



Bay Briefings



A PROGRAM OF THE TCEQ

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Galveston Bay Estuary Program • 17041 El Camino Real, Suite 210 • Houston, TX 77058 • Phone: 281/218-6461 • Fax: 281/218-6807 • Email: gbep@tceq.state.tx.us • Web site: www.gbep.state.tx.us

Public Health

Overview

Galveston Bay is one of the nation's most productive estuaries. It is estimated that seafood production generates an estimated \$3.1 billion annually to our region's economy. The Bay supports one-third of the state's commercial fishing and over half of its recreational fishing. The bay is a popular place, and rightly so.

Enjoying the bay, using it for our livelihoods, or consuming its fish or shellfish comes with some public-health risks. The Estuary Program works with state and federal agencies to understand, to publicize, and to minimize these risks.

There are two main areas of risk: (1) exposure to pathogens (disease-causing organisms) through the consumption of oysters or by direct contact with contaminated waters, and (2) exposure to toxic substances through the consumption of contaminated fish or shellfish.

Exposure to Pathogens

Inadequate management of human and animal wastes introduces pathogens into the environment. Fecal coliform is associated with human and animal waste and is used as an indicator of the potential presence of harmful bacteria and viruses. Fecal coliform bacteria are found at unacceptable levels in many tributaries and in some bay waters near the shore. Fecal coliform increases after heavy rainfalls. Sources of fecal coliform include overflowing municipal sewage systems, failing septic systems and nonpoint source runoff. Additionally, recreational boating can be a source of contamination through illegal discharges of untreated sewage.

The consumption of shellfish, especially raw, can pose a significant health risk because shellfish can concentrate bacterial and viral pathogens in their tissues. The risk of illness from contaminated oysters is low, but outbreaks of infectious diseases do occur occasionally, particularly due to several species of bacteria in the genus *Vibrio*. *Vibrio vulnificus* is a naturally occurring bacterium that can be contracted from consumption of oysters or from bay water contacting an open

wound. It can be fatal to some vulnerable groups—for example, those with damaged livers or compromised immune systems. Illness or death from exposure via contact with water of the bay system is very rare, but could occur in some areas.



Commercial fishing adds much to Texas' economy. Source: Randy Green, Texas Department of Transportation.

Exposure to Toxic Substances

The Department of State Health Services has issued advisories that recommend limited consumption of certain fish and crabs taken from certain areas of Galveston Bay. (See the fact sheet "Public Health: Seafood Consumption.")

The DSHS tests fish and shellfish samples for toxic metals, pesticides, and volatile and semi-volatile organic compounds. Most of the organic compounds are tested because they are believed to carry an increased cancer risk. Toxic metals, pesticides, volatile and semi-volatile organic compounds are monitored because they can damage a variety of organ systems.

Based on available data for contaminants in seafood, most of the bay rates Very Good to Good with only a few bay segments rating Moderate or Poor.

	Metals	PCB	Pesticides	Dioxin
Houston Ship Channel	Very Good	Poor	Moderate	*
Upper Galveston Bay	Very Good	Very Good	Very Good	*
Lower Galveston Bay	Very Good	Very Good	Very Good	**
Clear Lake	Very Good	Very Good	Very Good	**
Trinity Bay	Very Good	Moderate	Very Good	**
East Bay	Very Good	Very Good	Very Good	**
West Bay	Very Good	Very Good	Very Good	**
Christmas & Bastrop Bays	Moderate	Very Good	Very Good	**



The indicator is based on data collected by the DSHS in 1998-2000
 *Rating based on existence of a Seafood Consumption Advisory
 **Insufficient data

Chemicals of concern found in fish and shellfish from Galveston Bay. Data Source: DSHS. Graphic Source: Houston Advanced Research Center.

The compounds depicted represent a range of potential health impacts. The level of risk is based on exposure and concentrations of the compounds. The various compounds and metals are known or suspected to cause acute or chronic diseases of the nervous, circulatory, and endocrine systems. The compounds have the potential to be more damaging in combination than alone, but very little research has been done on synergistic effects of pollutants.

What the Estuary Program Is Doing

The Galveston Bay Estuary Program, with its state and federal partners, continues to collect and analyze data from

the bay to determine if current advisories need to be expanded or if additional advisories are needed.

The Estuary Program also participates in the Texas Commission on Environmental Quality's Total Maximum Daily Load program. TMDLs are a regulatory tool to restore *impaired watersheds* (those that do not meet federal water quality standards). Currently, there is a TMDL on the upper Houston Ship Channel for dioxin, which includes the study of PCBs.

What You Can Do

- Persons with compromised immune systems should limit contact recreation, such as swimming, in open water.
- Attend a TMDL meeting (they are open to the public).
- Make use of household hazardous waste collection days in your community.
- Use lawn and garden chemicals only as a last resort.

Visit the Estuary Program's Web site, www.gbep.state.tx.us, for up-to-date links to information on TMDLs, household hazardous waste collection, lawn-chemical use, and other bay-related public-health issues.



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