Improving Water Quality in Adams and Cow Bayous
A Project to Protect Recreational and Aquatic Life Uses

Assessments of water quality conducted by TCEQ and the Sabine River Authority between 1992 and 2002 found that in two bayous in Orange, Jasper, and Newton counties—Adams Bayou (Segment 0508) and Cow Bayou (Segment 0511)—along with most of their associated tributaries, dissolved oxygen levels were not optimal for supporting aquatic life. In addition, high concentrations of bacteria may indicate a health risk to people who swim or wade in the water body—activities called "contact recreation" in the state's standards for water quality. In Cow Bayou, pH values were also occasionally lower than criteria established to protect general uses of this water body.

In June 2007, TCEQ adopted total maximum daily loads (TMDLs) for these water bodies to determine the measures necessary to restore water quality in the bayous and their tributaries. EPA approved the TMDLs in August of 2007. The goal of a TMDL is to determine the amount (or load) of a pollutant that a body of water can receive and still support its designated uses. The allowable load is allocated among all the potential sources of pollution within the watershed. Stakeholders then develop and implement a plan to reduce pollution to meet target levels specified in the TMDL(s).

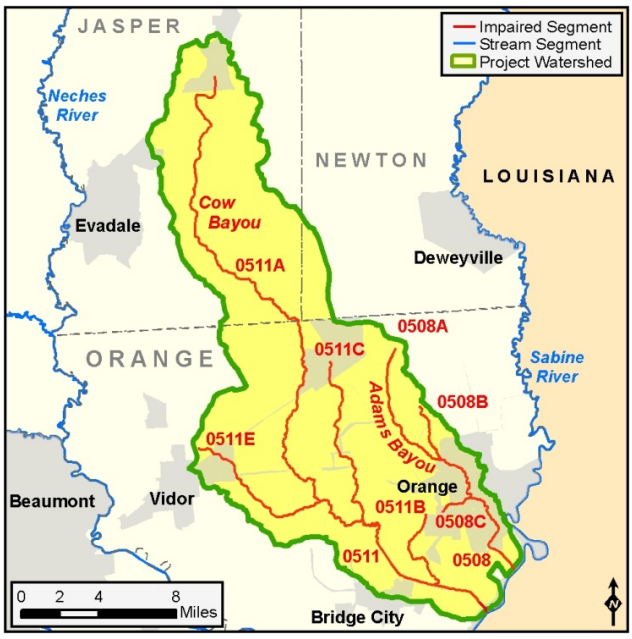
Oxygen, which dissolves in water, is essential for the survival of aquatic life. While the amount of dissolved oxygen in water fluctuates naturally, various human activities can cause unusually or chronically low dissolved oxygen levels.

Certain types of fecal bacteria from human and animal waste, known as indicator bacteria, are associated with the presence of disease-causing microorganisms that may cause illness. Swimmers may have an increased risk of contracting gastrointestinal diseases in water bodies with elevated indicator bacteria levels.

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

Watersheds of Adams Bayou and Cow Bayou

Adams Bayou and Cow Bayou are located in southeast Texas. Their combined watersheds cover almost 250 square miles in the coastal area of the Sabine River Basin. The topography of the region is relatively flat. The flow of freshwater into the upstream portions of the bayous is intermittent, and periods of no flow are common. The natural landscape is characterized by a heavy clay substrate and a mix of pine and deciduous trees.



The lower portion of the Adams Bayou watershed is urban, and includes most of the cities of Orange, West Orange, and Pinehurst. A tidally influenced tributary to Adams Bayou, Hudson Gully, flows through the heart of this urban area. The lower portion of Adams Bayou has been dredged and channelized for navigation. Hudson Gully and a freshwater tributary to Adams Bayou, Gum Gully, have been channelized to improve drainage in the watershed.

The Cow Bayou watershed is urban in some areas, and includes portions of the cities of Buna, Mauriceville, Vidor, and Bridge City. Large areas of the watershed are used for agriculture, including rangeland/pasture and hay production. The TMDLs adopted in 2007 addressed impairments in Cow Bayou, including the portion above tidal influence, and three of its tributaries, Cole Creek, Terry Gully, and Coon Bayou. The lower portion of Cow Bayou has been dredged and channelized for navigation. Like Adams Bayou, several of its tributaries have been channelized for drainage.

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

Both Adams Bayou and Cow Bayou watersheds are affected by municipal and industrial wastewater discharges and by storm water runoff from agricultural, industrial, and urban areas.

TMDL Development

TCEQ contracted with Parsons Corporation and the Sabine River Authority of Texas to develop the TMDLs adopted in 2007. TCEQ worked with Tarleton State University's Texas Institute for Applied Environmental Research (TIAER) to revise the watershed and water quality models used to develop the TMDLs in 2007, updating the models with more detailed and current information. TCEQ has revised the TMDLs adopted in 2007 for Adams Bayou, Cow Bayou, and their tributaries. A draft of those TMDLs was submitted to the public for comments from April 24 through May 26, 2020. A public teleconference meeting was held on May 14, 2020, to solicit oral comments. On August 26, 2020, the Commission adopted the revised TMDLs.

TMDL Implementation Plan

A TMDL Implementation Plan (I-Plan) is the means by which TMDLs are put into action. I-Plans outline the measures needed to reduce pollutant loads through regulatory and voluntary activities. In 2014, stakeholders developed an I-Plan for the TMDLs in the Adams Bayou and Cow Bayou watersheds. The I-Plan was approved by TCEQ in 2015.

The Sabine River Authority and TCEQ hold yearly public meetings to update the public on the progress of the I-Plan for the Adams Bayou and Cow Bayou TMDLs and to get ideas and feedback from the public on how to improve the I-Plan. Summary updates for these meetings are provided on the project webpage.

Public Participation

In all its projects, TCEQ seeks to gather opinions and information from a variety of people with interest in the watershed. The Sabine River Authority and TCEQ are jointly coordinating stakeholder involvement in this project.

For More Information

Contact the project manager listed below, or visit the project webpage at:

www.tceq.texas.gov/waterquality/tmdl/37-orangecounty.html

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TMDL Dates

Start Date: August 2002
TCEQ Adoption: June 13, 2007
EPA Region 6 Approval: August 28, 2007

I-Plan Date

TCEQ Approval: August 5, 2015

Revised TMDLs

TCEQ Adoption: August 26, 2020
EPA Approval:

Highlights

- The TMDL report identified point and nonpoint sources of pollution as contributors to the impairments. Sources include municipal and industrial wastewater treatment facilities and failing onsite sewage facilities (OSSFs), along with other nonpoint sources of pollutants.
- The Orange County Health Department used 319 grant funds to replace 29 failing OSSFs in the area.
- In 2012, the Sabine River Authority and the Texas Water Resources Institute hosted a series of public meetings to get ideas and feedback from the public for use in developing an I-Plan.
- In 2014, stakeholders completed an I-Plan based on local feedback and comments from TCEQ.
- As of January 2021, TCEQ and Sabine River Authority have begun collecting information for the next annual I-Plan update.