

**Testimony to House Committee on Natural Resources**  
**Vanishing Beaches: Coastal Erosion and its Impact on Coastal Communities**  
**July 14, 2007 - South Padre Island, Texas**

**Protecting Coastal Populations in Nueces County, Texas**

**Speaker: H.C. “Chuck” Cazalas, Commissioner Pct. 4, Nueces County, Texas**

**OVERVIEW**

North Padre and Mustang Islands are among the last undeveloped barrier islands in the world. They have experienced burgeoning development in the past decade, a trend expected to continue. They are a significant economic asset to the region, the State, and our nation, but also present significant environmental challenges and are especially vulnerable to potentially devastating losses. This barrier island serves as protection to residents on the island and on the mainland by dunes ranging up to 40 feet in height and 350 feet wide along the mid and central portion on the island. Smart growth must be employed and rely on well planned development which incorporates sound land use practices.

**CRITICAL NEEDS OF NUECES COUNTY** include:

- **Additional safe emergency evacuation routes** for a growing barrier island residential population;
- **Updating coastal elevation data for south Texas counties** using modern technologies and current national standards;
- **Updating topographic and hydrographic maps for Texas Coastal Bend** to permit accurate modeling of storm surge inundation
- **Planning** which accounts for sensitive habitats, areas susceptible to storm flooding, sea level rise, and other variables, **to guide sound coastal development;**
- **Enhancement of coastal and island drainage/storm sewer infrastructure** to reduce threats of flooding to County island facilities and island communities;
- **Acquisition of additional open space on the barrier island** to promote smart growth;
- **Funding to protect and enhance the natural dune system** which serves as a barrier against storm surge for our island communities.

**ISLAND POPULATIONS INCREASING**

North Padre and Mustang Islands, Nueces County are among the last undeveloped barrier islands in the world, but have experienced rapid development in the past decade, a trend expected to continue. Census data show that the residential island population within the City of Port Aransas, South Mustang Island, and North Padre Island (the latter to areas being within City of Corpus Christi limits) grew from 2635 in 1980 to 9705 in 2000. It is fully expected that recent development of Packery Channel will spur faster growth in the island. Availability of land is expected to cause population growth on northern Mustang Island and in Port Aransas to level off at about 11,000 while growth is expected to continue strongly on North Padre Island. The Mustang- Padre Island Area Development Plan (City of Corpus Christi, 2004) projects that **the entire island residential population including the City of Port Aransas, South Mustang Island, and North Padre Island will grow to 33,515 by 2020 and to 51,737 by 2050.** In addition, **the island total population (including tourists) currently swells to well over 100,000 during holiday periods** and this will increase as well.

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## **SMART GROWTH NEEDED**

Smart growth based on sound planning will enhance the quality of life for island residents, producing thriving, livable and accessible communities. Focusing island development, while preserving selected island open space and protecting natural assets such as our coastal dunes will enhancing the ability of these communities to respond to tropical storms and accommodate sea level rise, reducing long-term economic impacts.

## **NUECES COUNTY FUNDING NEEDS**

Nueces County has identified the following funding needs:

- A. SAFE EMERGENCY EVACUATION ROUTES.** There is currently only one causeway leading off North Padre Island to the mainland, and a ferry service at Port Aransas (northern Mustang Island) which can evacuate residents in case of hurricane or other emergency. Development of a second causeway from North Padre Island, the site of greatest future population growth, across the environmentally-sensitive Laguna Madre is critical to accommodate emergency evacuation of island populations. Needed are planning, permitting, land-acquisition, engineering, construction, and mitigation for environmental impacts. **Cost: \$600 million (exclusive of land-acquisition costs).**
  
- B. UPDATING COASTAL ELEVATION DATE FOR SOUTH TEXAS COUNTIES.** The South Texas Coastal Bend suffers from out of date elevation control and height bench marks needed for accurate topographic mapping. Subsidence, erosion, sea level rise, and construction have destroyed known height points. These known points control mapping used to depict elevation relative to sea level. These points must be re-established to national standards. The federal Height Modernization program at the National Geodetic Survey must be funded to permit re-establishment of these points in all South Texas counties before accurate topographic mapping can take place. Without these points, mapping is inaccurate and will not depict areas subject to coastal flooding. **Cost \$5 million.**
  
- C. UPDATING TOPOGRAPHIC AND HYDROGRAPHIC MAPS FOR TEXAS COASTAL BEND.** Both topographic mapping and hydrographic mapping along the coast is hopelessly out of date. The official USGS maps for the Texas coast were made fifty years ago and relate to elevations established in 1929. These maps are still being used by the National Hurricane center for storm surge inundation forecasts. These maps for South Texas must be remade using accurate modern technologies and made to national standards. Without these basic tools emergency managers and city planners are incapable for planning to avoid coastal storm loss of life and property. **Cost: \$6 million.**

- D. PLANNING TO GUIDE SOUND COASTAL DEVELOPMENT.** Smart-growth studies will guide sound coastal planning. Funding through Nueces County would support studies by Texas A&M University-Corpus Christi researchers working with community planners, to adapt "smart-growth" concepts for the County. This is most critical with regard to storm drainage due to rising sea level and tropical storms, as many coastal areas of the County, and the barrier islands, are low and prone to flooding easily. **Cost: \$1.8 million.**
- E. ENHANCEMENT OF COUNTY AND ISLAND DRAINAGE/STORM SEWER INFRASTRUCTURE.** Many coastal areas of the County as well as the barrier island are low and prone to flooding; with rains and tropical storms or hurricanes they inundate easily. Additional development only adds impervious surface and increases runoff. Improvements of drainage infrastructure throughout coastal areas of Nueces County, including County parks on the barrier islands (Padre Balli Park and the Horace Caldwell Pier County Park at Port Aransas), will protect all coastal region residents as well as regional infrastructure. **Cost: \$10 million.**
- F. ACQUISITION OF ADDITIONAL OPEN SPACE ON THE BARRIER ISLAND.** Sea level rise (local rates are approximately 40 cm/century) is causing coastal retreat on both the gulf and landward margins of barrier islands. With rising sea level, rising fresh water tables on the barrier islands are expected to increasingly inundate areas of islands. Acquisition of additional open space, especially those areas of anticipated inundation, will help focus development and accommodate such sea level rise. It will also protect selected open space on the island for the preservation of valuable natural habitat as a public asset. Nueces County has targeted for acquisition 30 acres adjacent to currently-owned County land on Mustang Island near Packery Channel. **Cost: \$9 million**
- G. FUNDING TO PROTECT AND ENHANCE THE NATURAL DUNE SYSTEM.** Nueces County was the first local government in Texas to adopt a 1000-foot dune protection line, in the 1970's; this later served as a model for the state of Texas when designing its state Coastal Management Plan. Since 2000, Nueces County has required developers to set back residential development 350 feet landward of the beach, and recently (2007) formally adopted this requirement into its local coastal management plan. This setback preserves the substantial complex of barrier island dunes, which are up to 40 feet high and 350 feet wide, and are critical to protecting island development from storm surge. Additional dune enhancement projects, education of the development community about dunes, dune protection and enhancement planning, and monitoring of compliance and enforcement of local standards for barrier island development, will ensure these dunes remain well-fortified and protected. **Cost: \$500,000.**