



GALVESTON BAY FOUNDATION

Guardian of Galveston Bay since 1987

Coastal Barrier Position Statement

Hurricane Ike brought a big storm surge and was catastrophic for many who live or work near Galveston Bay—but a future hurricane could be even bigger and do even more damage. The vulnerability of Industry along the Houston Ship Channel to a large storm surge raises both economic and environmental concerns and may warrant incurring the cost of building a large, expensive storm surge system. However, the placement of large storm surge protection structures in and around the Bay could also present major threats to its natural processes and productivity. It is therefore important to fully evaluate potential impacts to Galveston Bay from any proposed structure and ensure we have avoided and minimized those impacts where possible and mitigated any unavoidable impacts.

Galveston Bay serves as a nursery for the important commercial and recreational fish and shellfish that so many Texans enjoy eating and provides for a robust economy built around the harvest of shrimp, crabs, finfish, and oysters. In fact, Galveston Bay is one of the most productive estuaries in the country and the most productive in Texas, accounting for a third of both the commercial and recreational harvests of seafood in the state.



Photos: Sky Pictures Fotografie

Even when open, environmental gates constrict a pass and increase water velocity and turbulence, which can affect water quality and the movement of fish and shellfish in and out of an estuary like Galveston Bay. The images above are from the Eastern Scheldt in The Netherlands, from which concept designs are being borrowed.

A floodgate across the mouth of Bolivar Roads (the pass between Galveston Island and Bolivar Peninsula) would restrict the flow of water in and out of Galveston Bay to and from the Gulf of Mexico. Fewer fish, shrimp, and crabs could float in and out of the Pass. Water flow into the Bay would decrease, meaning there will be less flushing of the Bay. Reduced flushing of the Bay means that the Bay's salinity will decrease. And sediment will fall out of the water column faster because the water will be moving more slowly. This will lead to increased sedimentation in the Houston Ship Channel and in the middle of the Bay, and decreased sedimentation along the Bay shorelines where it is needed. Major impacts have occurred on many of these parameters in The Netherlands, the location from which much of the structural examples are being drawn.

The U.S. Army Corps of Engineers, in partnership with the Texas General Land Office, began an examination in November 2015 of the feasibility of constructing projects for coastal storm risk management and ecosystem restoration along the Texas coast. The study is scheduled for five and a half years.

The length of the study is justified by the fact that a coastal spine on the Texas Coast could be the biggest engineering project contemplated in the United States in the 21st Century. It is essential, that if we move forward on this path, we get it right.

Before any one solution is chosen, all appropriate environmental studies should be completed so that an accurate accounting of all benefits and costs of any structural alternative can be determined. At a minimum, we should understand potential impacts to water quality, circulation, and crabs, shrimp, oysters and fish in the Bay. Should structural components be used to address storm surge, it is imperative that we use the best technology available to minimize restriction of flow through Bolivar Roads. We must also fully mitigate any direct and indirect impacts to the Galveston Bay ecosystem from the construction and operation of such a structure. And to the maximum extent practicable, designers, planners and decision-makers should work with, rather than against nature and seek to keep people and critical infrastructure out of harm's way through such methods as adoption of strict development and building standards, use of coastal geo-hazard maps, and improved emergency management and evacuation procedures.

If the Corps does move forward with such a project, the total cost for such a structure is estimated to be \$20 billion or more. In today's federal funding climate, even if a good benefit/cost argument is made for the structure, it is not clear funding at that level would ever be appropriated to build the full project. Even if the funding is appropriated, it could be a decade or more to go through all the eminent domain proceedings to condemn land for the project and build the structures.

It is important that we not simply wait to see how this process develops over the next decade, but that we act now to protect our Bay. The most significant driver of a coastal spine is to protect industry along the Houston Ship Channel. We should ensure that industry is as protected and prepared as possible now for a hurricane. Each facility should undertake a risk assessment to determine the potential risk of spills of product from storage tanks during a large hurricane that could flow into local waterways or Galveston Bay. Large storms are predictable events that we can prepare for now. All plants should have a hurricane plan in place and should look at improving their own existing protection or levees. We should also not abandon the study and analysis of building a more affordable flood gate at the upper end of Galveston Bay or in the mid-Bay area. This gate could provide needed protection now while we work towards a more comprehensive coastal barrier.

We should get past the idea that this is an all or nothing proposition. Let's take the appropriate time and money to design, engineer and study a large scale coastal spine before deciding that a large scale coastal spine is the answer. And let's continue to look at complementary protection measures that can be taken in the short-term to protect the Bay now.