13, 2001



Implementation Plan Status

Start Date: January 2001

TCEQ Adoption: December 13, 2002



TMDL Project Highlights

- The Upper North Bosque River was also listed on the 1998 303(d) List for dissolved oxygen. However, reassessment of data show that water quality standards are being met for dissolved oxygen. As a result, the TCEQ has requested that the EPA remove this constituent from the state's 2000 303(d) List.
- Although the Upper North Bosque River was listed on the 2000 303(d) List for chloride, sulfate, and total dissolved solids, the TCEQ has submitted revised water quality standards for these constituents to the EPA. The proposed standards are being met in Upper North Bosque River. Consequently, TMDLs are not expected to be developed for these constituents, and the draft 2002 303(d) List does not identify them as impairments.
- The Bosque River Advisory Committee met April 26, 2000 in Stephenville. The primary purpose of the meeting was to determine a consensus position regarding TMDL issues and direction. Committee members expressed a wide range of positions concerning appropriate water quality goals and management measures, without reaching consensus.
- The TCEQ prepared a TMDL allocation report for submission to EPA. The TMDL addresses phosphorus in the North Bosque and Upper North Bosque River (Segments 1226 and 1255).
- The Bosque River Advisory Committee met on August 25, 2000. Speakers recapped more than four years of Committee effort, including two years as advisors to the TMDL process. TCEQ staff presented a brief outline of the anticipated TMDL allocation. The goal of the TMDL is to achieve a reduction of annual average soluble phosphorus loading by approximately 50 percent. Both point and nonpoint sources are expected to make significant reductions to achieve the goal. The Committee acknowledged that its role as an advisory body for the TMDL project had ended, although the Committee may choose to continue for other purposes.
- The draft TMDLs for the North Bosque River were posted for public review and comment on September 29, 2000. A public hearing to receive verbal comments was held on October 23, 2000, at 7:00 P.M., at the Texas Ag Research and Extension Center in Stephenville. The original deadline for written comments was October 30, 2000, but was extended to December 15, 2000, at the request of local stakeholders.
- Public comments were reviewed and considered for the final TMDL allocation which was placed before and adopted by the Commission on February 9, 2001.
- The 2 TMDLs were submitted to EPA Region 6 for approval the week of February 26, 2001.
- EPA approved the 2 TMDLs on December 13, 2001.

Implementation Plan Highlights

- The implementation plan for the two TMDLs was approved by the Commission on December 13, 2002, and is posted on the TCEQ Web site at www.tceq.state.tx.us/implementation/water/tmdl/06-bosque.html.
- A summary of the implementation plan, and a status report on activities to implement the plan, are also posted on the TCEQ Web site at www.tceq.state.tx.us/implementation/water/tmdl/06-bosque.html.
- The TCEQ has completed efforts to refine the model analyses on which the TMDLs were based. Reassessment using the refined model may lead to changes in the TMDLs or Implementation Plan.