



## Improving Water Quality in Clear Fork of the Trinity River

# Evaluating the Aquatic Life Use

In 2002, TCEQ assessment found that dissolved oxygen levels were sometimes lower than optimal to support a healthy environment for fish and other aquatic life.

Oxygen, which dissolves in water, is essential for the survival of aquatic life. 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 these conditions, the TCEQ initiated a project to examine the causes of low dissolved oxygen in the stream and to evaluate whether the agency should develop a total maximum daily load (TMDL) or a use attainability analysis (UAA).

A TMDL determines the amount (or load) of a pollutant that a body of water can receive and still support its designated uses. This allowable load is then allocated among categories of sources within the watershed. A UAA determines whether the existing standards are appropriate for the creek. Depending on the results, the aquatic life use standard and criteria may be modified.

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/](http://www.tceq.texas.gov/goto/tmdl/).

### The Clear Fork Trinity River Watershed

This project focuses on the two uppermost riverine segments of the Clear Fork Trinity River: Clear Fork Trinity above Lake Weatherford (Segment 0833) and Clear Fork Trinity below Lake Weatherford (Segment 0831).

Clear Fork Trinity above Lake Weatherford originates in far northwest Parker County approximately two miles upstream of FM Road 1707, and flows southeast 22 miles to its downstream boundary at FM Road 3107. The watershed consists of oak woods and prairies and is mostly rural. The community of Poolville is the only concentration of development in the area.

Flow in the upper portion of the segment is highly dependent on rainfall, and as a result, is often intermittent or absent—especially during summer. Flow in the lower portion of the segment is more consistent. Initial information suggests it may be perennial in some are-



as. The lower portion has a larger drainage area and may be influenced by a natural spring.

Clear Fork below Lake Weatherford begins at Weatherford Dam in central Parker County and flows 19 miles to its segment boundary 220 yards downstream of US Highway 377 in southwest Tarrant County. The watershed is mostly blackland prairie and includes the communities of Aledo, Weatherford, and Willow Park.

Flow in this segment is probably perennial in most years, although low-flow conditions commonly occur in the upper reaches of the segment. Stream flows increase in the lower portion as a result of inflows from the South Fork Trinity River. Like the area above Lake Weatherford, this area is predominately rural; however, rapidly increasing urban populations are changing the landscape of this watershed.

### Project Development and Progress

The TCEQ engaged the services of the Texas Institute for Applied Environmental Research (TIAER), a research center housed at Tarleton State University in Stephenville, to conduct the field work and laboratory analyses needed to support the UAA. The TCEQ and TIAER worked with the Trinity River Authority (TRA) and the Tarrant Regional Water District (TRWD) in planning the project.

An aquatic life UAA requires data from three biological monitoring events and five dissolved oxygen studies. These studies were conducted over two consecutive spring-to-summer periods. Samples were taken at several stations on each segment to ensure that the aquatic life use was accurately characterized for the entire study area.

Each biological monitoring event included routine water chemistry sampling, flow measurements, characterization of the fish and invertebrate communities, assessment of the stream physical habitat, and monitoring of dissolved oxygen concentrations.

TIAER submitted its final report in April 2003. After the TMDL Team submitted the project information to the Standards Group at TCEQ, the team's work on this project was completed.

Staff of the TCEQ Water Quality Standards program reviewed TIAER's report. They found that the UAA demonstrated the need for changes to the aquatic life use and/or the dissolved oxygen criteria for the streams. These changes were proposed in the 2010 update to the Surface Water Quality Standards, which the commission adopted on June 30, 2010.

The TCEQ then submitted the 2010 Standards to the U.S. EPA for their review and approval. In June 2011, the EPA approved revisions to the site-specific standards for both segments. See more about the *2010 Texas Surface Water Quality Standards* at [www.tceq.texas.gov/waterquality/standards/2010standards.html](http://www.tceq.texas.gov/waterquality/standards/2010standards.html).

## Project Development Status

Start Date: 2001

End Date: 2004

## Public Participation

In all its projects, the TCEQ seeks opinions and information from people who represent government, permitted facilities, agriculture, business, environmental, and community and private interests in the watershed.

This project was a collaborative effort involving the TCEQ, TIAER, the Trinity River Authority (TRA), and the Tarrant Regional Water District (TRWD). Project progress was communicated through the Trinity River Basin Steering Committee created by the Texas Clean Rivers Program.

## For More Information

E-mail us at [tmdl@tceq.texas.gov](mailto:tmdl@tceq.texas.gov) or call 512-239-6682. Visit the project website at:

[www.tceq.texas.gov/waterquality/tmdl/28-clearforktrinity.html](http://www.tceq.texas.gov/waterquality/tmdl/28-clearforktrinity.html)

## Project Highlights

- Targeted monitoring efforts began in July 2001 and concluded in October 2002.
- TIAER submitted its final report, "Technical Use Attainability Analysis, Clear Fork Trinity River (Stream Segments 0831 and 0833)" in April 2003.
- The UAA demonstrated the need for changes to the aquatic life use and/or dissolved oxygen criteria for the streams. These changes were proposed in the 2010 update to the Surface Water Quality Standards, which the commission adopted on June 30, 2010. The EPA approved the revisions in June 2011.
- In June 2011, the EPA approved revision to the site-specific standards for both segments. See more about the [2010 Texas Surface Water Quality Standards](http://www.tceq.texas.gov/waterquality/standards/2010standards.html).

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