



GALVESTON BAY: A BRIEF HISTORY OF ONE OF AMERICA'S GREAT WATERS

By Courtney Smith

Roseate spoonbills and laughing gulls wade near stands of California bulrush on Galveston Bay Foundation's Sweetwater Nature Preserve on Galveston Island.

Photo by Andrew Hancock, courtesy of Galveston Bay Foundation.

Galveston Bay is the most prominent geologic feature on the upper Texas coast. It is the state's largest bay, covering about 600 square miles, situated in one of its most urbanized and industrialized areas. The positioning and viability of Houston can be traced to its proximity to Galveston Bay. Beyond this, the Galveston Bay watershed—or the area of land that drains into a given waterbody—is about 24,000 square miles, stretching from the Houston metropolitan area north along the Trinity River basin past the Dallas-Fort Worth Metroplex. Half the population of Texas currently lives in the Galveston Bay watershed. Yet few know of its worth and even fewer of its rich history.

Galveston Bay is, by definition, an estuary—a semi-enclosed coastal body of water which has a free connection with the open sea and within which sea water mixes with fresh water from the land. In the case of Galveston Bay, it is where fresh water from the Trinity and San Jacinto Rivers and the extensive bayous and creeks of the “Bayou City” and surrounding areas mixes with the salty water of the Gulf of Mexico. With an average depth of about eight feet, the bay contains approximately three million acre-feet of water. Inflows of fresh water from rivers, bayous, and streams are the lifeblood of an estuary, bringing in nutrients that fuel the food chain and sediments to replenish our wetlands. Because of this, estuaries are among the most productive ecosystems in the world. They are home to a huge amount of plant and animal life and can produce large harvests of recreational and commercial fish and shellfish. Ninety-five percent of commercially and recreationally important fisheries species in

the Gulf of Mexico are dependent upon estuaries like Galveston Bay during some part of their life cycle. Galveston Bay is *the* most productive bay in Texas and one of the most productive bays in the country, trailing only Chesapeake Bay, which is eight times its size.

Chances are if you live, work, study, or recreate in or around Houston, you depend on Galveston Bay in some way. The bay supports a wide array of human uses, including marine transportation, industrial, agricultural, fisheries, residential, recreational, and tourism. The Houston-Galveston region owes much of its economic viability to ports and shipping, and its area grew as a result of its proximity to good ports. The Port of Houston ranks first in the nation for waterborne commerce and is the second largest port in the United States, based on tonnage. The Galveston Bay area is the petrochemical production capital of the nation, and the second largest complex in the world. Approximately one-third of the nation's petroleum refining occurs in the bay area. Agriculture mainly occurs on the eastern side of the bay, with the most important products being livestock, rice, sorghum, soybeans, and corn. Commercial and recreational fishing are also very important to the region. According to NOAA's State of the Coast website, in 2010, Texas ranked first in the nation for commercial catch of important species such as brown shrimp and second in the nation for white shrimp, Eastern oysters, black drum, and red snapper, among others. Recreational boating in this area remains popular, with Galveston Bay having the third highest concentration of privately-owned marinas in the nation. Recreational hobbies



such as birding are popular in and around Galveston Bay, and people come from all over the world to witness bird migrations in the spring.¹

All of these facts, figures, and statistics provide a snapshot of what Galveston Bay is and of its importance today. But how did it get here? What were the geologic, cultural, societal, political, and economic factors that put it where it is today? The following paragraphs attempt to summarize 18,000 years of the history of Galveston Bay by consolidating the work of noted historians from the Houston-Galveston region who have put together exhaustive studies of our region's history, mostly at the commission of the Galveston Bay Estuary Program, a program of the Texas Commission on Environmental Quality.

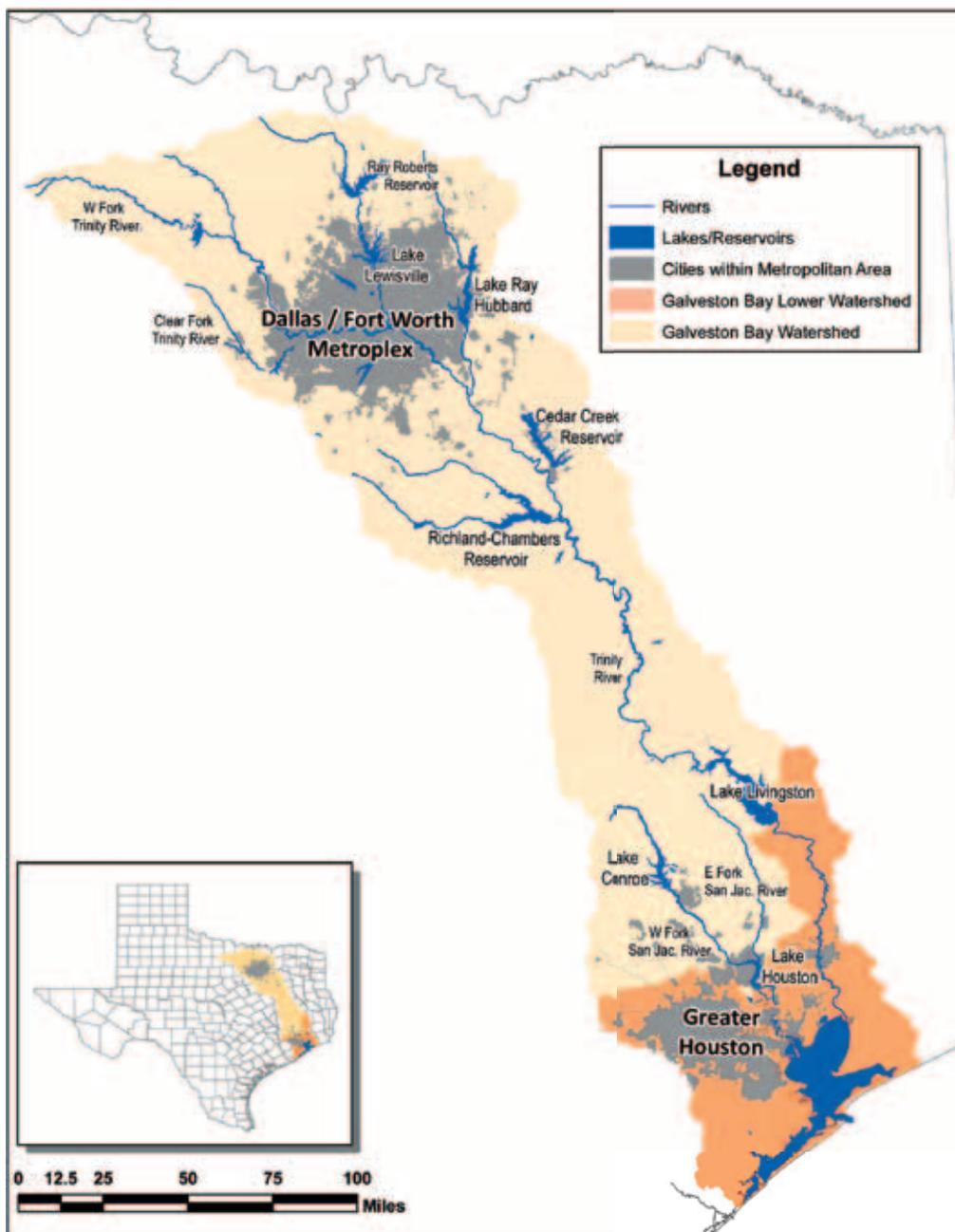
The Galveston Bay we enjoy today had its beginnings following the last Ice Age, less than 18,000 years ago. As the last Ice Age came to an end, the Earth warmed, Pleistocene mammals which roamed this area became extinct, the ice sheets withdrew, sea levels rose, and the shoreline moved to near-present locations, all over many thousands of years. The longshore currents along the new shoreline deposited sediments, eventually creating the sandbars we now know as Galveston Island about 5,000 years ago and Bolivar Peninsula about 2,500 years ago. Behind these barriers, Galveston Bay was formed and is classified as a "bar-built estuary in a drowned river valley."²

Fossilized bone and stone artifacts uncovered in the area date back to Paleo-Indian residents between 14,000 and 8,000 years ago. These nomadic peoples used the bay area as hunting grounds for life's necessities. Shell middens—or areas where clam and/or oyster shells were piled in large mounds—were created over thousands of years beginning about 8,000 years ago by hunter-gatherers along Galveston Bay and its tributaries. Galveston Bay's earliest known named inhabitants are the Akokisa (or Orcoquisa) tribes who lived here between 7,000 and 5,000 years ago. Other Native American tribes that seasonally frequented and moved into the area included the Karankawa, Coco, and Tonkawa tribes. The first European account of the natives of the Texas coast occurred with the Spaniard Cabeza de Vaca getting stranded here in 1528. Cabeza de Vaca encountered the native people near Galveston Bay and wrote an account of his experiences and the appearance and culture of the natives when he returned to Spain in 1542.³

Although Spain laid claim to the Western Hemisphere by right of Columbus's voyages, soon Spain had to defend its claimed territories from other Europeans, namely the French, in the 1600s and 1700s. Both Spanish and French explorers made efforts to map the bay. The earliest known map of Galveston Bay is the French map produced by La Harpe

in 1721. In 1783, the Spanish Governor of Louisiana, Bernardo de Galvez, commissioned Jose Antonio Evia to survey the entire Gulf coast. Evia named both a bay and an island on the upper Texas coast for his patron, Galvez. The 1799 map produced as a result of Evia's surveys and notes show for the first time the label of "Galveston Bay."⁴

Around this time, the newly named Galveston Bay began to transition from that of a food source to that of a place of settlement and colonization. With the arrival of European and Anglo American privateers, adventurers, and filibusters in the early 1800s, the annual visits by native, nomadic tribes greatly declined. The privateer Jean Lafitte arrived in Galveston from New Orleans around 1817 and built a settlement called Campeachy consisting of 100 to 200 houses, stores, inns, and even a billiard parlor. The hurricane of 1818 destroyed this settlement, and Lafitte was gone by 1820. In 1822, Stephen F.



The Galveston Bay watershed stretches to north of the Dallas-Fort Worth Metroplex and houses half of the population of Texas. Image courtesy of Houston Advanced Research Center.



Volunteers have actively restored intertidal marsh lost in Galveston Bay for decades. Photo courtesy of Galveston Bay Foundation.

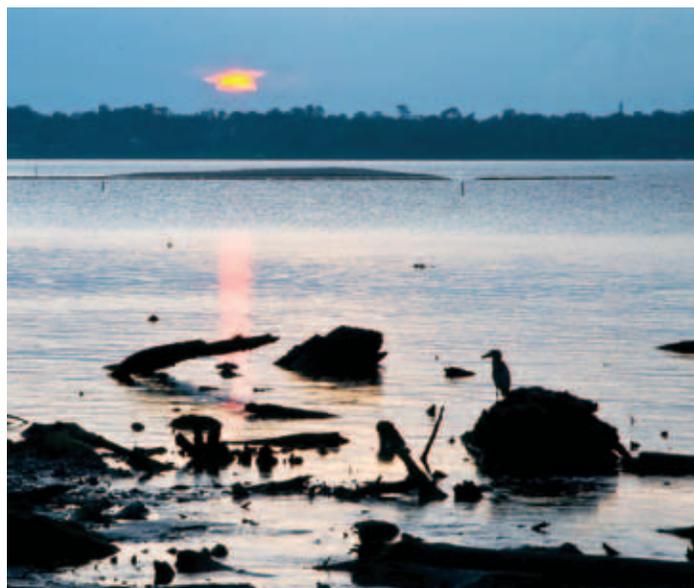
Austin established Anglo American settlements in the Galveston Bay area. For the first time, the bay became a main conduit for water transportation to trade goods. The first vessels used for this purpose were small schooners and sloops. In 1828, the bay was again surveyed for depths due to several incidents of boats running aground, particularly at Red Fish Bar, a shallow bar and reef that stretched from present day San Leon to Smith Point. The era of steamboats in Galveston Bay began in the mid-1830s. The *Cuyuga*, *Laura*, and *Yellowstone* were some of the steamboats that served Galveston Bay. The new colonists established settlements, like Harrisburg, and landings such as Morgan's Point and Lynch's Ferry. The convenient locations of Houston and Galveston led them to rise to prominence as important Texas cities in 1836 and 1837. Perhaps as a first indication that Houston could and would be a port city, the Allens, developers of Houston, commissioned the steamboat *Laura* to travel up Buffalo Bayou in 1837. An important observation to the future of Galveston Bay is that, during this time of rapid colonization, settlers manipulated their new land to more closely resemble the land from which they came. They attempted to "tame the wilderness" of Galveston Bay and, in doing so, cleared woodlands, imported plants and animals from their homelands, and built permanent homesteads. This process of clearing the land brought about erosion and silting of the waterways, an occurrence we are infinitely more familiar with now.⁵

The Galveston Bay area played an integral part in Texas' independence from Mexico. The deciding battle was fought at the confluence of the San Jacinto River and Buffalo Bayou, at what is now called the San Jacinto Battleground. Mexican President Santa Anna was captured here and taken on the steamboat *Yellowstone* to Galveston. In 1845, the United States annexed Texas nine years after it won its independence from Mexico. This was a prosperous time for the bay area, with the importance of the maritime industry reflected in the 1850 U.S. Census identifying Galveston as the largest town in Texas with 4,177 people. Galveston Bay's main function at this time remained a transportation system, and many more residents identified themselves as mariners or boatmen by trade rather than fishermen or oystermen. Many navigational improvements were made to the bay during this time, including updated charts, the deepening and straightening of Buffalo Bayou, a lightship, lighted beacons, and eventually the Bolivar Point lighthouse.⁶

Although a rivalry for dominance had formed between

Houston and Galveston, the onset of the Civil War briefly united residents of these two cities in support of the Confederacy. Union vessels began a blockade of Galveston in July 1861 that continued through the end of the war in 1865. For most of this time, the Confederates maintained control over Galveston, and blockade runners successfully bypassed Union ships in getting supplies in and out of Galveston.⁷

Following the war, the commercial rivalry between the port cities of Houston and Galveston resumed, and exploitation of the Galveston Bay area's resources sharply increased. Deep water channel dredging to Houston occupied the decades to follow. The Corps of Engineers initiated a series of channel dredging projects. Another Corps of Engineers project involved the construction of a pair of jetties into the Gulf of Mexico—a project which changed the bay forever. After some trial and error, the jetties were eventually completed in 1897, with the south jetty extending six and a half miles and the north jetty five miles into the Gulf. The jetties lived up to their intended purpose; the channel into the bay reached twenty-six feet deep, and the city of Galveston benefited immensely. Galveston maintained its status as the largest city in Texas in 1880, with 22,248 persons; Houston was but the third largest with 16,513. Railroad building in other parts of Texas elevated the populations of Dallas and San Antonio, which soon bypassed Galveston. Plans for a Houston Ship Channel were in play, however, which soon proved to end any commercial rivalry that existed between Houston and Galveston, solidifying Houston's fate as a major port city and the state's most populous city. The great hurricane of 1900, which devastated Galveston and killed an estimated 6,000 people, resulted in many Galveston businesses relocating inland. The Houston Ship Channel project created an eighteen foot channel and a turning basin by 1908, but the ever-present need for bigger and deeper won out, and by 1914, the Houston Ship Channel was deepened to twenty-five feet. Concurrently, Texas City created a twenty-five foot channel into its new port and an extensive dike into the bay to protect its new channel. The Texas City dike later proved to have significant impacts to the ecology of West Bay.



Sunrise over Burnet Bay, named for David G. Burnet, interim president of the Republic of Texas in 1836.

Photo by Bob Dempsey, courtesy of Galveston Bay Foundation.

The era marked a time of manipulation of the natural features of Galveston Bay to rapidly develop and protect transportation channels to benefit the economy.⁸

In the early 1900s, the petroleum era in Galveston Bay began on the shores of Tabbs Bay. The Goose Creek oilfield's peak years of production occurred from 1917 to 1919, with seven to nine million barrels produced per year. The Humble Oil Company (later ExxonMobil) constructed the first oil refinery on Goose Creek in 1919. Humble Oil named the landing Baytown and built the refinery and a town for employees west of Goose Creek. Industrialization continued in the Galveston Bay area, with various oil and chemical companies coming for its deep water channels and ports, wide open spaces, underground sources of fresh water, and general lack of regulations. Demand for more and larger barge access resulted in the deepening (and widening) of the Houston Ship Channel to thirty-four feet in the 1930s, to thirty-six feet in the 1940s, and to forty feet in the 1950s. Presently, the Houston Ship Channel is a fifty-two mile long channel dredged to forty-five feet deep.⁹

Beginning in about 1910, the public began to be aware of a "polluted" Galveston Bay. They noted oily water and declines in fishing and began to blame the industries. Two major projects that had the potential to have massive impacts to the bay began their planning stages in the 1950s and 1960s. The first was the Wallisville Lake Project, a plan to dam the lower Trinity River south of Wallisville. Despite initial objections by landowners whose land would flood with the construction of the dam, the project began in 1966. The second large project was the next phase of deepening and widening the Houston Ship Channel, which surfaced in 1967. The National Environmental Policy Act of 1969 reviewed both the Wallisville Lake Project and the ship channel project. In accordance with the new policy, the Corps of Engineers had to put together environmental impact statements (EIS) for these projects. Both projects met much opposition from the public, including fishermen and shrimpers, landowners, and other citizens of the bay area.¹⁰

Around this time, small groups of local conservation-minded interests began gathering and talking, with environmental attorney Jim Blackburn at the lead. The impacts of the two major bay projects were, of course, main topics of conversation. In 1987, forty individuals became the charter members and incorporators of the Galveston Bay Foundation, a new environmental

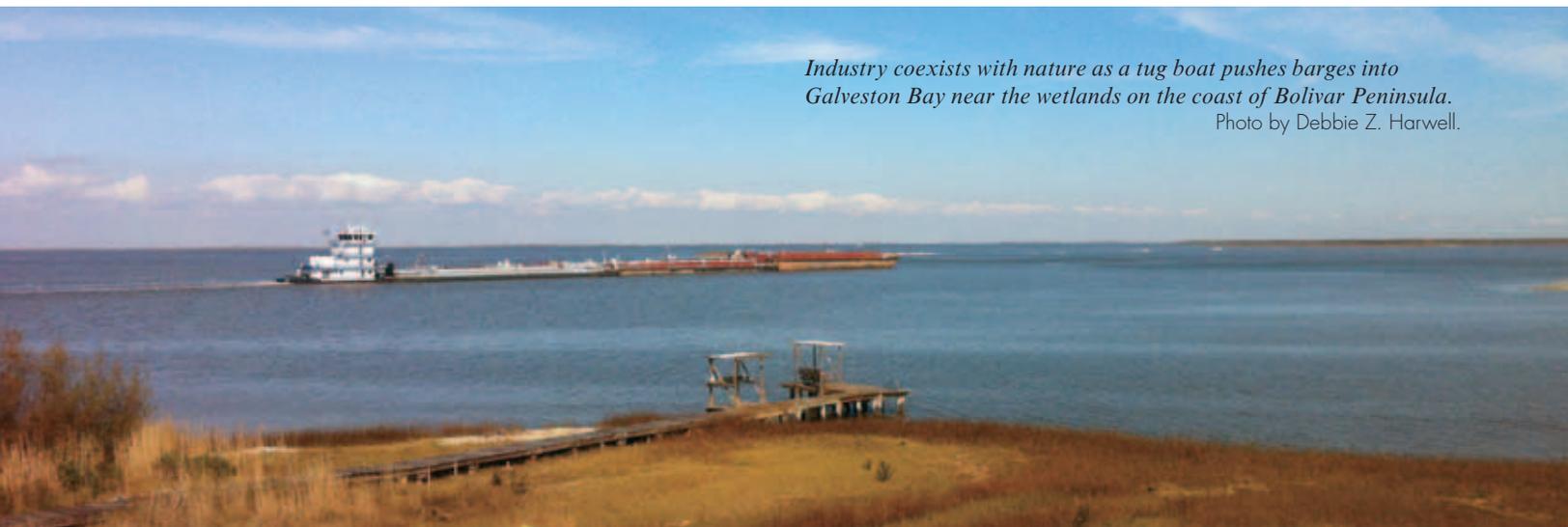
nonprofit corporation focused on the interests of Galveston Bay. Linda Shead, founding executive director of the Galveston Bay Foundation states, "Looking back, it seems that the Galveston Bay Foundation was an idea whose time had come. In the mid-1980s, several major construction projects were on the table which would significantly impact the resources and the uses of the bay system. Also at that time, some of the failures of environmental organizations to make progress in protecting Texas natural resources were weighing heavily on the minds of local conservationists."¹¹

The Galveston Bay Foundation was designed and structured to represent a true cross-section of bay interests to address issues and concerns related to Galveston Bay. A strong board of trustees whose members represent diverse user groups, such as sport and commercial fishing groups, recreational users, environmental groups, shipping, development, industry, and business interests, manages the Foundation. The mission of the Foundation is to "preserve, protect, and enhance the natural resources of the Galveston Bay estuarine system and its tributaries for present users and for posterity." The Foundation's programs in advocacy, conservation, education, and research strive to ensure that Galveston Bay remains a beautiful and productive place for generations to come. In addition to its official mission, the Foundation's trustees established several "unwritten" guidelines by which to operate. One was "to agree to disagree" and another was "to work together whenever possible." Though these may seem simple concepts for adults to grasp, they have proven integrally important to the success of an organization managed by trustees of such diverse interests. At an early meeting of the Galveston Bay Foundation, representatives from the typically feuding commercial and recreational fishing industries saw the need to work together to "ensure there is a resource." This is a prime example of the mindset on which this organization was built and one of the big reasons why it has been so successful in its mission.¹²

In 2012, the Galveston Bay Foundation celebrated its twenty-fifth anniversary. Also in 2012, the Clean Water Act (CWA) celebrated its fortieth anniversary. Over the last several decades, the bay has continued to change. There have been gains and losses in areas such as water quality; the extent of important habitats such as coastal prairie, coastal marsh, seagrass meadows, and oyster reefs; and levels of freshwater inflows. Overall,

Industry coexists with nature as a tug boat pushes barges into Galveston Bay near the wetlands on the coast of Bolivar Peninsula.

Photo by Debbie Z. Harwell.





A sea nettle sits among the saltwort at Galveston Bay Foundation's Sweetwater Nature Preserve on Galveston Island.

Photo by Andrew Hancock, courtesy of Galveston Bay Foundation.

water quality is much better than in the 1970s when the CWA became law and placed strict regulations on industrial and municipal discharges. But today, we still battle issues such as poor water quality in creeks and bayous, illegal discharges of boater wastes, and seafood consumption advisories resulting from legacy pollutants that remain in the system to remind us of our past transgressions against the bay. The trends of extreme losses of important coastal habitats, too, have seen change. Historically, these habitats suffered and declined due to development, land subsidence resulting from groundwater and oil extraction,

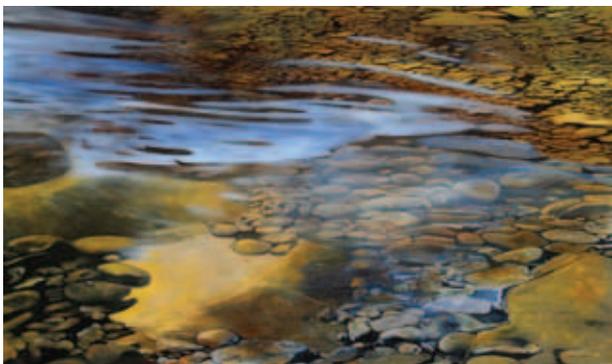
shoreline erosion, and poor water quality. Emergent wetlands, for instance, were estimated to have declined by 35,100 acres between 1953 and 1989. Land subsidence in the Galveston Bay area has been reduced to near background levels due to a switch from the reliance on groundwater to surface water and the work of the Harris-Galveston Coastal Subsidence District. This has afforded groups like the Galveston Bay Foundation the opportunity to restore wetland habitats that previously sunk and drowned and protect the vulnerable shorelines from erosion. Since the early- to mid-1990s when the Foundation began doing restoration work, it has restored over 620 acres of marsh and (to a lesser extent) seagrass habitat, protected over sixteen miles of Galveston Bay shorelines from erosion, and placed nearly 3,400 acres of quality habitat into permanent conservation.¹³

But the job is not done. The Galveston Bay Foundation and other like-minded organizations, agencies, and individuals continue to diligently work every day to protect the resource that is Galveston Bay, one of our nation's great waters. To find out more about the Galveston Bay Foundation, to support its cause, or to become a member or volunteer, please visit its website at www.galvbay.org. History—particularly recent history—has been hard on our bay, but given the right stewardship and care as well as the bay's natural resiliency, we can find a balance between meeting our human needs and having a healthy bay ecosystem for present users and those who follow. ♻️

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Debbie Stevens, *Rio Frio*, 2013, oil on panel, 48x72 inches

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