



Improving Water Quality in Halls Bayou and Willow Bayou

A Project to Protect Recreational Uses

In 2012, TCEQ found elevated levels of bacteria in Halls Bayou (Segment 2432C). In 2014, TCEQ also found elevated levels of bacteria in Willow Bayou (Segment 2432B). High concentrations of bacteria, which are found in both human and animal waste, 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.

To address these concerns, people who have a stake in the watershed are working with TCEQ to develop total maximum daily loads (TMDLs) and an implementation plan (I-Plan). A TMDL is like a budget—it determines the amount (or load) of bacteria the creek can receive and still support the contact recreation use. The allowable load is then allocated among categories of sources within the watershed. The I-Plan outlines the measures that will be used to reduce pollution.

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

The Halls and Willow Bayous Watershed

Halls Bayou Tidal (Segment 2432C) is tributary of Chocolate Bay (Segment 2432), an embayment of West Galveston Bay. A tidal stream, Halls Bayou is 19.6 miles long and begins approximately six miles southeast of the city of Alvin in Brazoria County, with intermittent headwaters. The segment flows southeasterly past Halls Bayou Camp, briefly enters Galveston County, and then runs parallel to the Galveston County line into Halls Lake, through the Narrows, and into Chocolate Bay.

Willow Bayou (Segment 2432B) is a major freshwater tributary to Halls Bayou. The intermittent headwaters for Willow Bayou arise three miles southwest of the city of Hitchcock in western Galveston County. The stream flows southwest to its mouth on Halls Bayou at the Brazoria County line.

In the upper reaches of the project area, topography ranges from flat coastal plain to rolling terrain, transitioning to flat terrain with shallow depressions in the lower reaches. Halls Bayou and its tributaries are typically sluggish due to the gentle sloping relief found on the coastal plain. Riparian vegetation is still common along portions of the bayou.



The TMDL watershed is primarily coastal tall grass prairies and marsh wetlands, with forested riparian areas consisting of water-tolerant hardwoods and conifers. This habitat supports a diverse population of both freshwater and saltwater fish. With extensive beds of seagrass, particularly wild celery, the bayous provide habitat for numerous waterfowl in the winter.

Land use in the area is primarily agricultural. Residential areas are concentrated primarily to the northeastern portion of the watershed in Galveston County, although a small area of the northern portion of the watershed in Brazoria County is also residential. There are no major cities or towns located in the watershed.

The Gulf Coast Water Authority maintains pump stations on Chocolate, Mustang, and Halls Bayous to supply up to 400,000 acre-feet of water per year for industrial, irrigation, and municipal purposes.

Project Development

TCEQ began this project in 2016 as part of an assessment of the San Jacinto-Brazos Coastal Basin. The Houston-Galveston Area Council (H-GAC) has been providing support for technical work and stakeholder

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

engagement. H-GAC is currently developing a technical support document for the TMDLs based on their investigations.

Public Participation

In all its projects, TCEQ seeks to gather opinion and information from people who represent government, permitted facilities, agriculture, business, environmental, and community and private interests in the watershed. TCEQ solicits advice from the public at meetings and through print and electronic media notices.

The H-GAC is working with stakeholders to advise TCEQ about TMDL development and to create an I-Plan to reduce bacteria loads to the streams. The TMDLs for Halls Bayou and Willow Bayou will be implemented as part of a larger I-Plan that encompasses neighboring watersheds that also drain into Chocolate Bay.

For More Information

Contact one of the people listed, or visit the project webpage at:

www.tceq.texas.gov/waterquality/tmdl/nav/halls-and-willow-bayous/114-hallsbayoubacteria

TCEQ Project Manager

Jazmyn Milford, TMDL Program

(512) 239-1524

Jazmyn.Milford@tceq.texas.gov

H-GAC Project Manager

Steven Johnston, Senior Planner

(832) 681-2579

Steven.Johnston@h-gac.com

TMDL Status

Start Date: September 2018

TCEQ Adoption: Projected 2023

EPA Region 6 Approval:

I-Plan Status

Start Date: September 2018

TCEQ Approval:

Project Highlights

- Public meetings began in 2018.
- Stakeholders last met in January 2020 to discuss progress on developing the TMDLs.
- H-GAC has developed a technical support document based on their investigations, which is currently being reviewed by TCEQ.
- Stakeholders began meeting in early 2020 to develop the I-Plan for these TMDLs, which will include the adjacent watersheds of Halls Bayou, Willow Bayou, and Mustang Bayou.

TCEQ is an equal opportunity employer. The agency does not allow discrimination on the basis of race, color, religion, national origin, sex, disability, age, sexual orientation, or veteran status. In compliance with the Americans with Disabilities Act, this document may be requested in alternate formats by contacting TCEQ at 512-239-0010, or 800-RELAY-TX (TDD), or by writing PO Box 13087, Austin TX 78711-3087. How is our customer service? tceq.texas.gov/customersurvey