



Bay Briefings



A PROGRAM OF THE TCEQ

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Water and Sediment Quality

Overview

Galveston Bay's water quality has improved over time and the bay's waters, with some notable exceptions, are generally considered healthy. However, as population and development increase around the Houston-Galveston region, there is the potential for an increase in water pollution.

While improvements in water quality have occurred since the implementation of the Clean Water Act in the 1970s, problems persist. Galveston Bay's water quality problems are concentrated in urban tributaries where human development is densest.

Sources of Pollution

Much of the pollution that enters Galveston Bay comes from many small, scattered sources in the watershed, such as yards, cars, and streets. This type of pollution is called *nonpoint source* or *storm-water* pollution. Nonpoint source pollution occurs when rainfall transports pollutants from the land into nearby bayous, creeks, and rivers, or directly into the bay.

Nonpoint source pollution can come from a variety of sources such as excess fertilizer spread on lawns, failing septic systems, incorrectly applied pesticides from farms, oil from leaky cars and trucks, bacteria from animal waste, soil eroded from poorly

maintained construction sites, street litter such as Styrofoam cups, and particles falling from the air. Nonpoint source pollution is very difficult to clean up and little of it is treated before entering into our bayous and, ultimately, Galveston Bay.

Recently, local, state, and federal governments, as well as business and environmental groups, have started to develop ways of treating nonpoint source pollution. Treatments include installing storm-water detention ponds that filter nonpoint source pollution and building wetlands that, in effect, digest some of the pollution before it enters into a bayou or stream.

Bacterial Contamination

Fecal coliform bacteria are found at unacceptable levels in many of the bay's tributaries and in some bay waters near the shore. Because fecal coliform is often associated with bodily waste from humans and other animals, scientists use the bacteria as an indicator of the potential presence of harmful bacteria and viruses. Fecal coliform often 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.

Sediment Quality

Sediments on the bay bottom are a unique habitat and support many bottom-feeding organisms. Pollution discharged in water often combines with sediment particles. Sediments tend to store pollutants. This, in turn, leads to increasing concentrations of the contaminants in bottom feeders. Because many of the bottom feeders are eaten by animals higher in the food chain, contamination originally in sediment can eventually end up in fish and shellfish. Also, pollution found in sediments can reenter the food chain when the bay bottom is physically disturbed by events such as flooding or channel dredging.

The industrialized upper Houston Ship Channel is generally the location of the highest sediment contaminant concentrations. Other areas that receive effluents from industrial facilities and ports also exhibit relatively high sediment contamination.



Nonpoint source sediment erosion and contaminants impacting water quality. Source: Galveston Bay Estuary Program.

Remaining Challenges

While the bay's water quality has vastly improved since the implementation of the Clean Water Act in 1972, a number of challenges related to nonpoint source pollution and industrial activities remain.



The land and water are connected via storm sewers. Pollution on the land eventually reaches nearby bayous, creeks, and rivers, or directly into the bay. Source: Jamey Tidwell, Texas Sea Grant

Elevated levels of nutrients are a cause for concern in some urban and suburban tributaries. High concentrations of fecal coliform bacteria in surface waters make some tributaries and areas of the bay unsafe for water sports and oyster harvesting. Organic contaminants in the upper Houston Ship Channel are the cause of several seafood-consumption advisories. For more on water and sediment quality, visit www.galvbaydata.org.

What the Estuary Program Is Doing

The Galveston Bay Estuary Program coordinates collaborative bay-improvement efforts on the ground. Working with citizens, environmental organizations, businesses, governments, commercial fishermen, and others, the Estuary Program guides water quality improvement projects, efforts to acquire and restore wetlands, community education programs, and research.

What You Can Do

- Keep your car and personal watercraft maintained and free of leaks. Dispose of waste and trash in designated areas and at participating *Clean Marinas*.
- Minimize use of chemicals on landscapes and properly dispose of household chemicals and waste.
- Establish educational programs on nonpoint source pollution in schools and in your community.
- Maintain your septic system.

Information on the *Clean Marinas* Program, reducing chemical pollution on lawns, establishing nonpoint source education programs, septic-system maintenance, and other useful materials can be found at the Galveston Bay Estuary Program Web site at www.gbep.state.tx.us.



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