



Improving Water Quality in Dickinson Bayou A TMDL Project for Bacteria

High concentrations of indicator bacteria in Dickinson Bayou may indicate a health risk for people who swim or wade in the water body—activities called “contact recreation” in the state’s standards for water quality.

Fecal bacteria are commonly found in the intestines of warm-blooded organisms such as humans, livestock, poultry, cats, and dogs. Bacteria from human and animal waste often indicate the presence of disease-causing microorganisms, which can pose a health threat to people who engage in contact recreation.

The TCEQ conducted a total maximum daily load project to determine the measures necessary to restore water quality in the Dickinson Bayou. 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 then allocated among the categories of sources within the watershed, and stakeholders develop measures that reduce pollutant loads in an Implementation Plan.

Learn more about water quality standards and monitoring by reading *Preserving and Improving Water Quality*, available on the Web at <www.tceq.texas.gov/goto/tmdl/>.

Dickinson Bayou Watershed

Dickinson Bayou is located in the San Jacinto-Brazos Coastal Basin. It originates near the city of Alvin, south of Houston, and flows east through the city of Dickinson before joining Dickinson Bay. The bayou has two segments—the tidal portion, Segment 1104, and the portion above tidal influence, Segment 1103. This project addresses both segments and three of its tributaries—Bensons Bayou (1103A), Bordens Gully (1103B), and Giesler Bayou (1103C).

Upstream of the tidal influence, Dickinson Bayou is a small coastal prairie stream. The tidal segment (1104) ranges from a relatively narrow, forested stream in its upper reaches to a very wide and relatively deep tidal stream downstream from the city of Dickinson.

Dickinson Bayou is used by local residents for recreational boating, fishing, water skiing, canoeing, and other activities. The lower tidal portions support some commercial shrimp boats and barge traffic. Rice fields in the upper watershed receive irrigation water via canals from beyond the watershed. The irrigation water returns to Dickinson Bayou as irrigation return flows. Although the return flows contributed substantially to



flow in the bayou in the past, rice farming has diminished significantly in the upper Dickinson watershed since the mid-1970s.

The watershed of Dickinson Bayou includes portions of Brazoria and Galveston counties and the cities of Alvin, Santa Fe, Dickinson, and League City.

Public Participation

In all its projects, the TCEQ seeks to gather opinions and information from people who represent local government, permitted facilities, agriculture, business, environmental interests, and community and private interests in the watershed. This project was coordinated through the Galveston Bay Estuary Program and Texas AgriLife Extension Service.

The steering committee of the Dickinson Bayou Watershed Partnership advised the TCEQ on development of the TMDL and during development of the TMDL implementation plan (I-Plan). Stakeholders in the watershed formed the Partnership to implement activities that will improve water quality in Dickinson Bayou.

Project Development

In a parallel effort to TMDL development, the TCEQ partnered with Texas AgriLife and the Dickinson Bay-

ou Watershed Partnership to develop a watershed protection plan (WPP) for Dickinson Bayou.

In May 2009, the TCEQ accepted the Dickinson Bayou Watershed Partnership's WPP and submitted it to the EPA for approval. The EPA recommended several revisions to the plan, but gave preliminary approval to implement several major projects included in the plan. The WPP will be revised in 2015 and 2016 to address the EPA's concerns.

The TCEQ adopted the final TMDLs on February 8, 2012, and the EPA approved the TMDLs on June 6, 2012. The commission also approved the final I-Plan on January 15, 2014.

In 2014, about two years after the adoption of the first TMDLs for Dickinson Bayou, the TCEQ began developing additional TMDLs for bacteria in the tidal assessment unit of Dickinson Bayou and in two additional tributaries of the Dickinson Bayou (Cedar Creek and Gum Bayou). These water bodies were listed as impaired in the state's 2010 Integrated Report of Surface Water Quality due to high levels of indicator bacteria; they were not included in the original TMDL document. The TMDL additions were submitted to the EPA as an addendum in July 2016 and approved by the EPA in September 2016.

TMDL Development Status

Start Date: 2006

TMDL Adoption: 02/08/12

EPA Approval: 06/06/12

I-Plan Approval: 01/15/14

TMDL Addendum Approved: September 30, 2016

For More Information

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

<www.tceq.texas.gov/waterquality/tmdl/80-dickinsonbayoubacteria.html>

Or see the Partnership's website at:

<agriflife.org/dickinsonbayou/>.

Dickinson Bayou WPP and TMDL Implementation Plan:

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Project Highlights

- The TMDL project began in August 2006.
- Stakeholders formed the Dickinson Bayou Watershed Partnership in December 2005.
- The Partnership published a WPP in February 2009. The TCEQ accepted the WPP in May 2009 and is helping to implement several major activities associated with the plan.
- In September 2009, the EPA made recommendations for revising the WPP. The TCEQ is working with the Dickinson Bayou Watershed Partnership to revise the WPP and will resubmit the revised plan to the EPA.
- The commission adopted the final TMDLs for bacteria in Dickinson Bayou on February 8, 2012.
- The EPA approved the TMDLs on June 6, 2012.
- A TMDL Implementation Plan for bacteria was completed in 2013 and approved by the TCEQ on January 15, 2014.
- The TCEQ developed three bacteria TMDLs for two additional tributaries (three assessment units) beginning in 2014. The TMDL additions were submitted to the EPA in July 2016 and approved by the EPA on September 30, 2016.
- Information about the Dickinson Bayou Watershed Partnership Steering Committee is available on the Web at <agriflife.org/dickinsonbayou/>.

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