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## CHAPTER TWO OVERVIEW OF GALVESTON BAY

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The Galveston Bay system constitutes the seventh largest estuary in the United States, with 600 square miles of shallow (10-12 foot) water. Because precipitation exceeds mean evaporation and an additional 10 million acre-feet of fresh water enter the estuary annually, the bay has a very low salinity, which in turn is one of the keys to its extraordinary productivity. A second factor is the large number of marsh, forest, and fresh water ponds and lakes that surround the bay, filtering runoff and providing a rich source of nutrients and valuable habitat. The bay supports a wide range of commercial and recreational fishing, producing nearly 7 million pounds of shrimp in 1987 along with oysters, redfish, flounder, and many other kinds of fish. It also provides rookeries for colonial nesting birds. More than 70 species of waterfowl and shorebirds live or migrate through the bay as do 90 species of amphibians and reptiles.

Galveston Bay is composed of four main bodies of water and several smaller side bays. Galveston Bay proper, Trinity Bay, East Bay and West Bay. Galveston Bay proper is at the center of the bay complex. Trinity Bay, named after the Trinity River which empties into the bay there, is located in the northeast corner of the bay system. East Bay is a narrow stretch eastward from the center of the bay complex behind the Bolivar Peninsula. West Bay is long and narrow and runs the length of Galveston Island from Pelican Island to San Luis Pass. Texas mainland is separated from Galveston Island by the West Bay. The largest exchange between the Gulf and the Bay occurs at the narrow pass between the eastern end of Galveston Island and the western edge of the Bolivar Peninsula, known as Bolivar Roads. Rollover Pass, a man-made interchange located in Gilcrest, provides a small connection between East Bay and the Gulf of Mexico. Figure 2-1 is a map of the bay.

Galveston Bay lies generally southeast of the Houston Metropolitan Area and is fed in part by the San Jacinto River which drains populated areas of northern Harris and southern Montgomery Counties. Other municipalities on its shores include Baytown, Pasadena, Galveston, and Texas City/LaMarque, putting it at the edge of the most heavily populated area of Texas. The bay is surrounded by four counties: Harris, Chambers, Brazoria, and Galveston. In 1960, the four counties bordering Galveston Bay had a population of about 1.65 million people. By 1990, the population had grown to about 3.6 million, placing considerable additional burden on the shoreline and bay. In addition, it is at the center of the state's petrochemical industry, with 30 percent of U.S. petroleum industry and nearly 50 percent of U.S. production of ethylene and propylene occurring on its shores. Finally, most of its riverine inflow comes from the Trinity River, which flows through the Dallas metropolitan region.

In order to support ocean-going ship traffic, the Houston Ship Channel was cut across Galveston Bay: a 400-foot-wide, 40-foot deep cut through the floor of the otherwise shallow bay. The channel has allowed the Port of Houston to become the third largest port in the United States. The channel carries 70 percent of the state's total port traffic and generates over \$3 billion of revenue to the state and local economy. More than 150 companies line the channel, primarily producing petrochemicals and steel. It is estimated that over 110,000 Texas residents are employed in organizations that are related to business activity along the Houston Ship Channel. In addition, the Gulf Intracoastal Waterway, a barge channel, crosses the bay.

In short, Galveston Bay is of great economic importance to Texas. The Port of Houston generated \$3 billion in revenue in 1987; the Intracoastal Waterway system carried almost 73 million tons of commodities in 1986. In May 1988, when then-Governor William Clements nominated Galveston Bay as an estuary of national significance, the Texas Water Commission estimated the total economic value of its natural resources, including habitat, fishing, and recreation, to be \$2.74 billion.

The economic importance of the bay contributes to the difficulty of developing coherent and sensible policies for environmental protection. On the one hand, the continued economic importance of the bay depends upon its environmental health, including its ability to sustain fishing and recreation. On the other hand, environmental protection must be balanced against economic development and the continuing use of the bay, without which the economy of a large portion of southeastern Texas would simply collapse. The following evaluation will suggest the extent to which these dual goals have been achieved.

Figure 2-1  
Galveston Bay Estuary System  
and Surrounding Counties



