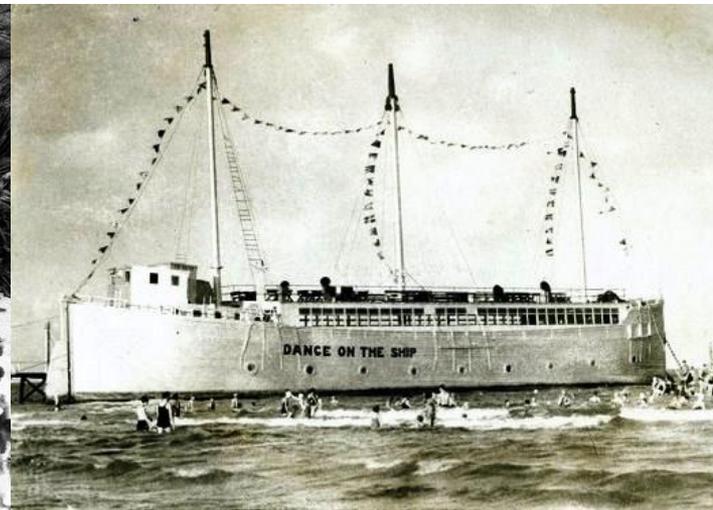


Corpus Christi Beach (North Beach) Geology, Challenges and Beach Nourishment

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Photos source: www.caller.com



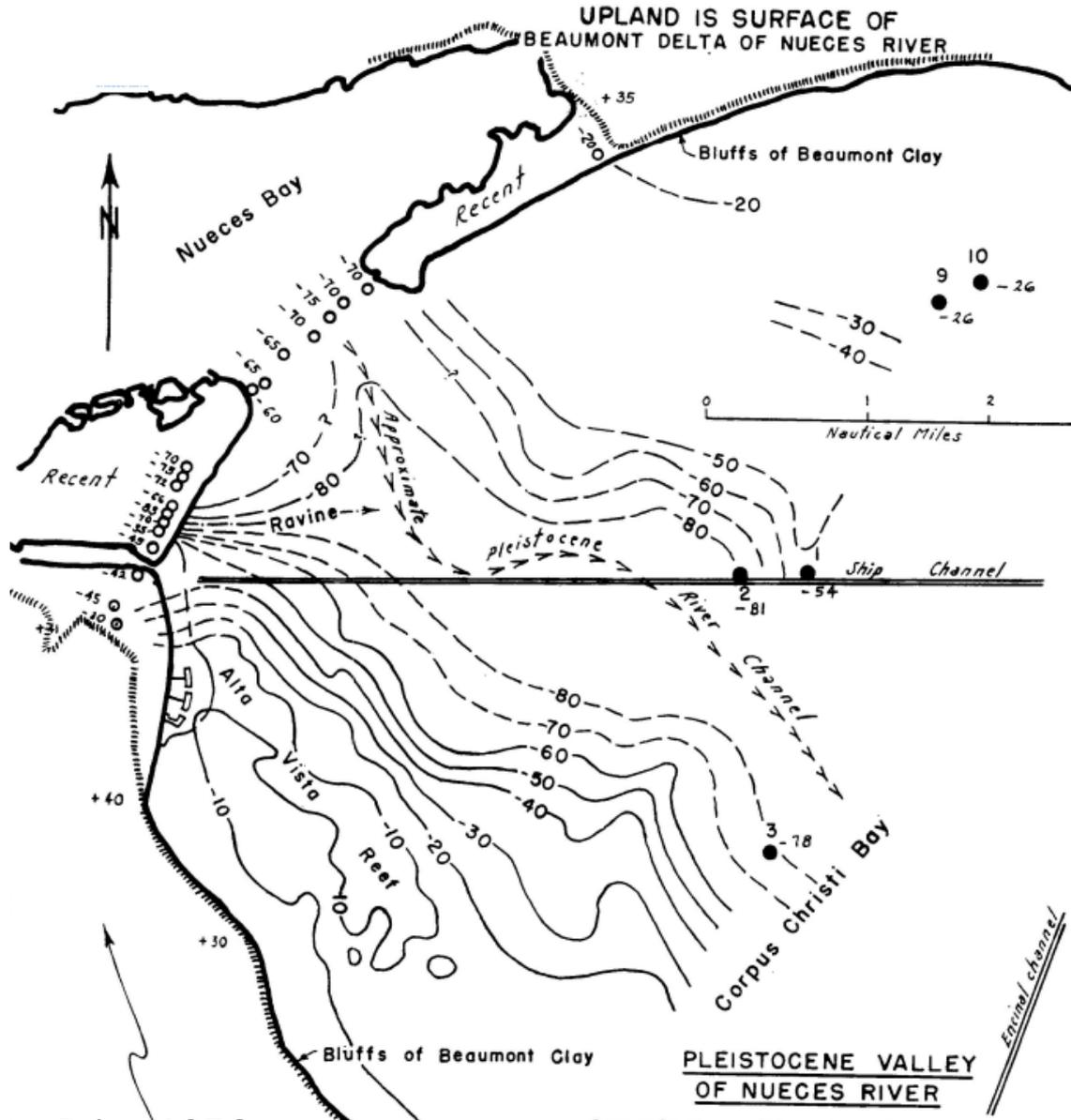
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Corpus Christi Beach & Surrounding Areas



Nueces River Historic Pathway



Pleistocene Epoch:

1.8 Million to 10,000 yrs before present

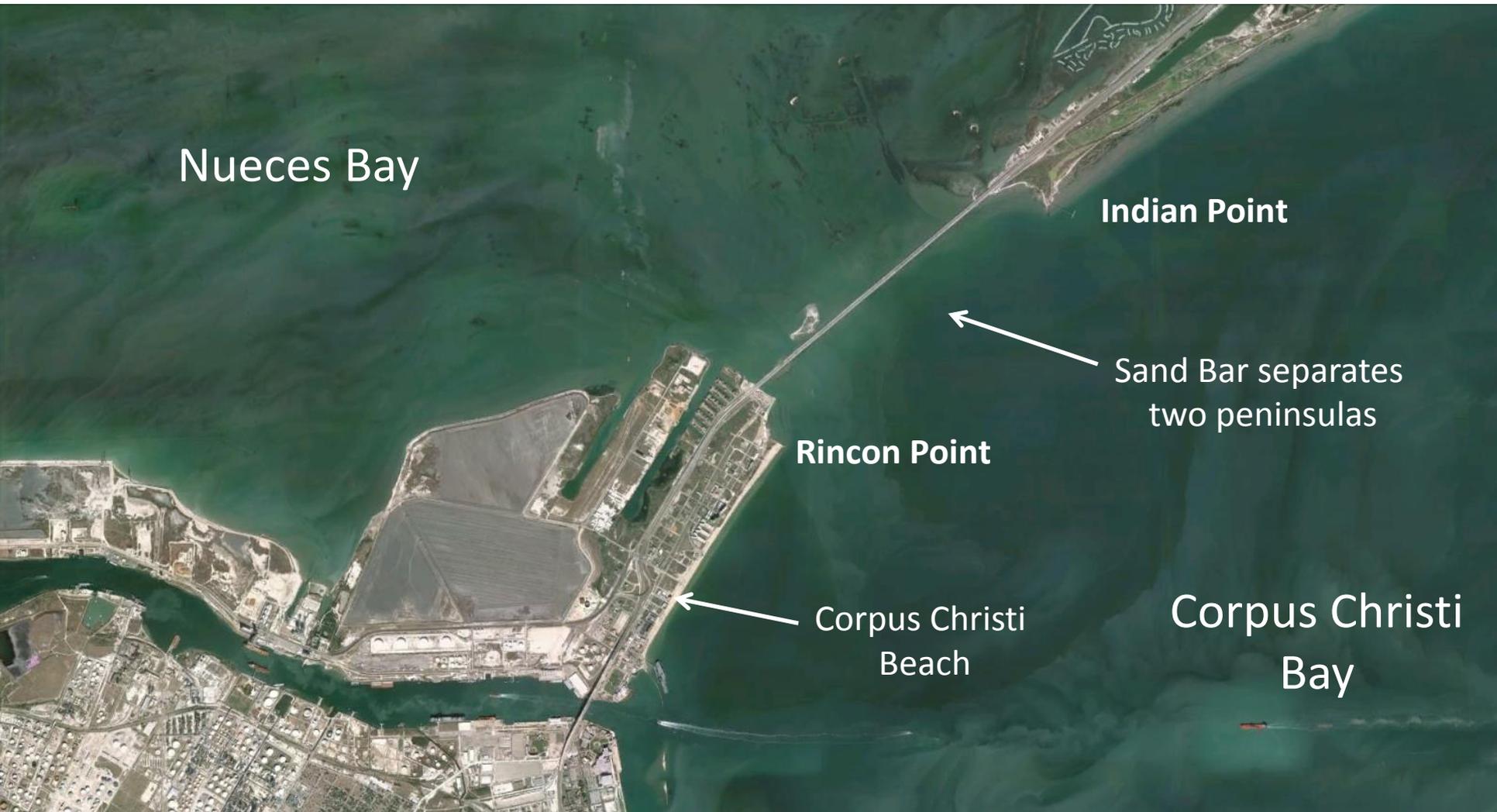
Recent (Holocene) Epoch:

Known as the time of humans
Basically the last 10,000 yrs.

What is Corpus Christi Beach?

- Referred to as “North Beach” prior to 1959
- Part of a peninsula named Rincon Point
- Geologically a “sand spit”
- Effectively an Island
 - Historically separated by Halls Bayou
 - Presently separated by CC Ship Channel
- Bordered by Two Bays
 - Nueces Bay
 - Corpus Christi Bay (CCBay)
- Lowest widespread elevations of CCBay System
- Provides important function
 - Dissipates excess water during storms over low flats

A Tale of Two Sand Spits



Nueces Bay

Indian Point

Sand Bar separates
two peninsulas

Rincon Point

Corpus Christi
Beach

Corpus Christi
Bay

source: Google Earth



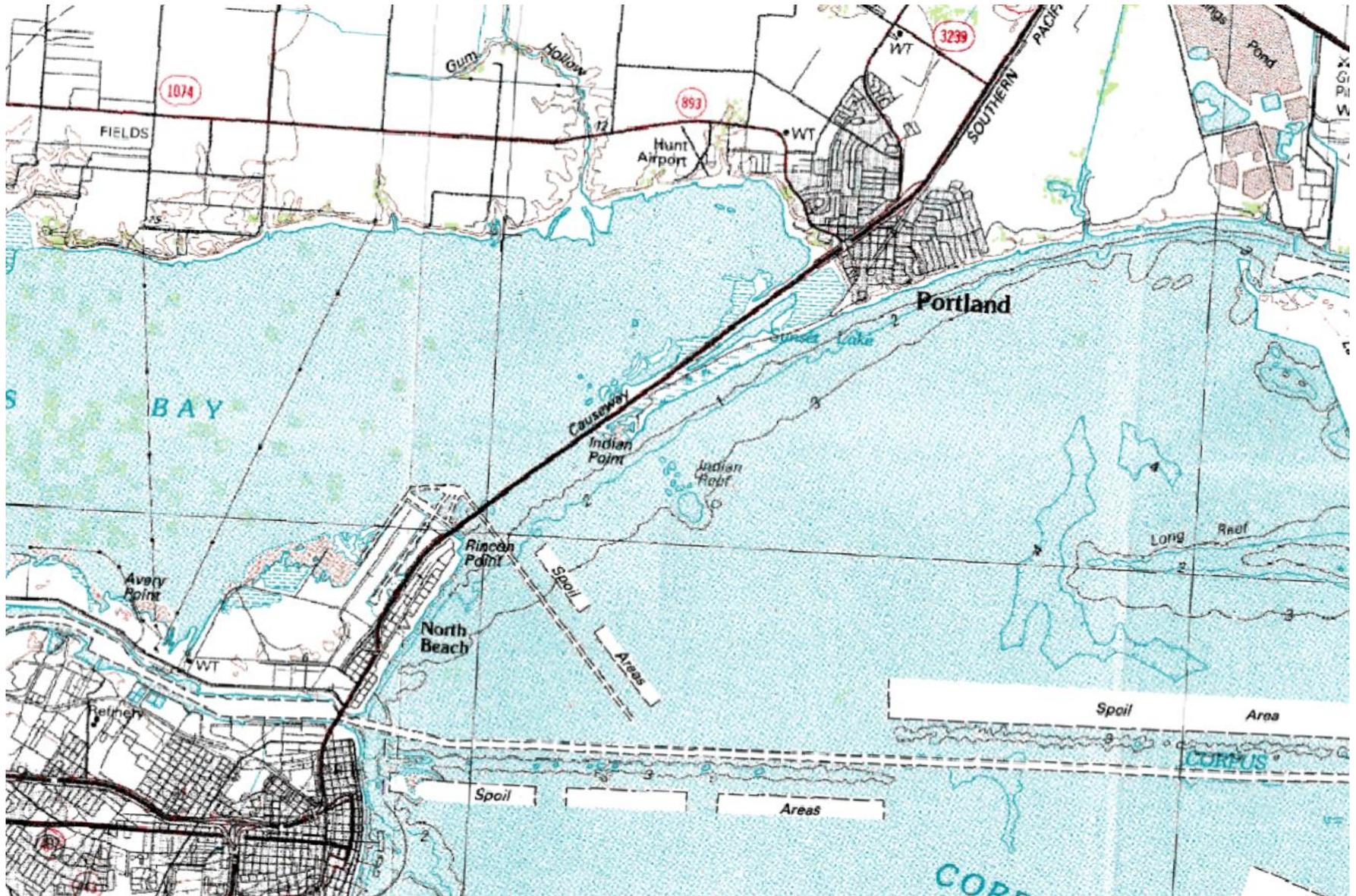
Portland
Causeway

Indian Point

Sand Bar separates
two peninsulas

Rincon Point

Nearshore Elevations



Where's the Sand?

Sand is a Finite Resource

- Dams eliminate new materials from entering the bays
- Hardening of Shorelines eliminates erosion of downdrift shoreline
 - Revetments, breakwaters groins, rip rap etc.
- Deepening of the CC Ship Channel provides a “sink” for sediment headed to the north from southwest bay nearshore and shoreline
- Sand Trapping by the nearby USS Lexington (functions like groin)
- Storms drag sand offshore to CCBay deep water (minor- Heilman and Shiner 2002)

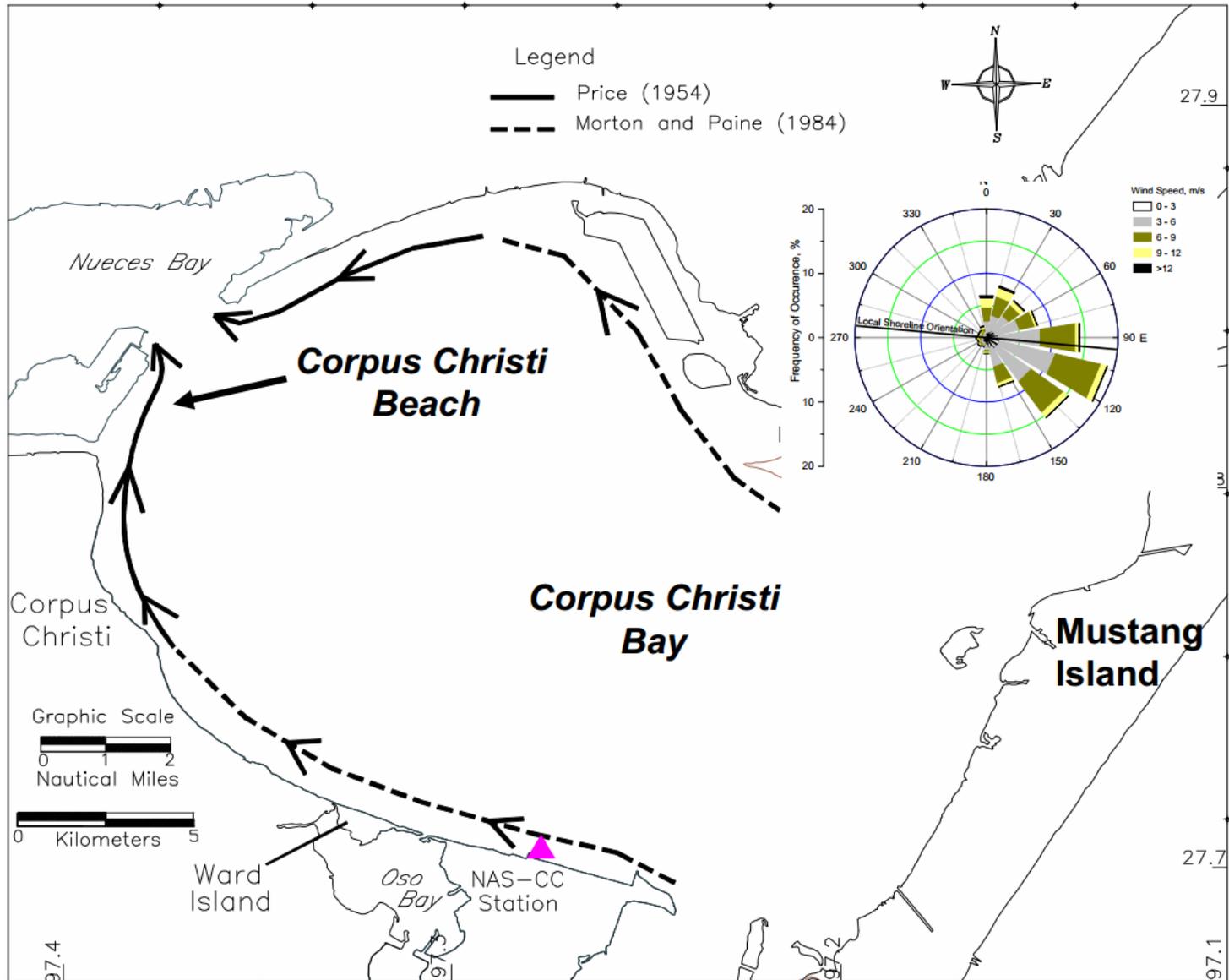
Result:

No new native sand is reaching the beach

Solution:

Periodic re-nourishment from nearby sources (i.e. river deposits)

Corpus Christi Bay System Sediment Transport



Brief History of Doom and Boom

Doom-Hurricanes

- 1818 Great Hurricane substantial flooding
- 1875 Unnamed Hurricane
- 1919 “Hurricane of 1919”

Boom

- 1867-1931 Advancing beach (Morton and Paine 1984)

The beach was still narrow but recreational businesses thrived

Doom-Hurricanes

- 1950’s Bridges reduce traffic to Corpus Christi Beach businesses fold
- 1960’s and 70’s Carla, Beulah, and Celia
- 1980 Allen

Boom

- 1978-1990 Beach Restoration
- 1990 Texas State Aquarium opens
- 1992 USS Lexington arrives
- 2001 Renourishment

Brief History of Beach Restoration

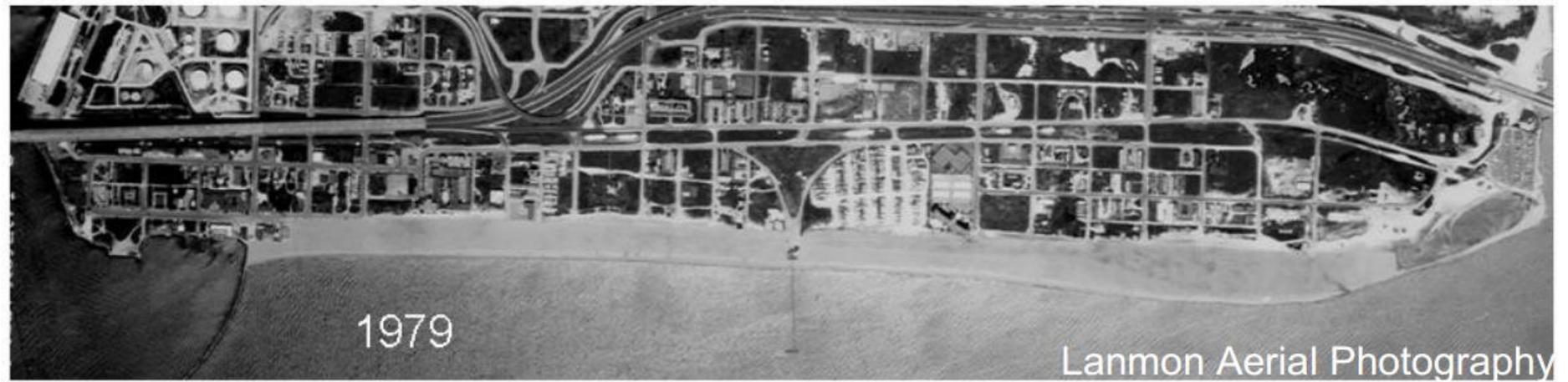
- 1900-1950 Beach eroded 3.7 ft/yr (Price 1956)
- Early 1970's Beach erosion threatening buildings
- 1978 Recreational Beach Fill Constructed-COE Sponsored
 - Innovative two-layer fill
- 1985 Terminal Groin Built at North End
 - To limit sand lost at north end of beach
 - Sand was added to north end
- 1998 Sand Back-Passing Implemented
 - Moved sand impounded at north end to central beach
- 2001 Beach Nourishment Conducted (TGLO CEPRA)
- Ongoing Beach Surveys (TGLO)
 - To document change in beach elevation and width.



1938

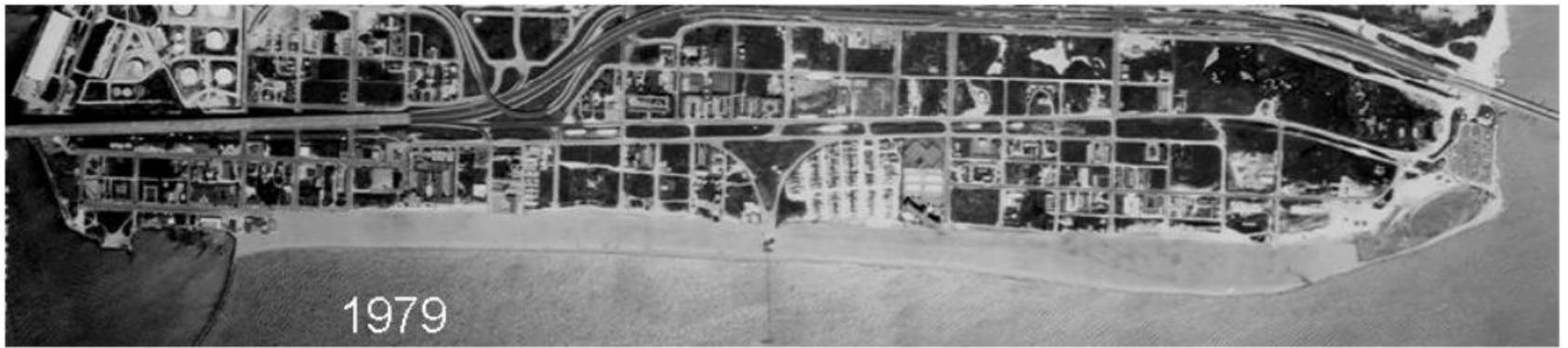


1975



1979

Lanmon Aerial Photography







1938



Lanmon Aerial Photography

2008

Conclusions

- **Corpus Christi Beach is a low elevation spit** located at the north end of a dynamic bay system.
- **Storm forcing results in flooding of the north end of CCBay** as Gulf waters fill the bay and dissipated over the lowest region of flat land.
- **Restoration efforts began in 1978** and continue today at Corpus Christi Beach and other beaches along the Texas Coast.
- **Beach longevity** is directly related to maintenance-similar to landscape or buildings.
- **For more info, visit Coastal Habitat Restoration GIS (CHRGIS)**
URL <http://www.cbi.tamucc.edu/CHRGIS/>
Select Corpus Christi Beach from the list of Texas beaches



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