



## Improving Water Quality in the Houston Area A TMDL Project for Dioxin

In 1990, the Department of State Health Services issued an advisory warning people not to eat catfish or blue crab caught in the Houston Ship Channel and Upper Galveston Bay. The advisory was issued to protect consumers from health problems caused by dioxin found in catfish and blue crab.

Dioxin is a generic term for a suite of toxic and environmentally persistent compounds. Overexposure to dioxin can cause a variety of harmful health problems, including cancer, birth defects, diabetes, developmental delays, and immune system abnormalities.

The TCEQ is developing total maximum daily loads (TMDLs) to determine the measures necessary to restore the safety of fish consumption in the waterways affected by the advisory. 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 categories of sources within the watershed, and stakeholders work with the state to develop measures that reduce pollutant loads.

Learn more about water quality standards, monitoring, and TMDLs by reading *Preserving and Improving Water Quality*, available on our website at [www.tceq.texas.gov/goto/tmdl/](http://www.tceq.texas.gov/goto/tmdl/).

### Houston Ship Channel and Upper Galveston Bay Watershed

The Ship Channel system is in the San Jacinto River Basin. Its various branches originate in western and northern areas of the city of Houston, and at the Lake Houston Dam on the San Jacinto River. The Ship Channel area has one of the highest densities of petrochemical facilities in the world. Facilities in the area, and the waterway itself, are important elements in the economic health of the region, state, and nation.

Houston has long been one of the busiest ports in the United States. The channel's production of materials and its inland location have been, and will continue to be, important to the military security of the nation.

The commercial navigation provided by the channel initiated and supported the historic growth of the Houston area economy. The headwater reaches, tributaries, and fringes of both the Houston Ship Channel System and Upper Galveston Bay provide recreational opportunities for residents.



The watershed includes portions of the following political jurisdictions:

- **Counties:** Chambers, Fort Bend, Galveston, and Harris
- **Cities:** Houston, Pasadena, Baytown, La Porte, and Deer Park

The Houston Ship Channel System consists of 14 classified segments, which together comprise the “enclosed” portion of the Houston Ship Channel with its major tributaries and side bays.

This project includes ten of the ship channel segments:

- San Jacinto River Tidal (Segment 1001)
- Houston Ship Channel (1005, 1006, 1007)
- Tabbs Bay (2426)                      ▪ San Jacinto Bay (2427)
- Black Duck Bay (2428)              ▪ Scott Bay (2429)
- Burnett Bay (2430)                    ▪ Barbour's Cut (2436)

Also included are three segments not considered part of the Houston Ship Channel System:

- Cedar Bayou Tidal (Segment 0901)
- Upper Galveston Bay (Segment 2421)
- Bayport Channel (Segment 2438)
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## Public Participation

In all its projects, the 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. Due to the lengthy and extremely technical nature of the sampling, analysis, and model development expected with this TMDL project, a stakeholder group was convened in the early stages of the project. The stakeholder group includes area residents and representatives of nongovernmental organizations, industry, and various local, state, and federal governments. The stakeholder group is also advising the TCEQ about two other closely related projects for PCBs and dioxin in the Houston area.

The Houston-Galveston Area Council (H-GAC) is coordinating public participation, and also coordinating as needed with the Texas Clean Rivers Program Steering Committee and the Technical Advisory Group (TAG) for the San Jacinto River Basin and associated Coastal Basins.

## For More Information

Visit the H-GAC website at <[www.h-gac.com/community/water/tmdl/](http://www.h-gac.com/community/water/tmdl/)> or the stakeholder group page on the TCEQ website at <[www.tceq.texas.gov/waterquality/tmdl/26-houston\\_group.html](http://www.tceq.texas.gov/waterquality/tmdl/26-houston_group.html)>. Or contact one of the following people.

### TCEQ TMDL Program:

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### TCEQ Regional Office:

Linda Broach, Region 12 - Houston  
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### Public Participation:

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## TMDL Development Status

Start Date: August 2002

Projected End Date: 2012

TCEQ Adoption:

EPA Region 6 Approval:

## I-Plan Development Status

Projected End Date: 2014

TCEQ Approval:

TMDL: Percent Complete

	10	20	30	40	50	60	70	80	90	100
Data Collection										
Assessment										
TMDL Development										
Stakeholder Review										
TCEQ Adoption										

I-Plan: Percent Complete

	10	20	30	40	50	60	70	80	90	100
Plan Development										
Stakeholder Review										
TCEQ Approval										

## Project Highlights

- The kick-off meeting of the stakeholder group was May 3, 2000, at the H-GAC offices in Houston.
- A TCEQ approved a quality assurance plan (QAPP) in July 2002. The QAPP was continuously updated and recertified while monitoring continued.
- Sampling and analyses of dioxins in water, sediment, tissue, watershed runoff, wastewater discharges, and air occurred from 2002 into 2006. All sampling was completed by mid-2006.
- Results from sampling indicate that dioxin concentrations in water, sediment, and tissue are elevated. Preliminary analyses suggested that current sources are unlikely, and that residual sediment loads are the primary issue to address. Subsequent model analyses continue to support that conclusion.
- Data collected by the project led to the discovery in 2005 of a concentrated deposit of dioxin-contaminated sludge submerged in the San Jacinto River. That site has since become a National Priority List Superfund Site managed by the EPA.
- A draft TMDL report has been prepared and is being reviewed within TCEQ.