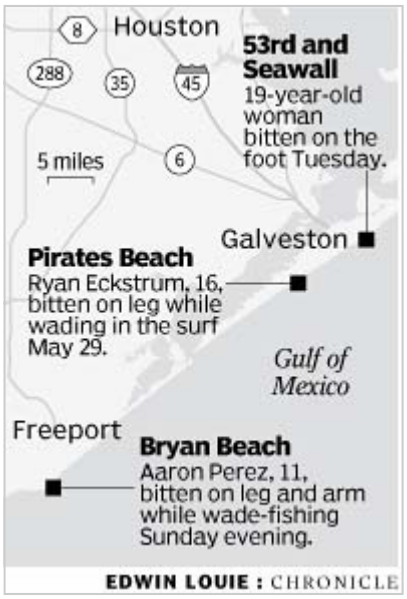
**ACTIVITY:** Swimming / wading
**CASE:** GSAF 2004.07.27.a
**DATE:** Tuesday July 27, 2004
**LOCATION:** The incident took place in the Gulf of Mexico, off a stretch of beach near 53rd Street and Seawall Boulevard in Galveston, Texas, USA.
*29.3°N, 94.8°W*




**NAME:** Erika Hailey
**DESCRIPTION:** She is a 19-year-old female from Tiki Island, Galveston County.

**BACKGROUND**
**WEATHER:** It had been cloudy most of the day, but by 16h52, Galveston recorded clear skies and visibility of eight miles. The air temperature was 86°F [30°C], dew point 75°F [23.9°C], humidity 70%, sea level pressure 29.97 in [1014.7 hPa], and wind direction was East at 11.5 mph [18.5 km/h].
**MOON PHASE:** Full Moon, July 31, 2004
**SEA CONDITIONS:** The sea was calm and clear.
**ENVIRONMENT:** She was in the midst of schools of fish on which sharks were feeding.
**DISTANCE FROM SHORE:** 30 yards
**DEPTH OF WATER AT INCIDENT SITE:** Three feet
**TIME:** 16h30 (4:30 pm)

**NARRATIVE:** Hailey was in the water with friends when the group noticed several small fish jumping up around them. Then Hailey felt the shark clamp down on her foot ."I just felt this clamp down on my foot and my immediate reaction was to fling it up, try to get away, and we see this big tail come out of the water, so we knew it was a shark," said Hailey. She began swimming toward the beach but halfway there her strength failed and a friend, Aaron Schmitz, carried her to shore,

**INJURY:** The top of her right foot was severely bitten; there was a four-inch gash that stretched from her toes to her heel, exposing nerves and tendons. "It was a significant bite, but not bad enough that she could lose her foot," said sheriff's Maj. Vic Maceo, beach patrol commander. "It was not life-threatening."

**FIRST AID:** "She walked out of the water and approached a lifeguard. She never lost consciousness," Maceo said. Beach patrol emergency medical technicians treated the bite and Hailey was taken to John Sealy Hospital.

**TREATMENT**:"The shark had bitten her tendon in two places. There was a middle segment that was completely removed," said Dr. Seth Maxwell, with UTMB. The tendon was repaired and a pin was inserted into Hailey's big toe to keep the tendon from moving. She was discharged from the hospital on Friday.

**SPECIES INVOLVED:** Maceo speculated that the shark that bit Hailey was a black-tip shark, *Carcharhinus limbatus*, about three feet in length, but Hailey and witnesses said the shark was four to five feet in length. Hailey believes the shark was attracted to her silver toenail polish and mistook her foot for a fish.

**REPORTED BY:** Kevin Moran, Houston Chronicle

**Annual 'Dead Zone' Spreads Across Gulf of Mexico**
Wed 4 August, 2004 00:43
By Jeff Franks

HOUSTON, Texas (Reuters) -- A huge "dead zone" of water so devoid of oxygen that sea life cannot live in it has spread across 5,800 square miles of the Gulf of Mexico this summer in what has become an annual occurrence caused by pollution.

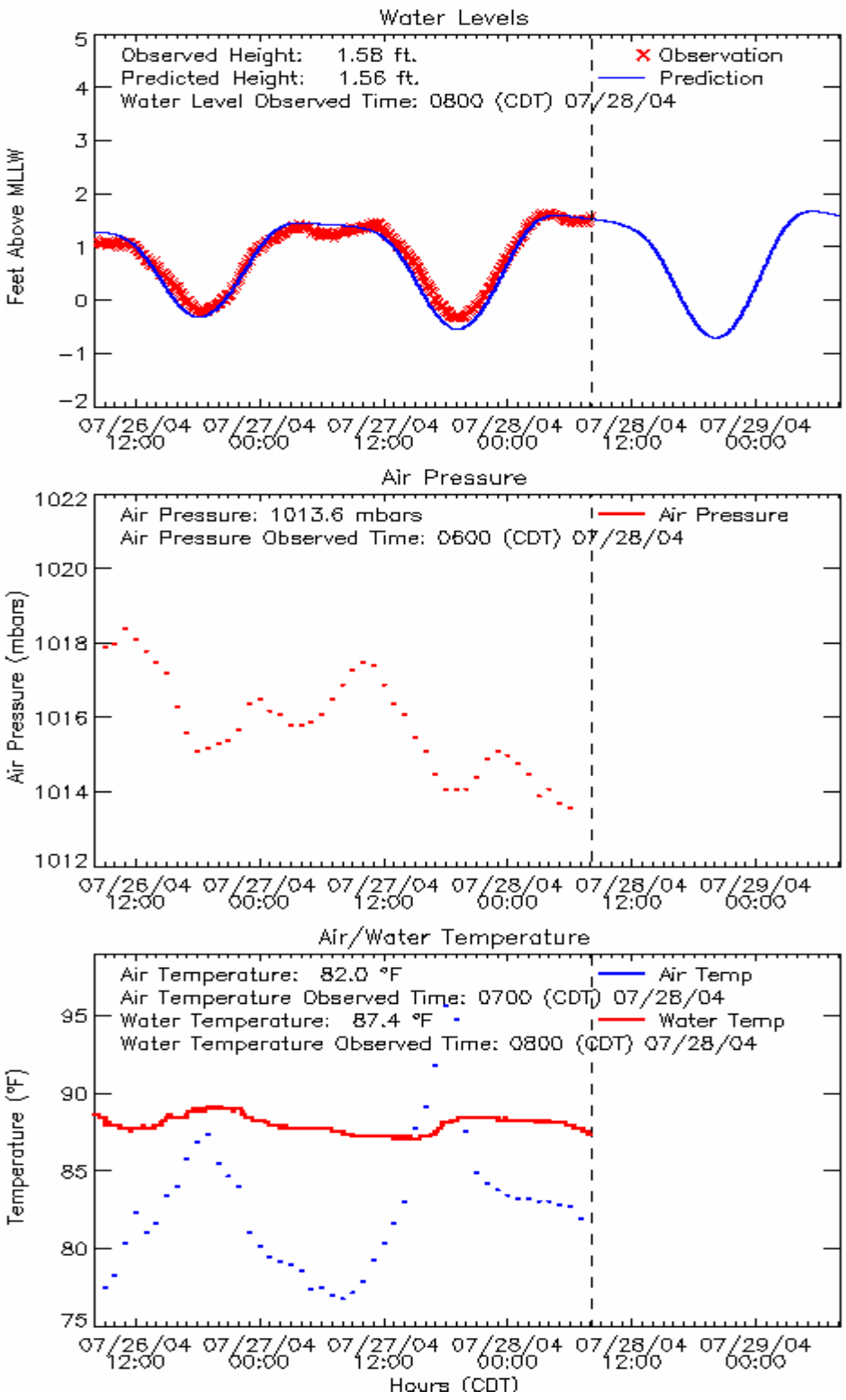
The extensive area of uninhabitable water may be contributing indirectly to an unusual spate of shark bites along the Texas coast, experts said. A scientist at the Louisiana Universities Marine Consortium said Tuesday measurements showed the dead zone extended from the mouth of the Mississippi River in southeastern Louisiana 250 miles west to near the Texas border and was closer to shore than usual because winds and currents." Fish and swimming crabs escape [from the dead zone]," said Nancy Rabalais, the consortium's chief scientist for hypoxia, or low oxygen, research. "Anything else dies."

In the last 30 years, the dead zone has become an annual summer phenomenon, fed by rising use of nitrate-based fertilizers by farmers in the Mississippi watershed, Rabalais said. The nitrates, carried into the gulf's warm summer waters by the river, feed algae blooms that use up oxygen and make the water uninhabitable.

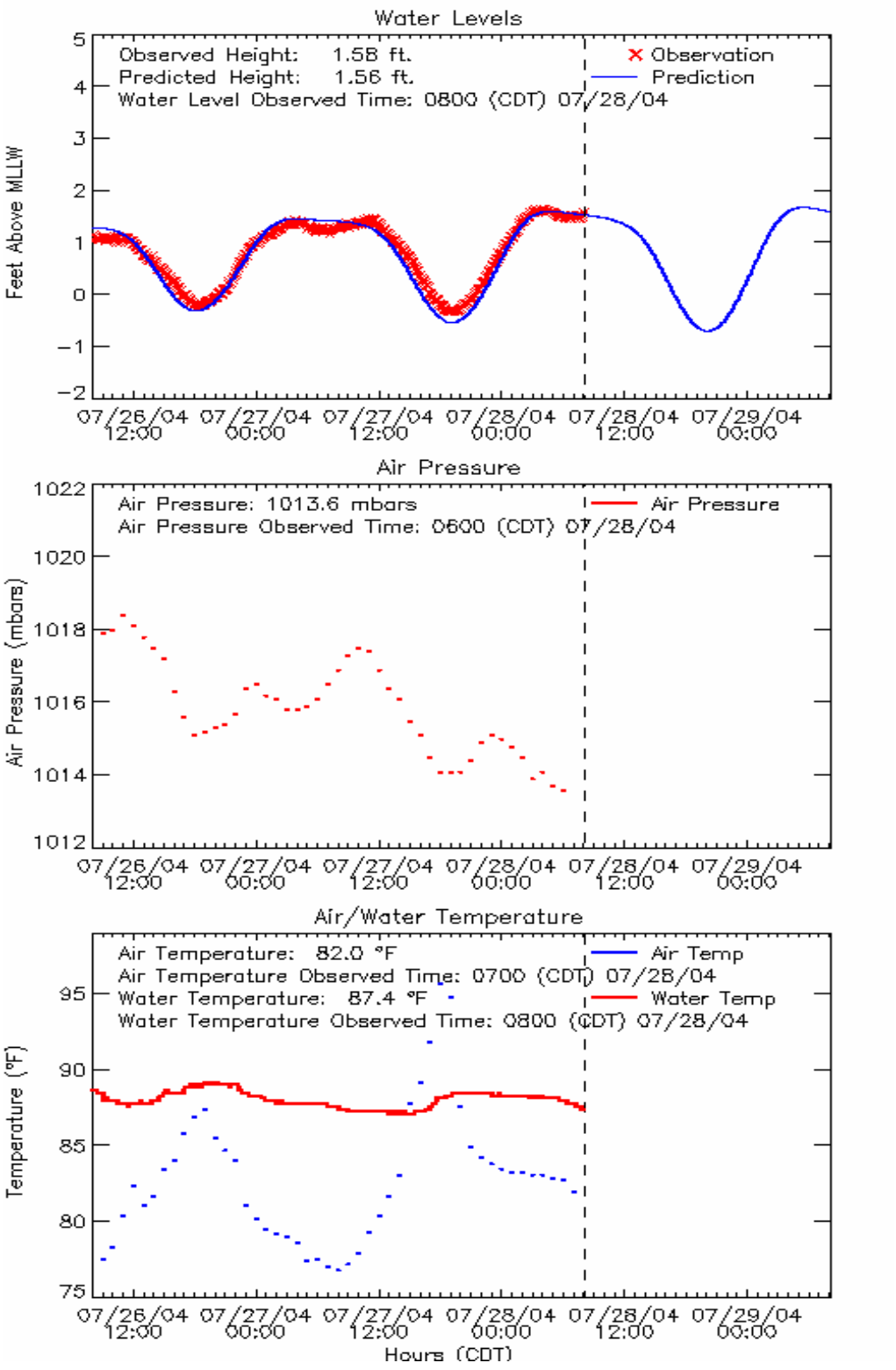
The dead zone's size has varied each year depending on weather conditions, but averages about 5,000 square miles and remains in place until late September or early October. Virtually nothing is being done to stop the flow of nitrates into the river, meaning the dead zone will reappear every year, Rabalais said. The dead zone forces fish to seek better water, which may be a reason for the recent shark bites on Texas beaches. Three people have been bitten by sharks along the upper Texas coast this year -- a high number for a state that has recorded only 18 shark attacks since 1980.Terry Stelly, an ecosystem biologist with the Texas Parks and Wildlife Department, said increasing numbers of sharks have been found in recent years in the waters along the Texas-Louisiana border, near the edge of the dead zone. Along with other factors, "chances are good they [sharks] were looking for higher dissolved oxygen in the water," he said. Rabalais agreed.

The higher number of sharks in shallow waters may very likely be due to the low oxygen being close to the shore at the time of the attacks," she said. "The available habitat for the sharks is definitely less when the low oxygen is so widespread."

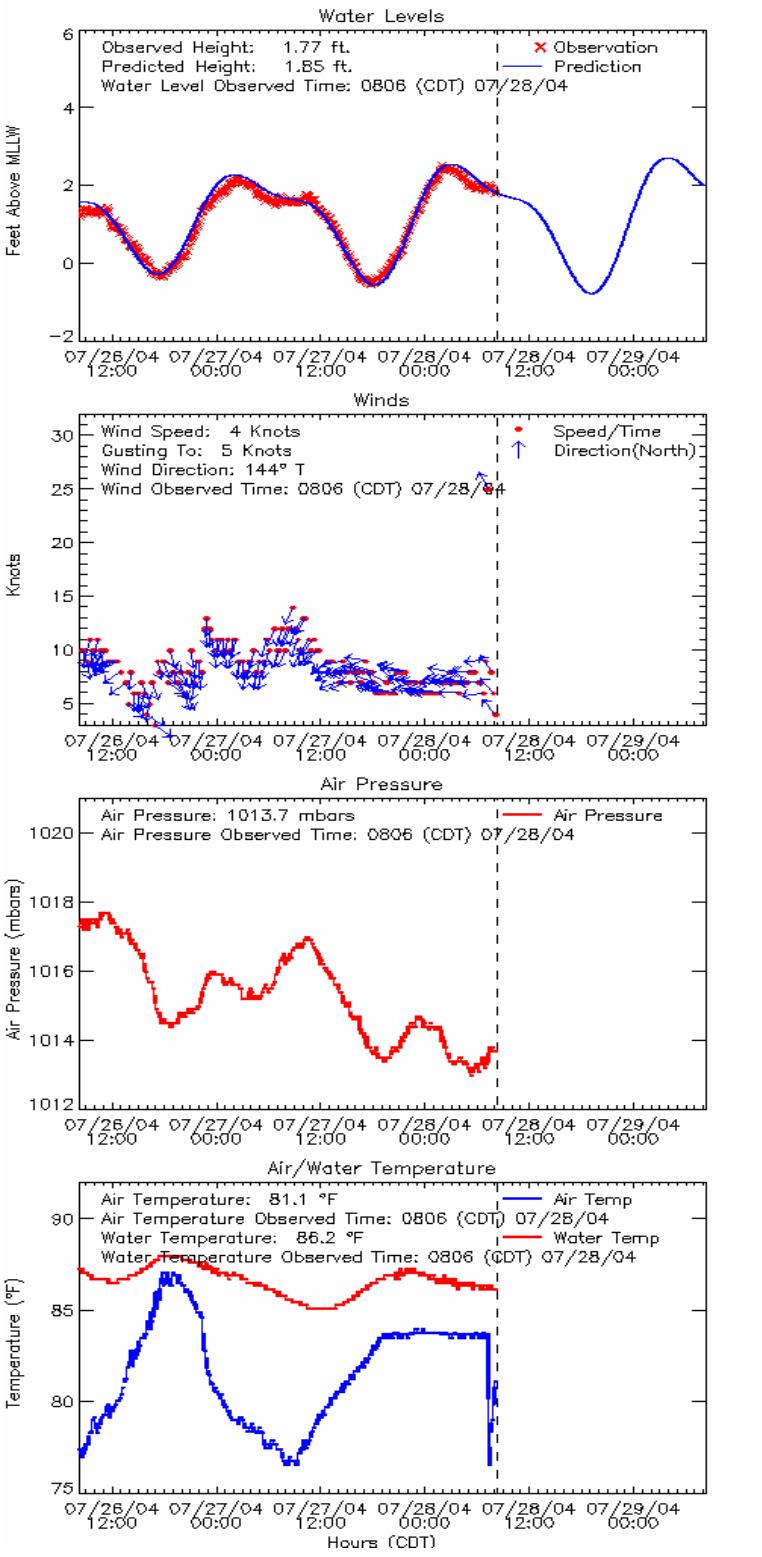
## 8771450 Galveston Pier 21, TX (Galveston Bay)



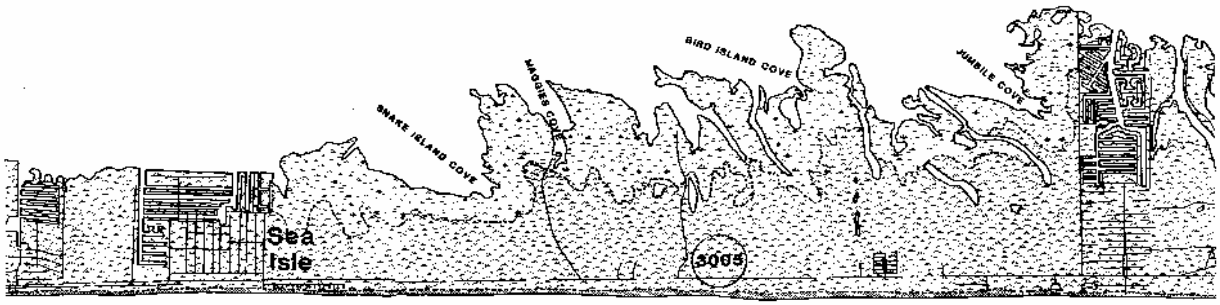
## *8771450 Galveston Pier 21, TX*



## *8771510 Galveston Pleasure Pier, TX*



Galveston Island from end of seawall to Sea Island.




GALVESTON ISLAND

- EROSION 5'-10' PER YEAR
- ELEVATIONS ABOUT 5'
- LOW DISCONTINUOUS DUNES
- HIGH FLOOD POTENTIAL
- SINGLE EVACUATION ROUTE
- SINGLE AND MULTIFAMILY DWELLINGS
- NARROW ISLAND
- BAYSHORE EROSION

- EROSION 0'-5' PER YEAR
- LOW DISCONTINUOUS DUNES
- HIGH FLOOD POTENTIAL
- ELEVATIONS 5'-10'
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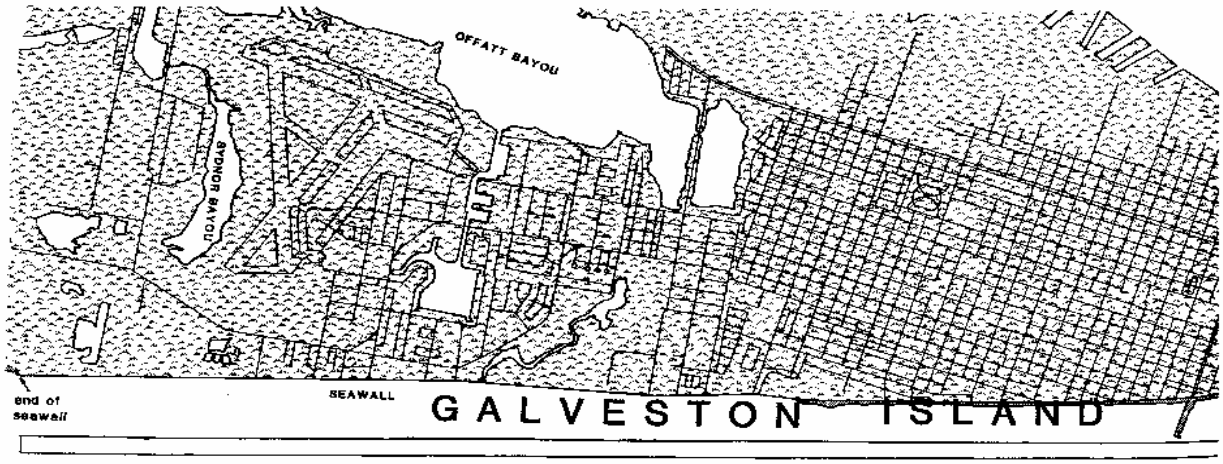
- SINGLE EVACUATION ROUTE




- EVACUATION PROBLEM
- NARROW RECREATION BEACH
- SEAWALL - GOOD OVERWASH PROTECTION FROM MOST STORMS
- HIGH DENSITY COMMERCIAL DEVELOPMENT
- NO SHORELINE EROSION
- HIGH FLOOD POTENTIAL

Galveston Island from Bolivar Roads to end of the seawall.