CHAPTER TWO
GALVESTON BAY

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 others. 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. It 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. The Trinity River, which flows into the bay, cuts through the Dallas/Fort Worth Metroplex. Other municipalities along the Trinity include Athens, Corsicana, Huntsville, and Waxahatchie. Thus the bay is affected by cities and towns with a population of more than 4 million people, although the distance of many of the cities from the bay may reduce the effects of pollution from them. 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 occuring on its shores.

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 long-established patterns of use whose disruption could be extremely costly. Phase 2 of this project will include an evaluation of the present balance between these competing values embodied in the present set of laws and regulations and agency practices. However, the purpose of this phase, the environmental regulatory inventory, is to sketch the existing legal framework for protection of the bay's environment. The following sections are organized according to several problems identified by the Management Conference of the Galveston Bay National Estuary Program.