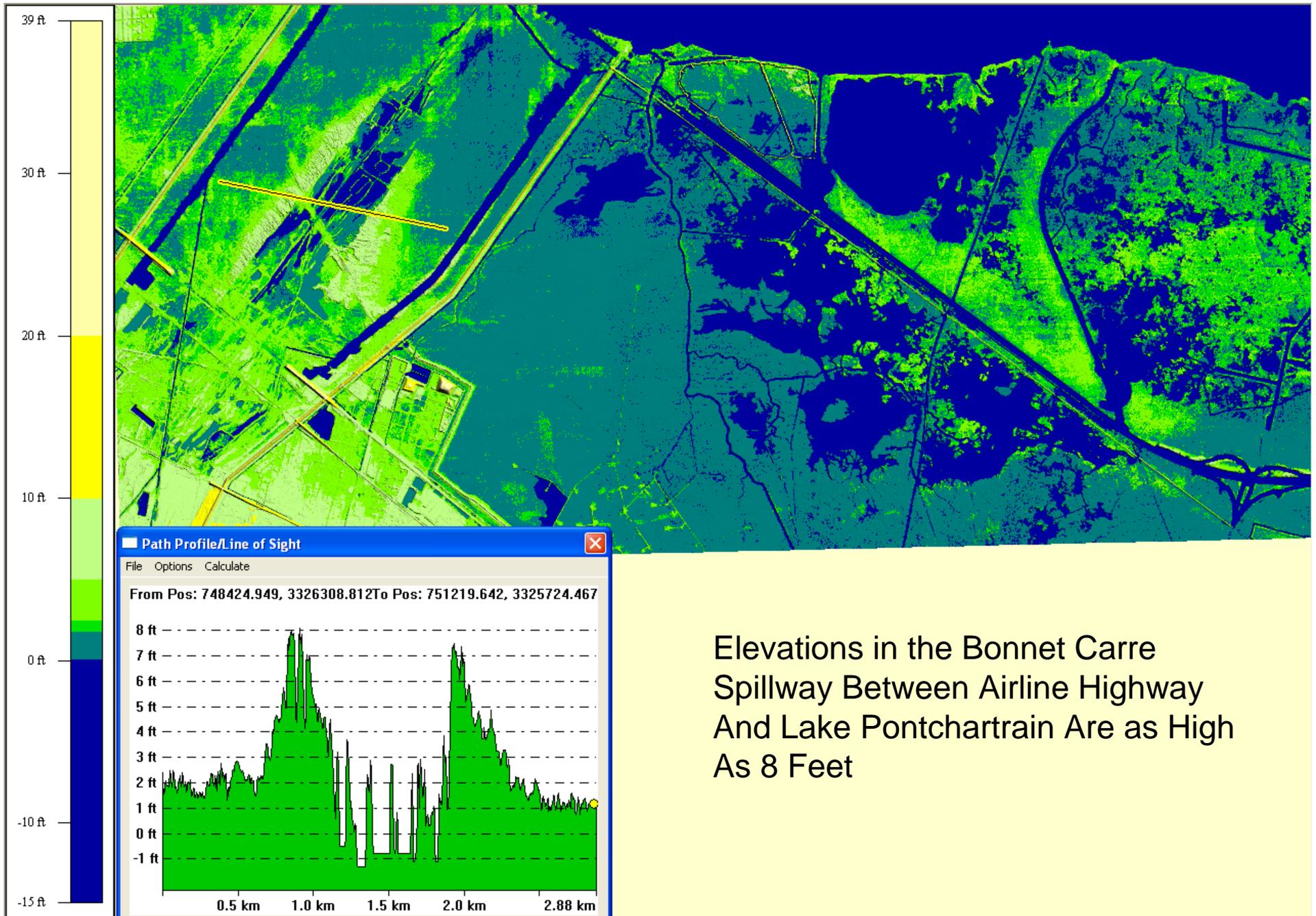


Figure 2

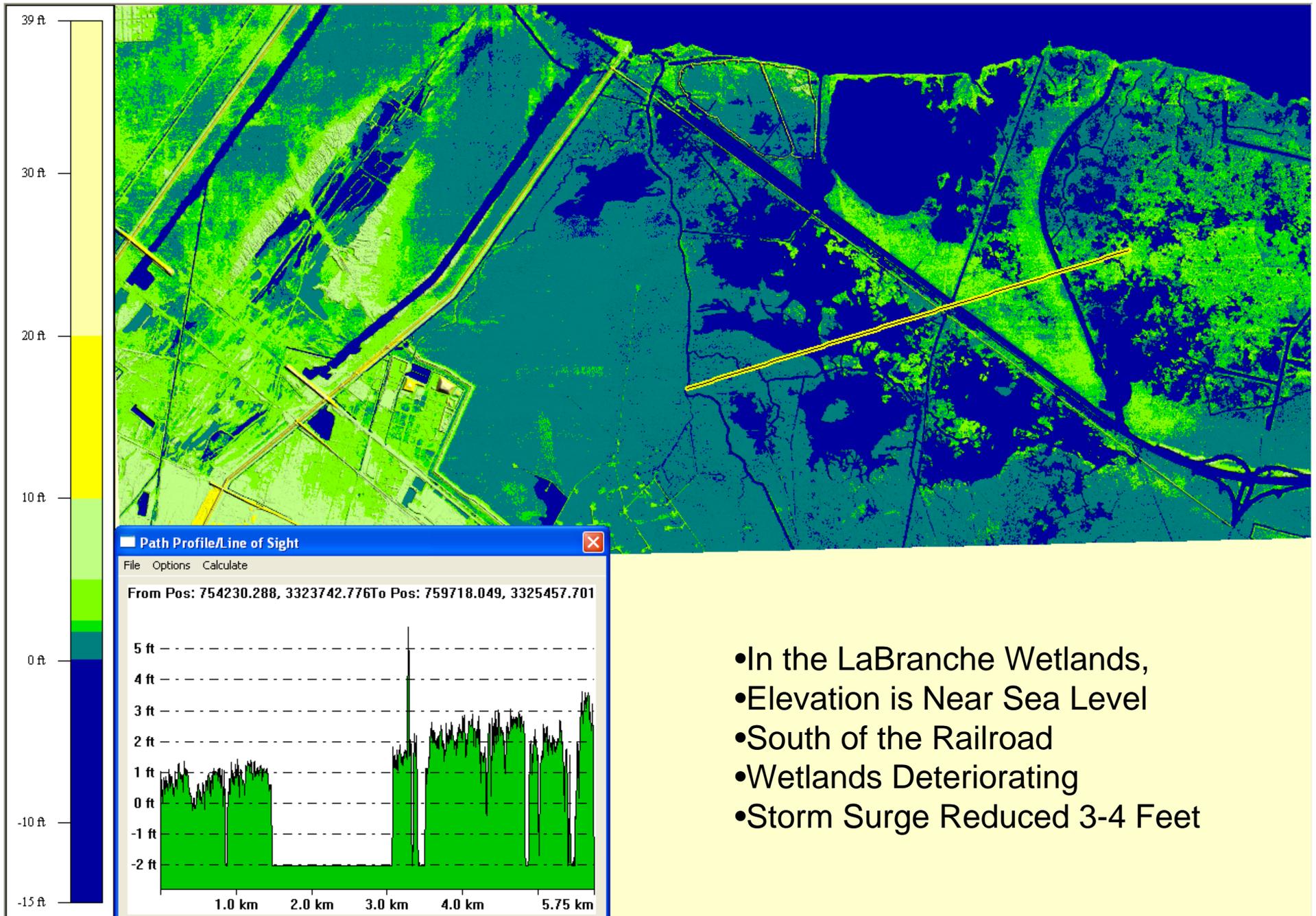
Annual averages of global mean sea level from IPCC (2007). The red data are updated from Church & White (2006); the blue data are from Holgate & Woodworth (2004), and the gray curve is based on satellite altimetry from Leuliette et al. (2004). Error bars show the 90% confidence limits. Zero represents the 1961–1990 averages for red and blue data. Gray curve represents a deviation from red data for the period 1993–2001. FitzGerald et al. 2009



Mississippi Delta in 2100. Blum and Roberts (2009) Nature GeoScience.

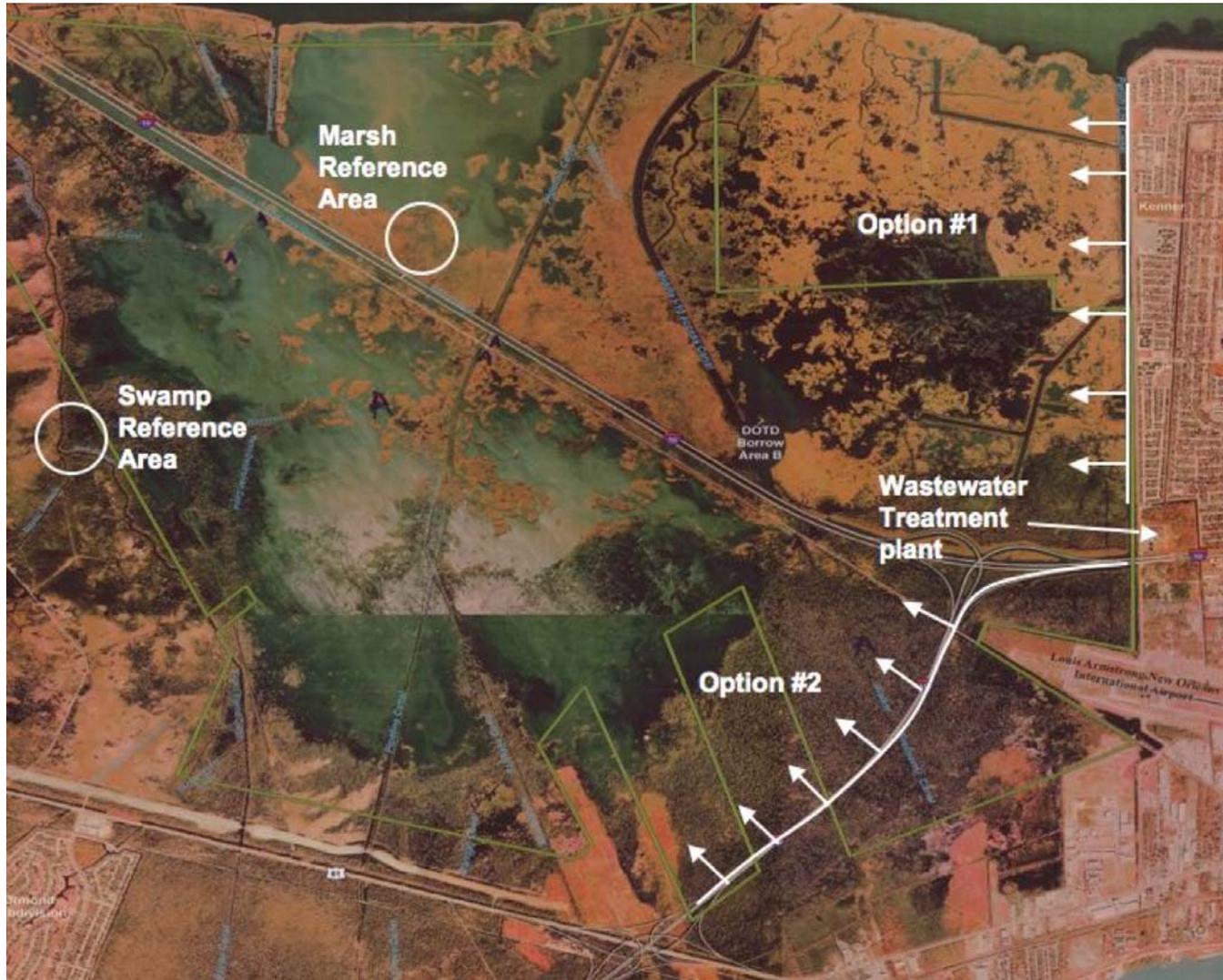


Elevations in the Bonnet Carre
Spillway Between Airline Highway
And Lake Pontchartrain Are as High
As 8 Feet



- In the LaBranche Wetlands,
- Elevation is Near Sea Level
- South of the Railroad
- Wetlands Deteriorating
- Storm Surge Reduced 3-4 Feet

Kenner Wetland Assimilation



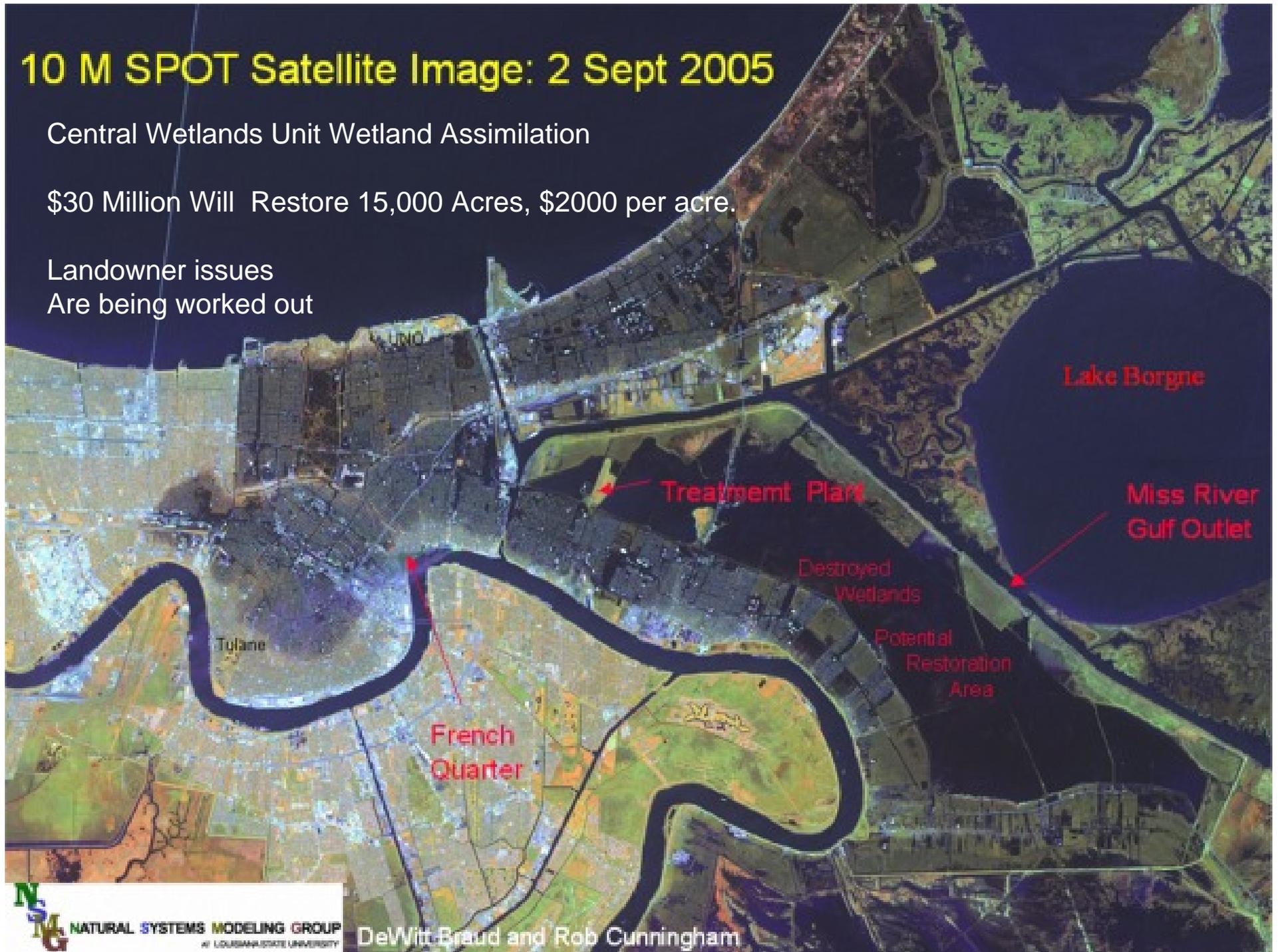
\$5 Million will restore and sustain 2500 acres. \$2000 per acre

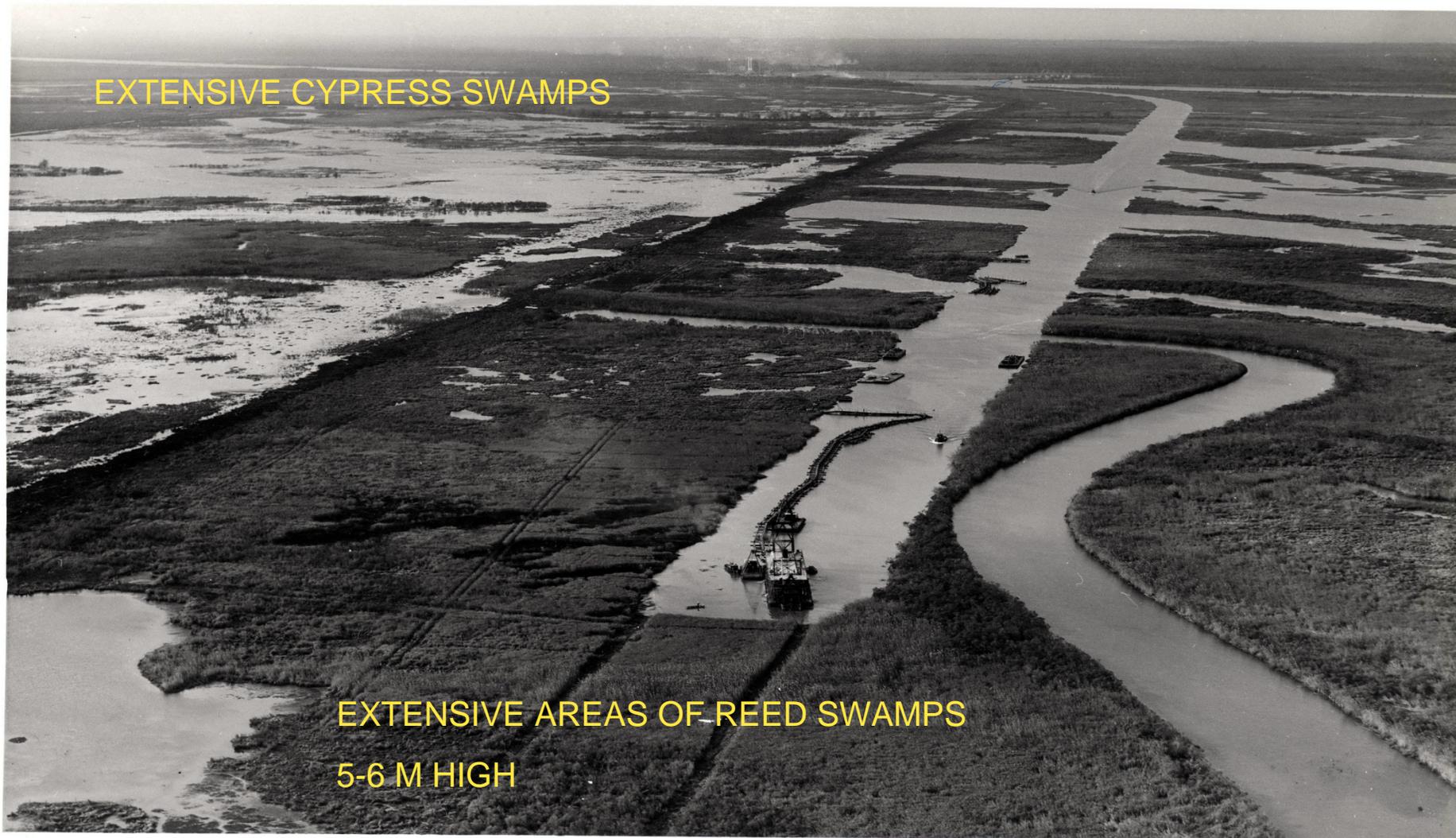
10 M SPOT Satellite Image: 2 Sept 2005

Central Wetlands Unit Wetland Assimilation

\$30 Million Will Restore 15,000 Acres, \$2000 per acre.

Landowner issues
Are being worked out





9 DEC 1959

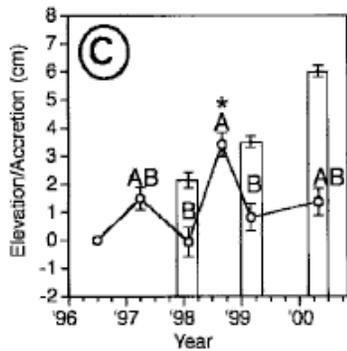
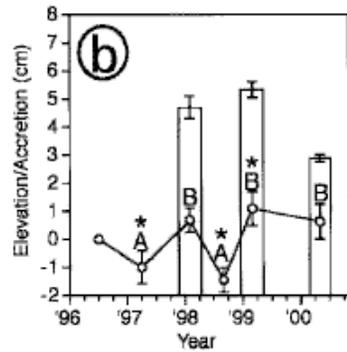
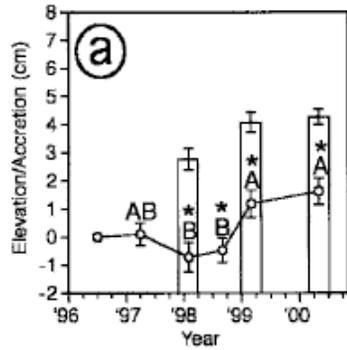
U. S. ARMY ENGINEER DISTRICT, NEW ORLEANS
MISSISSIPPI RIVER - GULF OUTLET

NO. 9944-9

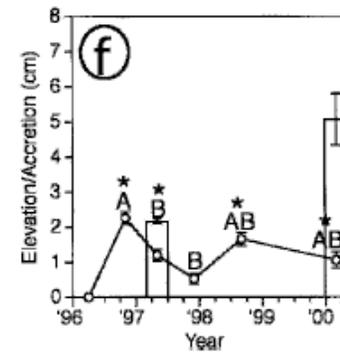
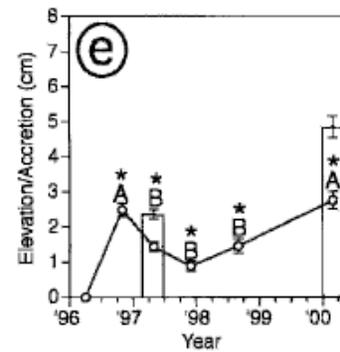
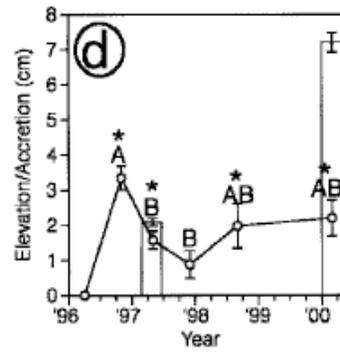
Dredging 18' x 140' Access Channel, Mississippi River - Gulf Outlet, Mile 63.2 to Bayou Dupre, Mile 55.9 under Cont. No. DA-16-047-CIVENG-59-338 with Standard Dredging Corp., New York, N. Y. dated 28 April 1959, and from Bayou Dupre to Bayou Yscloskey, under Cont. No. DA-16-047-CIVENG-60-24 with Bauer Dredging Co., Inc., Port Lavaca, Tex., dated 29 July 1959, located in St. Bernard Parish, La. Funds: Construction, General.

View northwest vicinity Station 475+00. Dredging access channel.

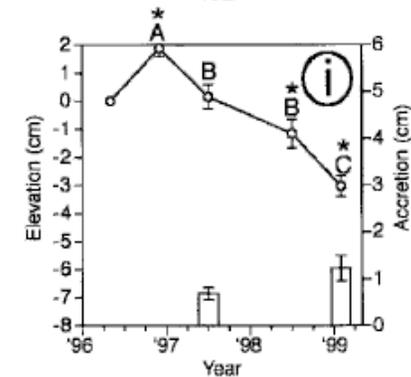
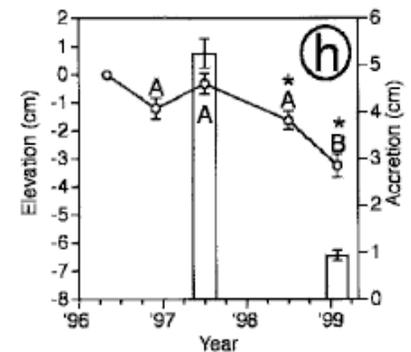
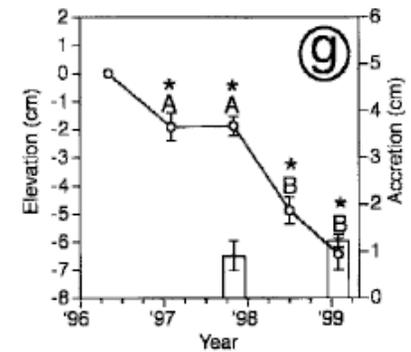
Caernarvon



WPH



Violet



Wetlands in Central Wetlands Unit
Are Losing Elevation Rapidly

NATURE'S SURGE BUSTER

Scientists with the LSU Hurricane Center say Hurricane Katrina provided graphic proof of how marshes and wooded wetlands provide natural armor that can save levees during storms.

WITHOUT WETLANDS, LEVEES ARE PUNMELED

Large sections of the MR-GO levee that had little or no wetlands separating them from Lake Borgne disintegrated.



WETLANDS TAKE THE BRUNT OF THE STORM

The 20-Arpent Canal levee remained standing. The difference was the buffer of marsh and wooded wetlands, researchers said.



STAFF GRAPHIC BY DAN SWANSON

SOURCES: LSU, NASA, STAFF RESEARCH





LETTERS

The increasing intensity of the strongest tropical cyclones

James B. Elsner¹, James P. Kossin² & Thomas H. Jagger¹

Because of the Increasing Threat of Hurricanes, Forested Wetlands
Should Be Planted in Front of All Levees

- Cypress
- Mangroves

Mangroves Are Spreading Rapidly in Miss Delta



- *Avicennia germinans*
- Black Mangrove

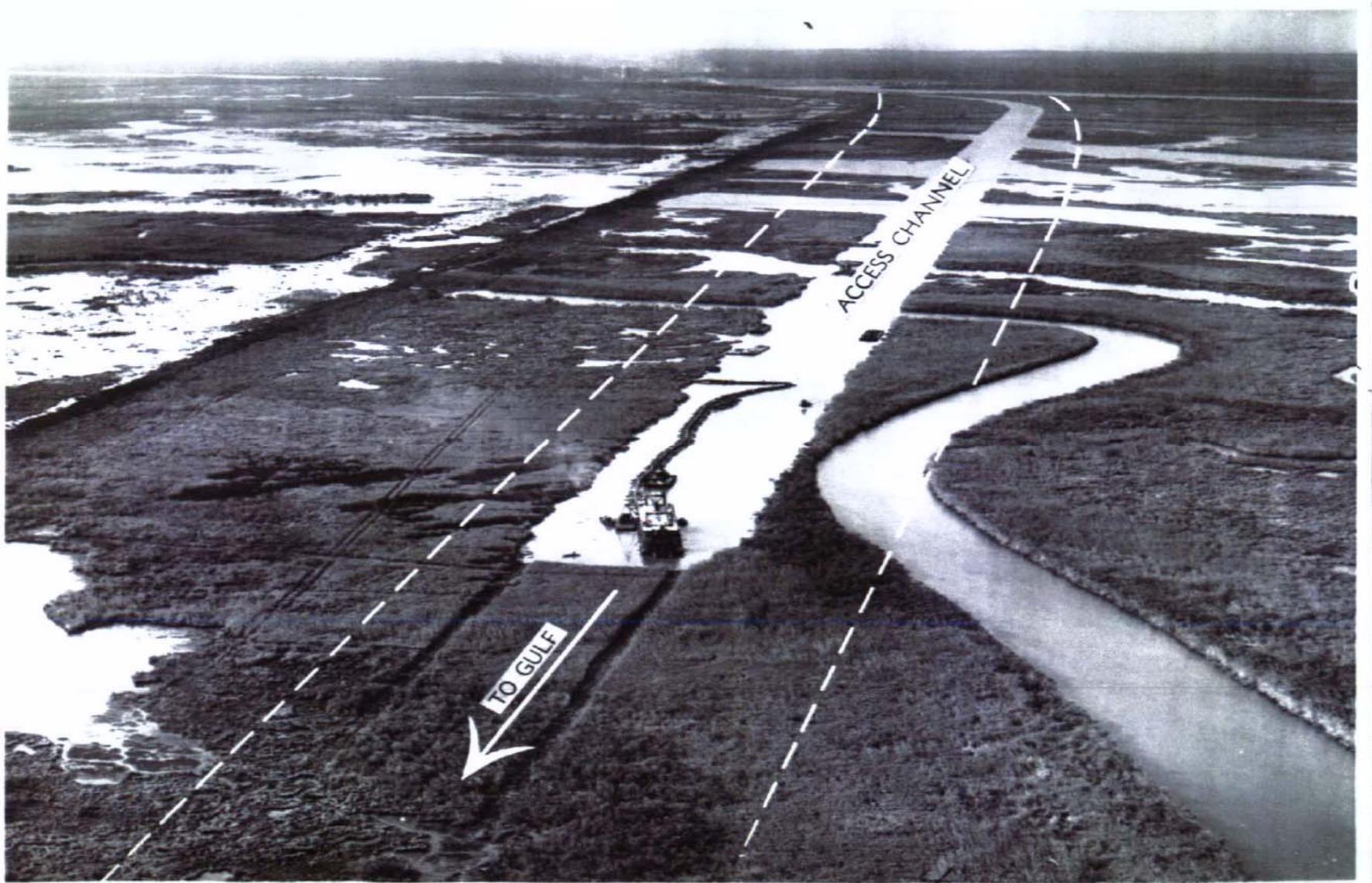
**Sediment
Deposition During
The 1927
Crevasse**

**Flow Up To
10,000 m³/sec**



**30 cm in 3 months in
1927**

**55 cm from 1927 to
2002**



Healthy very tall wetlands being cut for the access channel of the MRGO



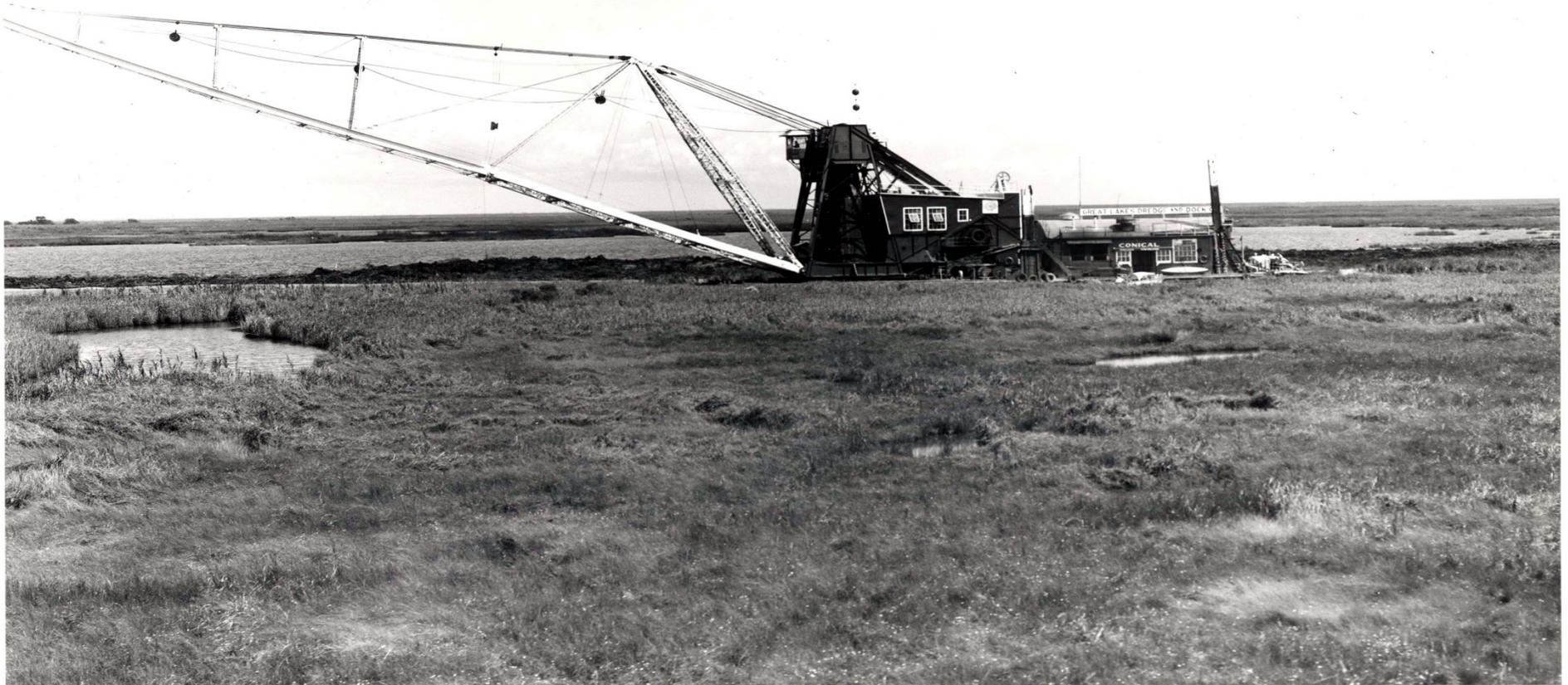
9 DEC 1959

U. S. ARMY ENGINEER DISTRICT, NEW ORLEANS
MISSISSIPPI RIVER - GULF OUTLET

NO. 9944-11

Dredging 16' x 140' Access Channel, Mississippi River - Gulf Outlet, Mile 63.2 to Bayou Dupre, Mile 55.9 under Cont. No. DA-16-047-CIVENG-59-338 with Standard Dredging Corp., New York, N. Y. dated 28 April 1959, and from Bayou Dupre to Bayou Yscloskey, under Cont. No. DA-16-047-CIVENG-60-24 with Bauer Dredging Co., Inc., Port Lavaca, Tex., dated 29 July 1959, located in St. Bernard Parish, La. Funds: Construction, General.

View southeast, vicinity Station 450+00. Dredge constructing access channel. Portion of Lake Borgne on the left.



9 OCT 1959

U. S. ARMY ENGINEER DISTRICT, NEW ORLEANS
MISSISSIPPI RIVER - GULF OUTLET

NO. 9917-15

Dredging 18' x 140' Access Channel, Mississippi River - Gulf Outlet, Bayou Dupre to Bayou Yscloskey, St. Bernard Parish, La., under Contract No. DA-16-047-CIVENG-60-24 with Bauer Dredging Co., Inc., Port Lavaca, Texas dated 29 July 1959 Funds: Construction, General.
Dredge CONICAL working vicinity Station 600+00. Low aerial photograph.

D/S # 12

NED-275-00000086