Swept away: Beach erosion continues to be huge problem for Texas

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Credit: AI-generated image (disclaimer)

The five-year anniversary of Hurricane Ike is still several months away, but the effects of what the historic storm did to the Texas coastline have been relentless, especially when it comes to beach erosion in and around the Galveston area where parts of the island lost more than 100 feet of shoreline, says a Texas A&M University at Galveston professor.

Tim Dellapenna, associate professor of marine sciences who has studied Texas beaches for years, says Ike did overnight what nature normally takes about 65 years to do. The island experienced extensive erosion due to the storm's crashing waves and 15-foot storm surge when it made landfall on Sept. 13, 2008 and caused $30 billion in damages.

"We know Ike removed 100 million cubic yards of sand," he points out, "and right now, sand is selling for about $25 per cubic yard. That's $2.5 billion in lost sand alone," Dellapenna explains.

"Any way you look at Ike, it was a disaster for the Texas coast and many areas of shoreline were lost forever."

Beach erosion in Texas, as in numerous other U.S. locations, is a huge problem. Studies show that about 64 percent of the Texas coast is eroding at an average rate of 6 feet per year, but some areas are losing more than 25 feet per year. On average, the Texas coast is losing about 2.3 feet a year to erosion.

That presents obvious problems. In America, people like to live near the water: according to the Environmental Protection Agency, of the 25 most densely populated U.S. counties, 23 of them are near a coast.

Texas has about 367 miles of coastline, and much of it suffers from beach erosion, with the Galveston area being ground zero, Dellapenna says.

Of particular concern is the West End portion of Galveston Island, which has seen a huge building boom in the past 20 years. Projections show that parts of the West End could be wiped out by erosion by 2035 or sooner.

"From the West End all the way down to Galveston State Park, that's an

area that is especially prone to erosion," Dellapenna notes. "We know from records that over 500 feet of beach in some of those areas have been lost just since 1960.

"Adding to that is sea level rise, which we know has been increasing and we know that the city of Galveston has sunk about two feet since the historic 1900 hurricane."

The 1900 hurricane still ranks as the deadliest natural disaster in U.S. history, killing at least 6,000 people. It led to the creation of the Galveston Seawall, a 17-foot high, 10-mile long wall of stone that has protected much of the island from storms and was added off and on until as late as 1960.

Some ideas for restoring lost shoreline have worked, while others have been mixed at best. The use of geotubes – inserting large hollow tubes buried in the sand with native plants placed on top of them to form a natural barrier to erosion – has worked well on the bayside of the island, but has been detrimental on the Gulf side, Dellapenna says.

Dellapenna and others have worked with the Texas General Land Office, the state agency in charge of the Texas coast, to come up with ideas to fight the never-ending beach erosion problem along the Texas shoreline.

"The long-range projections for beach erosion in Texas are very troubling," Dellapenna adds. "They show that parts of Galveston could be underwater in the next 20 years. Erosion is simply a problem that is not going away any time soon."

Provided by Texas A&M University

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