

# **Texas General Land Office Testimony on Coastal Erosion**

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Texas has an abundance of valuable natural resources located within its coastal region that provide for a healthy, vibrant economy and environment. Many challenges exist in stewarding these resources to ensure their continued productivity, use and enjoyment. Of particular concern is the impact on the economy and resources of the state as the erosion of Texas' beaches and bay shorelines threatens homes, businesses, and infrastructure.

The next 15 years is vital for the Texas coast. The decisions made by community and elected leaders during this time will have a tremendous impact on not only the fragile environment of the coast, but the economy that it supports. The Texas General Land Office's Coastal Texas-2020 plan examines how we can plan, and most importantly, how we can fund the changes needed to keep the Texas coast vibrant and healthy in the future.

The 367 miles of coastline and more than 3,300 miles of bay shores house an amazing diversity of rare wildlife alongside bustling ports and petrochemical industry. While population growth places increasing stress on regional economic and environmental resources, the real threat to the future of the Texas coast is erosion.

Texas suffers from some of the worst coastal erosion rates in the nation. Erosion threatens environmental sustainability, public tax base, wildlife habitat and vital infrastructure. A top priority of the Texas General Land Office is to unite local, state and federal agencies in an effort to fight this devastating erosion wherever and whenever it makes economic sense to do so.

The vision for the future of the Texas coast is clear. It is one in which families can enjoy a day at the beach or fishing in the bay. It is one that maintains safe, efficient transportation along the coast for the regional industries that drive our state economy. Ultimately, the Texas General Land Office's initiative is an undertaking that recognizes the value of the coast to all Texans and seeks to protect and improve it for future generations.

## **State of the Texas Coast 2007:**

- Approximately 64% of the Gulf of Mexico shoreline is critically eroding (at rates greater than 2 feet per year). South Padre Island erosion rates vary, but average 6 feet per year. Many stretches of coast are eroding at greater than 10 feet per year. Bay shoreline loss in Texas is significant as well.
- Coastal erosion in Texas is a result of both man-made causes and natural processes:

- Navigation structures such as jetties and dikes have changed the way sand moves along the coast, eroding down-drift shorelines.
  - Maintenance dredging of navigation channels has taken sediment out of the system.
  - Seawalls, groins, and other protective structures have caused erosion of down-drift beaches and shorelines.
  - Wakes, surges, and waves from boats, ships, barges, and other vessels have eaten away shorelines adjacent to navigation channels.
  - Groundwater and petroleum extractions have caused land subsidence and subjected large regional areas of coastal land to be eroded or converted to open water.
  - Relative sea level rise and natural compaction of coastal sediments have contributed to erosion of coastal Texas, particularly the upper coast.
  - Dams on the major rivers have prevented sediment from reaching the Gulf coast.
  - Rivers have been diverted to develop shipping lanes, resulting in critical erosion of nearby communities and land, as well as shoaling, flooding, and safety issues.
- Considerable development exists in the coastal zone of Texas and the coast is experiencing accelerated development. While insufficient resources are available to address erosion along the entire coast, it makes economic sense to protect and restore segments of the coast.
    - The State of Texas budget short falls reduced the funds available for coastal erosion response. Likewise, federal budgets have been stretched and beach/shore restoration funding has been reduced.
    - Economic studies of coastal erosion response projects in Texas show that these projects have a positive economic benefit. The most recent study by the University of Texas shows that coastal erosion response projects in Texas have an average benefit cost ratio of 12:1 (for every \$1 invested in a project, over the life of the project a benefit of \$12 is realized).

## Identification of High-Risk Erosion Areas:

- The Texas Legislature enacted the Coastal Erosion Planning and Response Act (CEPRA) in 1999 to deal with the state's coastal erosion problem head-on. The Texas General Land Office (GLO) administers the CEPRA Program, which includes state funding for erosion response projects and studies (local partner match funds are required for projects):
  - 76th Legislature - **\$15 million** for 42 CEPRA projects FY2000 - FY2001
  - 77th Legislature - **\$15 million** for 53 CEPRA projects FY2002 – FY2003
  - 78th Legislature - **\$7.32 million** for 20 CEPRA projects FY2004 – FY2005
  - 79th Legislature - **\$7.3 million** for 17 CEPRA projects FY 2006 – FY2007 (*current cycle, which also includes 17 house relocation projects*)
  - 80<sup>th</sup> Legislature - **\$17.5 million** for CEPRA projects FY2008 – FY2009 (*cycle that starts September 1, 2007 – project selection process in progress*)
- Since authorization in 1999, the CEPRA program has been:
  - Rebuilding eroded beaches and restoring protective dunes
  - Stabilizing eroding shorelines in bays and along navigation channels
  - Protecting and restoring wetlands and other coastal habitats impacted by erosion

- Locating and permitting sand resources for beach nourishment and related projects
- **The CEPRA statute requires the Land Commissioner identify critical erosion areas of the Texas coast.** GLO hired the Bureau of Economic Geology (BEG) to identify and measure the rates of change in the Texas Gulf of Mexico shoreline. BEG developed a series of erosion rate maps that depict the long-term rates of shoreline change (eroding, stable, or accreting) and these are published online at both GLO and BEG Internet sites. GLO periodically contracts BEG to update the maps, particularly in areas where critical erosion is directly impacting communities, such as South Padre Island, Surfside Beach, and Galveston.
- Large-scale beach nourishment projects range in cost from \$1 million to \$3 million per mile. Because the need for erosion response has been very great along the Texas coast and partner match funds have been limited, CEPRA has constructed relatively small-scale beach nourishment projects thus far.
- Partnering with the U.S. Army Corps of Engineers (USACE) to make beneficial use of materials the dredged from shipping channels, such as the Brazos-Santiago Pass/Brownsville Ship Channel, has resulted in construction of lower-cost, larger scale beach nourishment projects. However, it is not always possible to partner with the USACE on these types of projects. This has recently hit home in South Padre Island, where it was not possible to partner with the USACE on their last two maintenance-dredging projects. Eroding beaches that had been stabilized from beneficial use projects during 1999 to 2005 began to erode again when renourishment didn't occur and storms in the Gulf caused episodic erosion.
  - Congress has mandated the USACE to use the least-cost project option for maintenance dredging projects (which may preclude using the sand for beach renourishment).
  - Emergency dredging operations cannot accommodate beneficial use project requirements.

## Strategic Planning Efforts:

The GLO has a multi-faceted strategic plan for dealing with coastal erosion:

- **CEPRA and the Texas Coastwide Erosion Response Plan:** Now preparing to implement the fifth cycle of funding and constructing erosion response projects, the GLO has identified a large inventory of erosion response needs along with proposed projects requested by project partners. As directed by the CEPRA statute, GLO has developed an evaluation and prioritization process to select projects for funding and construction. The statute also requires the GLO to develop a Texas Coastwide Erosion Response Plan to evaluate erosion problems on the coast and the effectiveness of erosion response projects completed by GLO and others on the Texas coast. This plan was updated in 2004 and GLO plans to update it in the coming biennium.
- **Coastal Texas 2020:** Phase 1 of Commissioner Patterson's initiative began in fiscal year 2005 and included developing and working with regional stakeholder committees, a technical advisory committee, and a steering committee. Phase 1 recommendations included:

- Authorization and funding of the Conservation and Reinvestment Act (CARA) to provide outer continental shelf impact assistance to state and local governments
- ACTION: Forge a Texas-Louisiana federal coastal delegation partnership to introduce the CARA legislation into Congress and push for its authorization
- RESULT: Texas worked with Louisiana to encourage Congress to enact the Energy Policy Act of 2005/Coastal Impact Assistance Program (CIAP). CIAP brings \$250 million each year for four years to six coastal states. For fiscal years 2007 and fiscal 2008, the share of CIAP funds for Texas is ~ \$48.5 million each year. Funds for Fiscal years 2009 and 2010 will be determined based on fiscal year 2008 offshore oil and gas development revenues.
- Authorization and funding of a Texas coastwide feasibility study by the USACE
  - ACTION: coordinate the efforts of local governments to include this item on all coastal-related congressional requests.
  - RESULT: The coastwide study was included in a version of the Water Resources Development Act (WRDA) in 2006, but was not included in the 2007 version that is in committee.
- Funding for the Coastal Management Program (CMP) at current or higher levels
  - ACTION: coordinate the efforts of local governments to include this item on all coastal-related congressional requests.
  - RESULT: The Coastal States Organization, an entity designed to represent all of the CMP states, specifically works with Congressional delegation to increase levels of funding. Coastal Zone Management Act (CZMA) reauthorization is currently underway and more funding will be included in the proposals. NOAA, the funding entity for this program, has implemented a Congressional requirement for states to develop performance-based measures. These measures will better educate Legislators on the importance of the CMP and funding.
- Continued and enhanced participation in USACE Continuing Authorities programs.
  - ACTION: The GLO should lead efforts to educate local governments on options available under the USACE Continuing Authorities Program.
  - RESULT: Congress has not restored any significant funding to this federal program.
- Fully funded state erosion program.
  - ACTION: Issuance of the CT2020 report and continue to educate and provide the information that citizens, local governments and legislators can use to make a strong case for state erosion funds and to work with the Texas legislature for a dedicated funding source for the CEPRA program.
  - RESULT: State appropriated funding was significantly increased for fiscal years 2008-2009 (up to \$17.5 million for Cycle 5), though a permanent dedicated funding source was not provided.

- Passage of additional state laws to allow local governments to provide matching funds for coastal projects.
  - ACTION: encourage local governments to contact their state legislators about proposing legislation to provide the ability to raise local funds to match state/federal funds.
  - RESULT: 79<sup>th</sup> Texas Legislature enacted the Coastal Protection and Improvement Fund, though funding has not yet added to the fund. This fund was created as a financial resource for the coastal counties to use in implementing coastal projects such as those done under CEPR.
  
- **Texas Plan for Open Beaches:** Commissioner Patterson and the GLO developed this plan in 2006 to address development along the Texas Gulf shoreline in keeping with the Open Beaches Act (OBA, enacted 1959). Specifically addressed are situations where houses and other structures have become located on the public beach easement because the beach in front of the structures was eroded. The Texas Plan for Open Beaches provides an eight-point plan of action that includes financial, programmatic, and legislative solutions to coastal issues. Some of the steps identified in the Plan include:
  - Providing state financial assistance to owners of structures on the public beach to remove the structures.
  - Defining specific threats to public health and safety.
  - Continuing to use lawsuits to remove structures from the public beach easement.
  - Development of setbacks for new construction, administrative enforcement for active or willful violations.
  - More effective OBA disclosures on property transactions.
  - Denial of windstorm insurance for structures on the public beach easement.

### **Coping with Seasonal and Episodic Losses of Beach Material and State-Federal Collaboration:**

- **South Padre Island Sand Source Investigation and Beach Renourishment Program** – The 80<sup>th</sup> Texas Legislature specified that \$300,000 of CEPR Cycle 5 project funding be used to identify new sand sources for the beaches of South Padre Island, with a requirement of 1:1 matching funding from local partners. The CEPR Program has partnered with South Padre Island government officials to develop and implement a fast-track program to identify and permit (through USACE) long-term sand resources, as well as design a large-scale beach nourishment project to address critical erosion exacerbated by Gulf storms in 2005 and 2006.
  
- **USACE Sabine to San Luis Erosion Response Feasibility Study** – USACE, Galveston County, Jefferson County, and the GLO are working together to complete this feasibility study of the upper Texas coast. Once completed (estimated 2008), the study will pave the way for approval and funding of a beach restoration project(s) under a future Water Resources Development Act (WRDA).

- **Regional Sediment Management (RSM) Program** – Under the new CIAP Program, the State of Texas is developing a RSM program that will work hand in hand with the federal RSM program recently started by USACE. The Texas RSM will facilitate better collaboration with USACE to make use of maintenance dredge materials, such as at South Padre Island and the Brazos-Santiago Pass/Brownsville Ship Channel. The Texas RSM will include a database of sand resources for use in long-term beach maintenance, short-term or emergency response efforts, and small-scale projects. This upcoming RSM program will complement and expand the GLO's sand source identification and investigation work conducted under CEPRAs and CMP grant programs.
  
- **Identification of Emergency Sand Resources for Hurricane/Tropical Storm Response** - GLO has received funding from the USDOIs Minerals Management Service (MMS) to identify submerged sand resources on federal lands that may be used to restore coastlines ravaged by hurricanes and tropical storms. Future funding will be needed to develop identified sand resources for use after emergencies.
  
- **American Shore & Beach Preservation Association (ASBPA)** – Coastal stakeholders in Texas formed a Texas chapter of the national association ASBPA. Membership includes local governments, homeowner associations, engineering and environmental consultants, as well as state government participants. ASBPA works at the national level to request Congressional authority and funding for beach and shore restoration projects. ASBPA Texas Chapter works in a similar fashion at both the federal and state levels. The GLO is partnering with ASBPA to put on a fall 2007 technical conference featuring presentations on coastal erosion problems and solutions. The conference will be held from October 22-24 at the Galveston Island Convention Center.