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U.S. Department of the Interior
U.S. Geological Survey

Scientific Investigations Map 3080
Pamphlet accompanies map

Land Area Change and Overview of Major Hurricane Impacts in Coastal Louisiana, 2004-08

By John A. Barras

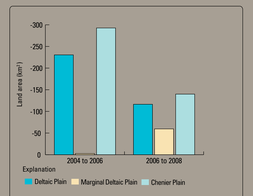


Figure 1. Net land area change by period and by physiographic province in coastal Louisiana, 2004–08.

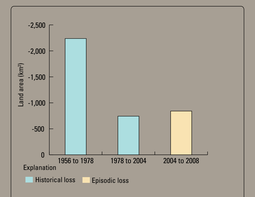


Figure 2. Net land area change by period in coastal Louisiana, 1956–2008. The net decrease in land area is estimated at 3,841 km². Estimates of land area change from 1956 to 1978 to 2004 are from Barras (2008).

Table 1. Land and water areas in coastal Louisiana by physiographic province, 2004–08.

[Area measurements provided in km²; TM, Landsat Thematic Mapper imagery classified by land and water]

Data set information			Deltaic Plain			Marginal Deltaic Plain			Chenier Plain			Coastal Louisiana		
Date	Julian date[1]	Data source	Land	Water	Total	Land	Water	Total	Land	Water	Total	Land	Water	Total
11/7/2004	2004.9	TM	9,686.6	14,592.1	24,278.7	1,833.7	1,958.0	3,791.7	3,820.3	1,567.0	5,387.3	15,340.6	18,117.1	33,457.7
10/28/2006	2006.8	TM	9,456.1	14,822.6	24,278.7	1,831.1	1,960.6	3,791.7	3,527.6	1,859.7	5,387.3	14,814.8	18,642.9	33,457.7
10/1/2008	2008.8	TM	9,331.8	14,946.9	24,278.7	1,771.6	2,020.1	3,791.7	3,387.7	1,999.6	5,387.3	14,491.1	18,966.6	33,457.7

[1]Represents the acquisition date for Landsat Worldwide Reference System, Path 22 and Rows 39–40 only, and provides a general date of reference for other scenes making up each coastal land-water dataset.

Table 2. Changes in land area and rates of land loss in coastal Louisiana by period and physiographic province, 2004–08.

[Area change measurements provided in km² (negative measurements indicate land loss, while positive ones indicate land gain); percent area change equals area change per period divided by total area change from 2004 to 2008]

Period	Years	Deltaic Plain		Marginal Deltaic Plain		Chenier Plain		Coastal Louisiana	
		Area change	Percent area change	Area change	Percent area change	Area change	Percent area change	Area change	Percent area change
[1]2004 to 2006	2	-230.5	-65	-2.6	-4.2	-292.7	-67.7	-525.8	-61.9
[2]2006 to 2008	2	-124.3	-35	-59.5	-95.8	-139.9	-32.3	[3]-323.7	-38.1
2004 to 2008	4	-354.8	100	-62.1	100	-432.6	100	[3]-849.5	100

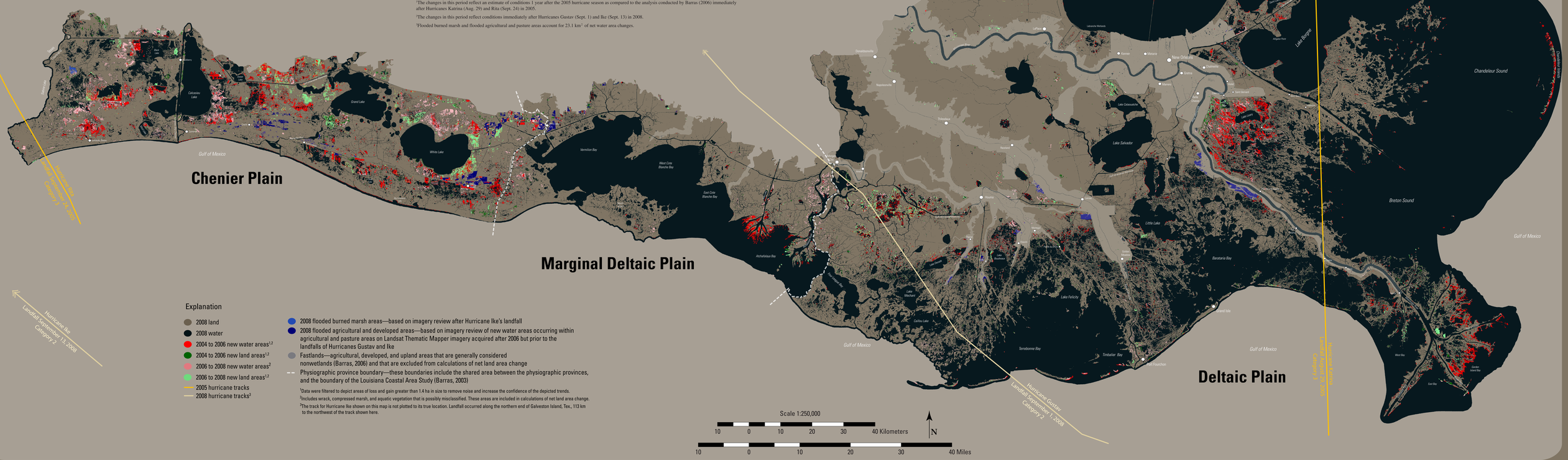
[1]The changes in this period reflect an estimate of conditions 1 year after the 2005 hurricane season as compared to the analysis conducted by Barras (2006) immediately after Hurricanes Katrina (Aug. 29) and Rita (Sept. 24) in 2005.

[2]The changes in this period reflect conditions immediately after Hurricanes Gustav (Sept. 1) and Ike (Sept. 13) in 2008.

[3]Flooded burned marsh and flooded agricultural and pasture areas account for 23.1 km² of net water area changes.

Image Source:
Landsat 5 Thematic Mapper satellite imagery is provided by the U.S. Geological Survey Center for Earth Resources Observation and Science.

The background land-water image represents data acquired from west to east on September 29, October 8, October 1, and October 26, 2008, that is classified by types of land and water coverage.

Suggested citation:
Barras, J.A., 2009, Land area change and overview of major hurricane impacts in coastal Louisiana, 2004-08: U.S. Geological Survey Scientific Investigations Map 3080, scale 1:250,000, 6 p. pamphlet.

See pamphlet for references cited.