



Assessing the Aquatic Life Use in Tidal Streams—Phase I

In 2000, water quality assessment by TCEQ found that dissolved oxygen levels are occasionally low in three tidal streams in southeastern Texas—Cow Bayou Tidal (Segment 0511) on the upper Texas coast, and Tres Palacios Creek Tidal (Segment 1501) and Garcitas Creek Tidal (Segment 2453A) on the middle coast.

Dissolved oxygen is essential to the survival of fish and other aquatic life. The amount of dissolved oxygen in water is naturally variable, but certain human activities can cause unusually or chronically low levels to occur, which may harm aquatic organisms.

The TCEQ Total Maximum Daily Load (TMDL) Program conducted this project to examine the causes of low dissolved oxygen in the three streams and evaluate the appropriateness of the oxygen criteria for the streams. At present, there is no generally accepted method for determining the health of tidal streams. Project staff developed such a methodology, studying the biological, chemical, and physical characteristics of the streams in question. Phase II of this project applied the new methodology to the assessment of other tidal streams along the coast (see more information in the Phase II project overview).

In addition, project staff conducted use attainability analyses for the streams. A UAA is used to determine whether the designated uses and criteria for a particular water body are appropriate.

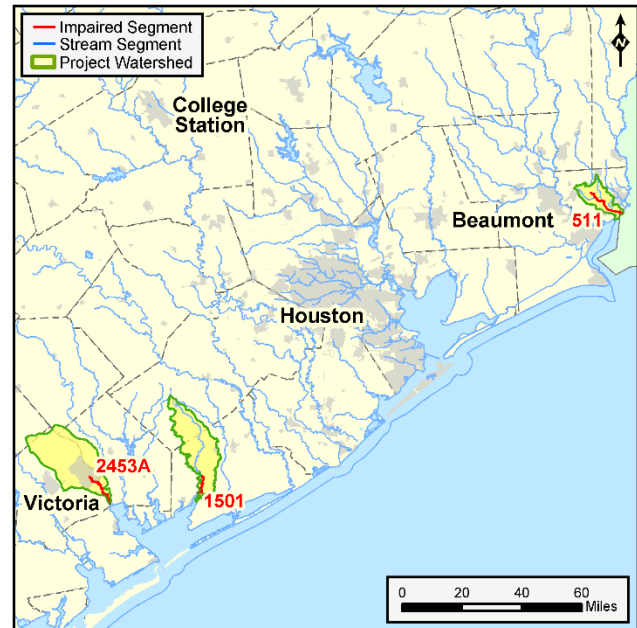
Learn more about water quality standards, monitoring, and TMDLs by reading [Preserving and Improving Water Quality](#)¹, available on our website and in print.

Description of the Project Watersheds

Phase I of this project focused on the tidal portions of three streams—Cow Bayou Tidal (Segment 0511) on the upper Texas coast; and Tres Palacios Creek Tidal (Segment 1501) and Garcitas Creek Tidal (Segment 2453a) on the middle coast (see larger map on page 3).

Cow Bayou Tidal extends 20 miles from its confluence with the Sabine River in Orange County to a point three miles upstream of IH10 in Orange County.

Tres Palacios Creek Tidal extends eight miles from its confluence with Tres Palacios Bay in Matagorda County to a point 0.6 miles upstream of its confluence with Wilson Creek in Matagorda County.



Garcitas Creek Tidal is an unclassified tidal tributary of Lavaca Bay that extends 15.2 miles from its confluence with Lavaca Bay in Jackson County to a point 8.5 miles upstream of FM 616 in Jackson County.

Project Development

TCEQ signed an agreement with the Texas Parks and Wildlife Department (TPWD) to carry out this project. In addition to the three streams that were the focus of this project, two additional tidal streams—Lost River on the upper coast and West Carancahua Creek on the middle coast—were chosen to serve as reference sites for this study.

Monitoring of water quality and the fish and invertebrate communities of all the streams began in spring 2003 and was completed in fall 2004. The data were analyzed to develop a new, scientifically sound means of assessing the health of aquatic communities in tidal streams.

The UAA results were submitted to the TCEQ's Surface Water Quality Standards Team. Results of the Phase I analysis were then applied to the study of other tidal streams along the Texas coast in Phase II of this project.

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

Public Participation

TCEQ informed the public about this research primarily through the project webpage.

For More Information

E-mail us at tmdl@tceq.texas.gov, or call 512-239-6682.

Or visit the project webpage at:

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

Information is available on the webpage for both Phase I and Phase II. Phase II started in November 2017.

For more information about possible revisions to the aquatic life use standards for tidal streams, email the TCEQ Standards Group at standards@tceq.texas.gov.

Project Dates

Start Date: August 2002

End Date: August 2007

Project Highlights

- Monitoring of water quality and the fish and invertebrate communities of all the streams began in spring 2003 and was completed in fall 2004.
- Project staff completed a final report of the historical data review and a final report on the assessment methodology.
- The final stream-specific reports were submitted by TPWD and are available on the project webpage.

