



FACTS & ISSUES

September 9, 2010

League of Women Voters of the Houston Area Education Fund

Coastal Issues

According to the Houston Audubon Society our coastal prairie consisted once of 6.5 million acres of tall grasses and wildflowers. Today it is estimated that there are now fewer than 65,000 acres. The loss of coastal prairie results in erosion, flooding, and poor water quality. Development and sea level rise are also diminishing wetlands. These important ecosystems provide habitat and protect against storm surge.

Sustainable Fisheries

The Gulf Coast provides trillions of dollars a year to the economy from seafood collection and sales. Protecting our fish stocks from overfishing and habitat destruction will result in sustainable fisheries for generations to come. Policies to reduce by-catch will protect species from incidental killing.

Water Quality

During the summer months, pollution from the Mississippi River causes the world's largest area of hypoxia, known as the Dead Zone. The depleted oxygen causes sealife to migrate to non-impacted areas. Human pathogens present in upstream waterways can also cause beach and oyster fishing closings. Excess nutrients can result in harmful algal blooms.

Topography, Development, and Sea Level Rise on the Gulf Coast

Given the geomorphic realities of the Texas coast, the only way that most of our estuarine wetlands can keep up with accelerated sea level rise will be through wetland transgression to higher ground. The ability of coastal wetlands to migrate inland will depend on coastal topography and development. In many areas along the coast relatively steep slopes or bluffs formed during downcutting associated with the last glacial highstand will result in drowned wetlands with little inland migration, at least until sea level rises above about five meters, a level contemplated only in the most extreme predictions for the next hundred years or so. In other areas, existing and future coastal development will also block wetland transgression.

Sea Level Rise

Melting glaciers and ice sheets and the warming of ocean waters cause sea level rise. Scientists predict both will increase because of global warming. The historical increase in the earth's surface temperature is irrefutable. The debate is over the causes of the increase. Initial and most profound changes will occur in the polar regions. Polar latitudes are experiencing unprecedented warming changes such as the Larsen Ice Shelf melting in 2002, which inspired the movie "The Day After Tomorrow." The IPCC (Intergovernmental Panel on Climate Change) has predicted sea level rise. The question is the magnitude. Current sea level rise has occurred at a mean rate of 1.8 mm per year for the past century, and more recently, during the satellite era of sea level measurement, at rates estimated near 2.8 ± 0.4 mm to 3.1 ± 0.7 mm. Total rise will include global rise in sea level due to ocean water expansion, ice sheet melting, and subsidence.

The Texas and Louisiana coast is the most rapidly subsiding area in United States. These coasts are situated along the edge of a large sedimentary basin, the Gulf of Mexico Basin, which contains up to 40,000 ft. (7.5 miles) of sedimentary strata. The weight of the strata causes land to subside. Humans have contributed by extracting water and hydrocarbons from groundwater and subsurface oil strata.

Coastal Resilience

The combination of land use and climate change is felt nowhere more strongly than at the water's edge. Our coastal watersheds will grow as fast, if not faster, than other kinds of watersheds. Urbanization threatens critical

coastal habitat. Most coastal cities reflect to some degree Pierce Lewis' characterization of New Orleans as an inevitable city in an impossible place. The water's edge is and always has been an attractive if not necessary place for settlement and for commerce. Our coasts will continue to have population growth, and more people will find themselves in harm's way. By most accounts, climate change will only add to the danger of coastal living. Compact communities may be the most resilient form for coastal urban cities. Lower, not higher, density is the usual prescription by planners for hazardous coastal areas. Strategic clustering of populations, however, may be better therapy for the coast. Less area to protect, more choices of where to locate, proximity of refuge, sturdier structures, greater social cohesion, and the possibility of mass transit evacuations are some of the ways in which smart growth (or higher density) confers greater resilience to coastal communities.

Ike Dike

The Ike Dike is a proposed coastal barrier that, when completed, would protect Galveston Bay. The project would be a dramatic enhancement of the existing Galveston Seawall, complete with floodgates, which would protect more of Galveston, the Bolivar Peninsula, the Galveston Bay Area, and Houston. The Barrier would extend across Galveston Island and the Bolivar Peninsula and would provide a barrier against all Gulf surges into the bay. The project is the brainchild of Dr. Bill Merrell, of Texas A&M in Galveston. The proposal is motivated by the damage caused by Hurricane Ike in 2008. Storm surges from Hurricane Ike caused severe damage to Galveston and the Bolivar Peninsula and caused significant damage to other areas around the bay. Proponents argue that there is a national security concern that must be addressed: the Houston area is home to the largest and most important concentration of petroleum refining and petrochemical processing plants in the United States and most of these plants are on the coast or on the ship channel. Additionally the Port of Houston is the second-busiest port in the nation. As of now, the project has the support of Gov. Perry. He suggested that the Governor's Commission on Disaster Recovery and Renewal recommend that a six-county (Harris, Galveston, Chambers, Brazoria, Orange, and Jefferson) public corporation be established to examine regional approaches to storm surge suppression.



Rotterdam Flood Gates protect a channel 1181 ft wide and 75 ft deep

Opponents worry that it is simply too expensive (some estimates place the cost between \$3 billion and \$4 billion) and its efficacy is not established. The gates may inhibit fish migration. It would give *carte blanche* to develop business and to continue building in sensitive areas. Another option would be to buy damaged properties and limit development on barrier islands.

Resources

The governors of the five Gulf of Mexico states have joined together to protect and restore the Gulf of Mexico. Their Action Plan II can be viewed at www.gulfofmexicoalliance.org. The Gulf of Mexico Program is an EPA-supported program that works on Gulf of Mexico issues. You may view its website at www.epa.gov/gmpo. The Gulf Restoration Network is a nonprofit that works on Gulf of Mexico issues. Its web address can be found at www.healthygulf.org.