



Assessing the Aquatic Life Use in Tidal Streams—Phase II

Tidal streams are highly productive transitional areas between the freshwater of rivers and the salt water of bays. Tidal streams serve as nurseries for fish and shellfish, including many species important for commerce and recreation.

Routine monitoring of several tidal streams indicates that dissolved oxygen concentrations are lower than recommended for supporting a healthy aquatic community. Prior studies led to questions about the appropriateness of current dissolved oxygen standards for tidal streams because the streams are naturally quite variable over space and time.

In 2007, the TCEQ completed a use attainability analysis of five tidal streams in Texas (Phase I of this project). Phase I introduced a new methodology for integrating the physical, chemical, and biological components of ecosystem health into the assessment of the aquatic life use in tidal streams. This project will apply the new methodology to samples collected in the Mission River Tidal (Segment 2001) and the Aransas River Tidal (Segment 2003).

Phase II of the project built on the methodology for assessing the health of tidal streams developed in Phase I, and increased our understanding of the overall gradient of tidal stream health in Texas. The new methodology was also used to assess additional tidal streams along the Texas coast.

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

Description of the Project Watersheds

This project focuses on the tidal portions of two rivers—Mission River Tidal (Segment 2001) and Aransas River Tidal (Segment 2003), both on the middle coast.

Aransas River Tidal extends from its confluence with Copano Bay at the border between Aransas and Refugio counties to a point one mile upstream of US 77 on the borders of Refugio and San Patricio counties.

Mission River Tidal extends from the confluence with Mission Bay in Refugio County to a point 4.6 miles downstream of US 77 in Refugio County.



Project Development

The Texas Parks and Wildlife Department (TPWD) did monitoring and data analysis for this project under an intergovernmental agreement with the TCEQ. Monitoring of water quality and the fish and invertebrate communities of all the streams in Phase II began in spring 2008 and was completed in fall 2009. The data were analyzed using the new methodology developed in Phase I.

TPWD also analyzed data for the following additional stream segments, based on data already in their possession (historical data).

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| Dickinson Bayou Tidal (Segment 1103) | Rio Grande Tidal (Segment 2301) |
| Bastrop Bayou Tidal (Segment 1105) | Oyster Bayou (Segment 2423A) |
| Chocolate Bayou Tidal (Segment 1107) | Highland Bayou Diversion Canal (Segment 2424) |
| Armand Bayou Tidal (Segment 1113) | Halls Bayou (Segment 2432) |
| Nueces River Tidal (Segment 2101) | Texas City Pump Canal (Segment 2437) |
| Arroyo Colorado Tidal (Segment 2201) | Cedar Lakes Creek (Segment 2442) |

Public Participation

The TCEQ informed the public about this research primarily through the project Web page (see under "For More Information"). If the TCEQ Standards Team decides to recommend changes to the standards for tidal streams based on the project results, those changes would be discussed with the Surface Water Quality Standards Advisory Work Group and made available for public comment before submitted to the commission and EPA for consideration.

For More Information

Contact one of the people listed below about the assessment, or visit the project website at:

<www.tceq.texas.gov/waterquality/tmdl/29-tidalstreams.html>

Information is available on the website for both Phase I and Phase II of this project.

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TPWD Project Manager:

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For more information about the progress of the TCEQ's analysis of the standard for tidal streams, e-mail <standards@tceq.texas.gov>, or contact the staff member listed below.

TCEQ Standards

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Development Status

Start Date: November 2007

End Date: December 2011

Project Highlights

- TCEQ signed an intergovernmental agreement with the Texas Parks and Wildlife Department in November 2007 for their performance of data collection and analysis.
- Field sampling began at the end of March 2008 and ended in November 2009.
- The following documents have been completed and are available on the project Web page:
 - Quality Assurance Project Plan - approved in March 2008.
 - Historical Data Report - submitted in July 2008.
 - *Coast-wide Assessment of Texas Tidal Streams Communities*, which includes an analysis of many existing datasets from previous coastal studies - completed in October 2008.
 - Final report completed November 2011: *Spatial Assessment of a Derived Biocriteria Applied to Texas Tidal Streams*
- The final report was submitted to the TCEQ Standards Team for use in evaluating the appropriate dissolved oxygen criteria for support of the aquatic life use in tidal streams.

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