



The Strand Line

Message from our President

The Texas Chapter of the ASBPA will be having the last quarterly meeting of 2008 in South Padre Island at the Shrimp Haus Restaurant at Schlitterbahn Beach Waterpark on December 5. One of the topics of discussion will be the two devastating storms that have hit the Texas coast this year, Hurricanes Dolly and Ike. Both have done a significant amount of damage to the coastal communities.

The most recent storm, Hurricane Ike, struck the upper coast with a vengeance. It was 1 mph shy of a Category 3 hurricane but it had a Category 4 storm surge. The upper coast was severely impacted by Hurricane Ike; the descriptions on T.V. and in the newspapers cannot give an accurate picture of the destruction and devastation to the areas. Rows of beachfront homes were lost as well as bay front communities. On the Bolivar Peninsula alone, 3600 homes were destroyed and gone forever. The Seawall on Galveston Island did its job in protecting the infrastructure, buildings, and homes behind it but the real damage to the famed old historic downtown area came from backside of the island in the form of rising bay waters that flooded several streets and buildings with 11 to 14 feet of water causing damage to 75% of the homes and businesses. The old Blue Water Highway from San Luis Pass to the City of Surfside in Brazoria County was literally washed away. Matagorda, Chambers, and Jefferson County were badly impacted as well. Favorite bird watching reefs no longer exist and sensitive ecosystems are being overrun by salt tolerant species. This was a monster storm and the experts are calling Ike the third largest natural disaster in the United States with the first one being the Great Storm of 1900.



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TEXAS CHAPTER MEETING

December 5 in South Padre, Texas, at the The Shrimp Haus Restaurant at Schlitterbahn Beach Waterpark.

11:45am

Host: City of South Padre

Luncheon Sponsorship:

HDR/Shiner Moseley Incorporated

GLO Establishes 4.5-Foot Line to Aid Post-Ike Redevelopment

Reasonable redevelopment of the upper Texas coast following the impact of Hurricane Ike will require property owners to obtain beachfront construction and dune protection permits from their local governments. Much of what can and cannot be permitted depends on the location of proposed construction with respect to the natural Line of Vegetation (LOV); however, Hurricane Ike's storm surge obliterated the natural line of vegetation. Because the LOV defines the landward boundary of the public beach easement, houses destroyed or substantially damaged by Hurricane Ike may not be rebuilt until the line of vegetation is established seaward of the proposed structure. It will take a year or more for this natural vegetation to re-establish itself. While the LOV recovers, the Texas General Land Office (GLO) will use elevation to establish a line to allow permitting for beachfront construction and dune restoration. The line will be at an elevation of +4.5 feet, which is the elevation at which the LOV typically occurs on Texas beaches. GLO Professional Services survey crews mapped the 4.5-foot line in October 2008. The location of the 4.5-foot line will be updated periodically using new LiDAR data and ground surveys.

The 4.5-foot line as well as post-Ike aerial photography

and Galveston Island property lines have been combined into the **GLO Earth** mapping application that is available for download from the GLO's Hurricane Response Web site at: <http://www.glo.state.tx.us/ike/gloearth.html>. **GLO Earth** is a collection of dynamic GLO layers hosted on the Google Earth viewer. It gives the user access to the vast collection of spatial data available at the General Land Office along with the resources of Google Earth. To utilize GLO Earth, users will need to install the Google Earth spatial data viewer available for free. Information and a Web link for downloading Google Earth are provided on the GLO Earth Web page.

Contact Ms. Angie Sunley at (512) 463-9309 or Ms. Carly Bohn at (512) 463-3550

GLO Beach and Dune Program for more information regarding the 4.5-foot line.

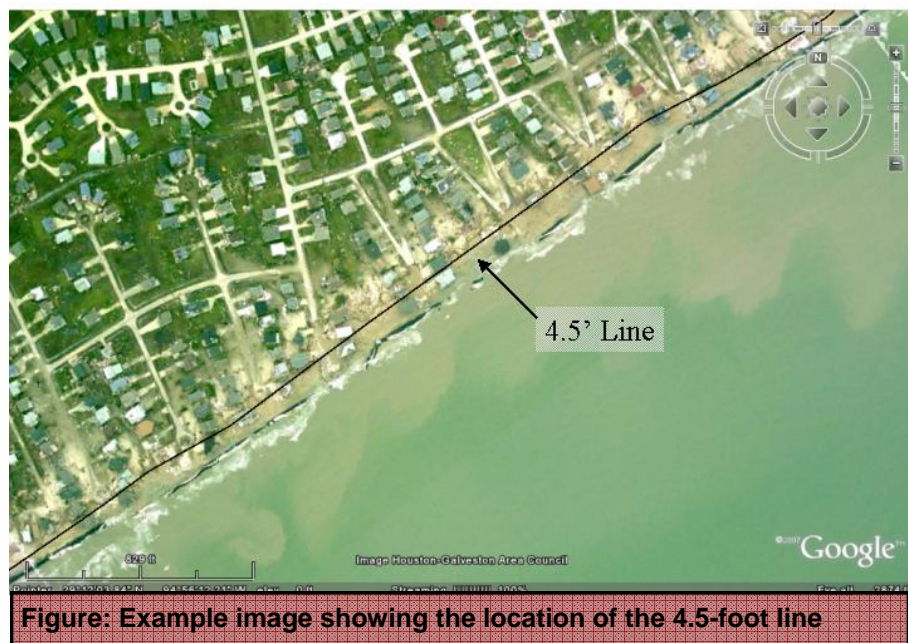


Figure: Example image showing the location of the 4.5-foot line

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The economic impact will be large with lost businesses and jobs. The University of Galveston Medical Branch (UTMB) at Galveston already announced 3800 employees will be let go. Property values will suffer as well and the tax revenue for each county impacted by the storms will be reduced substantially.

The Texas coastal communities are resilient and recovery from both Dolly and Ike are taking place. The Texas Chapter showed unity with the HB 2819 bill recently and we need to help and support the impacted communities in securing approvals to build back highways, obtain funds and grants, initiate shoreline restoration projects, etc. A lot of this activity will occur in the upcoming legislative session in Austin and we plan to be there to do our part.

We look forward to our members coming to the South Padre Island meeting. Enjoy the beautiful scenery in the area and stay the weekend.

— Jerry Mohn,

President of Texas Chapter ASBPA

president@texasasbpa.org



Editor's Letter

Hurricane Ike made land fall in Galveston County on Friday, September 12. The storm, while only a category 2, had a duration of 12 hours with a eye center of 120 miles wide and winds at 120 mph. A typical category 2 hurricane has an eye diameter of half that distance, making the tidal surge with this storm that of a strong category 4. The level of destruction caused by this storm is close to that seen with Hurricanes Andrew, 1992, and Katrina 2005.

Post storm is probably the most shocking. No amount of pictures or description can prepare someone for the aftermath of a storm of this magnitude. I have collected a large data base of storm photos, some are personal others are provided by our members and our coastal communities. It never gets easy seeing the magnitude of damage, especially when it is in your back yard. The most beautiful and most shocking is the one shown below.

— *The Editor,*



The statue is a memorial from the 1900 Hurricane which devastated Galveston Island. The statue sits 15 feet above sea level on the Galveston seawall.



COPRI Assembles a Team of Engineers and Scientists to Assess the Effects of Hurricane Ike

The Coasts, Oceans, Ports, and Rivers Institute (COPRI) of the American Society of Civil Engineers (ASCE) assembled two coastal field teams to survey, examine, document, and report the effects of Hurricane Ike in the Galveston area. The team was to focus impacts to coastal landforms, buildings, coastal structures, infrastructure, and marinas.

The survey was conducted October 4 through October 6, 2008. Team members included experts in coastal engineering, hydrodynamics, wave run-up, surge, scour sediment dynamics, geomorphology, geotechnical engineering, and small structure damage assessment. The team was led by Dr. Billy Edge of Texas A&M University and Spencer Rogers with the North Carolina Sea Grant. Team members were:

Robert G. Dean, University of Florida; Lesley Ewing, California Coastal Commission; Garry Gregory, Gregory Geotechnical - ASCE Geo Institute Liaison; Marie Horgan Garrett, Coastal Solutions, Inc.; James Kaihatu, Texas A&M; Mandy Loeffler, Moffatt & Nichol, Houston; Margery Overton, North Carolina State University; Donald Stauble, USACE/ERDC/CHL; Kojiro Suzuki, Port and Airport Research Institute, Japan; Jeffrey Waters, USACE/ERDC/CHL; Eddie Wiggins, USACE/JALBTCX ; and Paul Work, Georgia Tech.

The team was divided into smaller groups in order to efficiently cover the coastal areas and to allow individuals to better assess the effects within their field of expertise. My team was tasked with the investigation of coastal buildings and marinas, identifying high water marks, and evaluating geotube structural performance. Our focus was to evaluate what construction methods worked and what methods did not, and apply our findings into lessons learned. This article provides a brief synopsis of my experience with the post-storm survey. A full report of the survey written by the full survey team will be published in an upcoming edition of "Shore and Beach," a journal of the American Shore and Beach Preservation Association.

Driving into Galveston on October 4th, I noticed many boats still washed up along Highway 45 leading onto the island. The primary damage I observed was due to flooding with the contents of homes and businesses, as well as insulation and sheet rock, piled in heaps along the roads. However, the weight of the storm and my family's own experience over the previous three weeks finally hit when I pulled into Moody Gardens. The survey team was staying at the Moody Gardens hotel in Galveston. My husband is a relief captain on the Colonel Paddlewheel at Moody Gardens and thus my family and I spent many afternoons enjoying its lush scenery and vegetation. Pulling in to the parking of the hotel I estimated that 80% of the landscaping was dead due to saltwater intrusion. In an article I read in the Galveston Daily News, the water in the Moody Gardens parking lot was over chest deep at the height of the storm.

The first day with the team was spent surveying coastal home construction along Galveston Island and a brief inspection of the Galveston Seawall. We began at the eastern end of Galveston Island at the new Beachtown subdivi-

sion. The subdivision is built using fortified construction techniques, which includes elevating the living quarters at two to three feet above base flood elevation. The ground level of most of the structures had major damage due to storm surge and wave action, but we witnessed little damage to the elevated main structure. The water did however push a large volume of sand from the beach and dune area several feet into the subdivision. In some areas, it appeared the layer of sand overwash was approximately five feet high (Figure 1).



Figure 1: Indication of depth of sand overwash in Beachtown subdivision, Galveston, TX

From the east end of Galveston we stopped at two locations along the Seawall. While the seawall overall appeared in good shape, we did find a few instances of sidewalk failure in the vicinity of a drain or other outflow

structure. The worst damage to the seawall occurred at its west end where approximately 100 ft had collapsed (Figure 2).



Figure 2: Road failure behind west end of seawall, Galveston, TX

From the termination of the seawall we drove west on Route 3005 towards San Luis Pass. Along the beach side of the road, the most consistent damage consisted of extensive scour underneath the concrete foundations and around piles, and the loss of most break-away walls (Figure 3). Sand overwash during the storm resulted in a layer of sand several inches to several feet in depth extending across Route 3005. During our visit the sand had been removed from the road and communities had begun stockpiling the sand for use on the beach or to replace the sand loss under residences. In general, the first row or two of homes situated along the Gulf shoreline were the most heavily damaged, and

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some had collapsed or were moved from their pilings. Other homes sustained various levels of structural damage but were still standing. I had the opportunity to work along with Mr. Spencer Rogers of the North Carolina Sea Grant program who had over 30 years of evaluating coastal construction following major storm events.



Figure 3: Typical slab foundation failure at beach-side residences

On the way home that evening, I decided to check out the two houses I lived in when I was in college at Texas A&M University at Galveston. The first house was on a street Winnie Street, not far from the historic Strand District. I spoke with two women currently residing on Winnie and they said the water rose between 4 to 6 feet inside their homes. The other house on Ball Street, about three blocks southwest, did not appear from the outside to have sustained major water damage.

On day two the entire survey team traveled to High

Island and Bolivar Peninsula. Since we were not allowed access to the Bolivar Ferry, which was only running one boat due to shoaling within the slips and damage to the ferry landings, we departed Galveston at 5:30 am to make the drive around Galveston Bay through Winnie and down to High Island. Upon entering High Island, the beach erosion on Hwy 87 appeared quite severe, with exposed clay outcroppings and little if no sand remaining (Figure 4).



Figure 4: Remaining beach along Highway 87 near High Island, TX. Clay outcroppings exposed.

Several dozen cars were seen on the north side of the road which we assume were been abandoned due to rising water during the evacuation. The right span of the Bolivar Bridge had collapsed and only one lane was open to traffic. Upon crossing Bolivar Bridge it was immediately apparent the area suffered much more extensive damage than Galveston Island. The first several miles consisted of only skeletal remains of residences (Figure 5). My guesstimation was if your house

was newer than 7 or so years, you might have stood a chance. I've only been to Bolivar a handful of times, most recently for work in May, and the one thing I noticed was that virtually NO older homes were left standing. The only older homes still standing were in pockets here and there, but most still had some sort of damage. Many miles of just pilings, if that, sticking out of the ground where the water took everything away. No or little debris was left behind. The houses that survived appeared to be newer in construction with more stringent building codes, built to a higher elevation, and set back several rows from the beach (Figure 6).



Figure 5: Remains of residence near Gilchrist, TX

The third and final day of the survey was spent in the Kemah area, to the north of Galveston, to inspect the Houston Yacht Club (HYC) and Seabrook Marina. The HYC sustained heavy damage and many sailboats broke loose from their moorings and washed onto the facility's lawn. Many of the boats had been removed

by the time of our visit; however, damage to the piers and walkways, breakwater, bulkheads, and roof structures were still evident (Figure 7).



Figure 6: Newer construction in Biscayne subdivision in Crystal Beach, TX. Many beachfront homes sustained damage but homes set back from the beach exhibited minor damage.

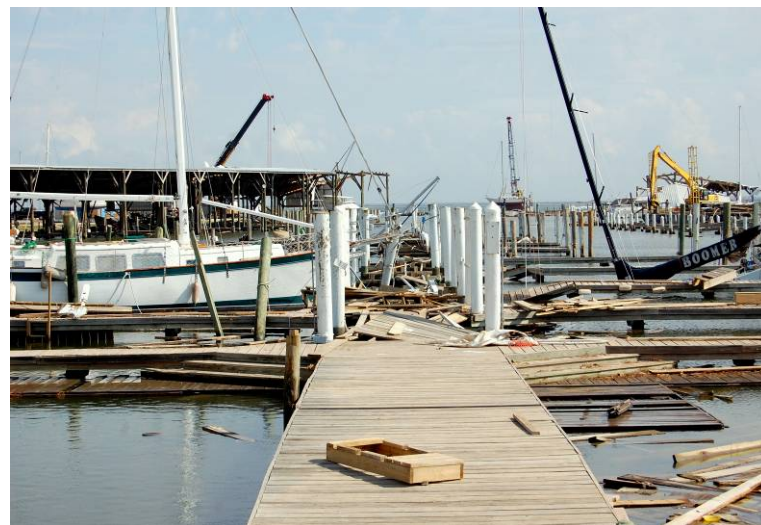
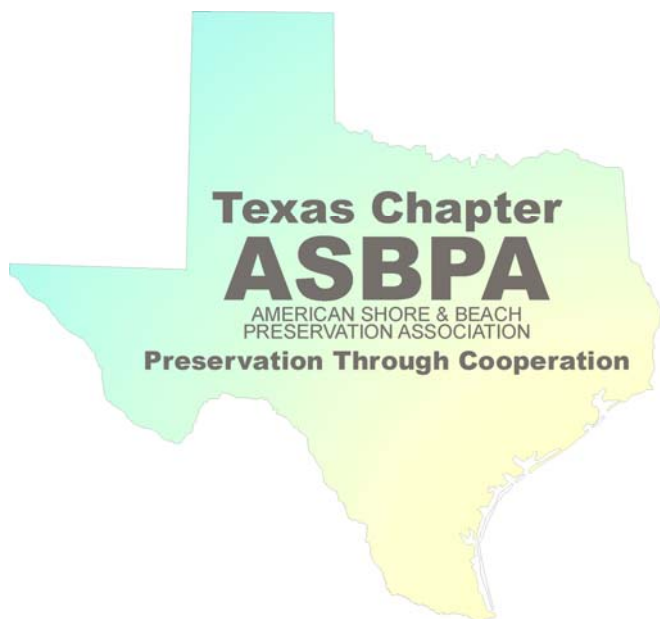
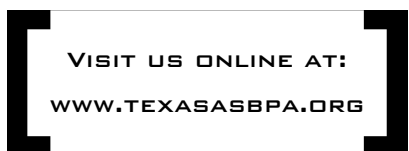


Figure 7: Damage at the Houston Yacht Club



c/o Jerry Mohn - President
4210 Silver Reef - PBW #1
Galveston, Texas 77554

Phone: (409) 737-5768
Fax: (409) 737-5951
E-mail: president@texasasbpa.org



The American Shore & Beach Preservation Association recognizes that the shores, beaches and other coastal resources of America provide important quality-of-life assets within the reach of the largest possible number of people in accordance with the ideals of a democratic nation. This Association is dedicated to preserving, protecting and enhancing the beaches, shores and other coastal resources of America.

The Texas Chapter of ASBPA is dedicated to fulfilling this mission in the State of Texas. We are a member based advocacy organization. For more information on becoming a member, becoming a corporate sponsor, or becoming more active with the organization, please contact Jerry Mohn at the address to the left.

Please remember to visit our website at www.texasasbpa.org for more frequent updates on coastal happenings and the Texas Chapter of ASBPA. If you have information to submit for the website or newsletter please contact Jerry Mohn.

Corporate Sponsorship costs \$500 and provides for recognition on Chapter website and all publications & events.

Upcoming Events

December 2008

- Dec 5, 2008: Texas Chapter of the ASBPA South Padre Island, Texas

January 2009

- Jan. 12-16, 2009: 38th Dredging Engineering Short Course
Center for Dredging Studies,
Texas A&M, College Station, Texas
Contact: Dr. Randall (979) 845-4568

March 2009

- Mar. 25-27, 2009: ASBPA Coastal Summit in Washington DC, at the Washington Ct Hotel

UPCOMING EVENTS:

Texas Coastal Conference 2008: Caring for the Coast. The conference is tentatively scheduled for **April 8-9, 2009** at the Galveston Island Convention Center.

Structures Congress 2009: April 30—May 2, 2009 in Austin Texas.

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The TxASBPA Newsletter staff challenge our readers to submit articles for publication.

GUIDELINES:

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- Ensure permission to publish is granted.