



# Hurricane Katrina: GIS Spatial Analysis of Flood Impacts in Mississippi

Developed by FEMA, Mitigation Section,  
Hazards & Performance Analysis Group

DR-1604-MS – Jackson – AFO

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**FEMA**



# HURRICANE KATRINA FLOOD: GIS SPATIAL ANALYSIS OF FLOOD IMPACTS IN MISSISSIPPI

## DR-1604-MS

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# HURRICANE KATRINA FLOOD: GIS SPATIAL ANALYSIS OF FLOOD IMPACTS IN MISSISSIPPI

## DR-1604-MS

### Acronyms & Abbreviations

#### ABFE

Advisory Base Flood Elevation

#### BFE

Base Flood Elevation

#### DHS

Department of Homeland Security

#### FEMA

Federal Emergency Management Agency

#### FIRM

Flood Insurance Rate Map

#### GIS

Geographic Information System(s)

#### HPA

Hazards & Performance Analysis

#### IA

Individual Assistance

#### MARIS

Mississippi Automated Resource Information System

#### NEMIS

National Emergency Management Information System

#### NFIP

National Flood Insurance Program

#### NOAA

National Oceanic and Atmospheric Administration

#### Q3

Quality Level 3; refers to a digital version of a Flood Insurance Rate Map (note: Q3 Data refers to the flood zone information represented on the map)

#### RSDE

Residential Substantial Damage Estimate

### Glossary

#### 100-YEAR FLOOD

A 100-year flood is a flood that has a 1-percent chance of being equaled or exceeded in any given year. A base flood may also be referred to as a 100-year storm and the area inundated during the base flood is sometimes called the 100-year floodplain.

(for more information on flood hazard zone designations see <http://www.fema.gov>)

#### 500-YEAR FLOOD

A 500-year flood is a flood that has a .2-percent chance of being equaled or exceeded in any given year.

#### BASE FLOOD ELEVATION

A Base Flood Elevation (BFE) is the height of the base flood, usually in feet, in relation to the National Geodetic Vertical Datum of 1929, the North American Vertical Datum of 1988, or other datum referenced in the Flood Insurance Study report, or average depth of the base flood, usually in feet, above the ground surface.

#### BLOCK

A subdivision of a census tract (or, prior to 2000, a block numbering area), a block is the smallest geographic unit for which the Census Bureau tabulates 100-percent data.

#### CENTROID

The centroid is the point at the geometric center of a shape.

#### CENTRUS

Centrus™ is a comprehensive suite of data enhancement, data quality, data analysis and Internet data delivery products and services. Centrus technologies perform processes, such as geocoding, spatial analysis, address standardization, demographics appendage, point-in-polygon and primary market analysis, data consolidation, and more.

#### GEOCODING

Geocoding is the process of associating geographic coordinates or grid cell identifiers to data, points, lines, and shapes.

#### MAXIMUM SUSTAINED WIND VELOCITY

Maximum wind speed determined by averaging observed values over a two-minute period.

#### PEAK WIND GUST

The peak wind gust is the highest instantaneous wind speed observed or recorded.

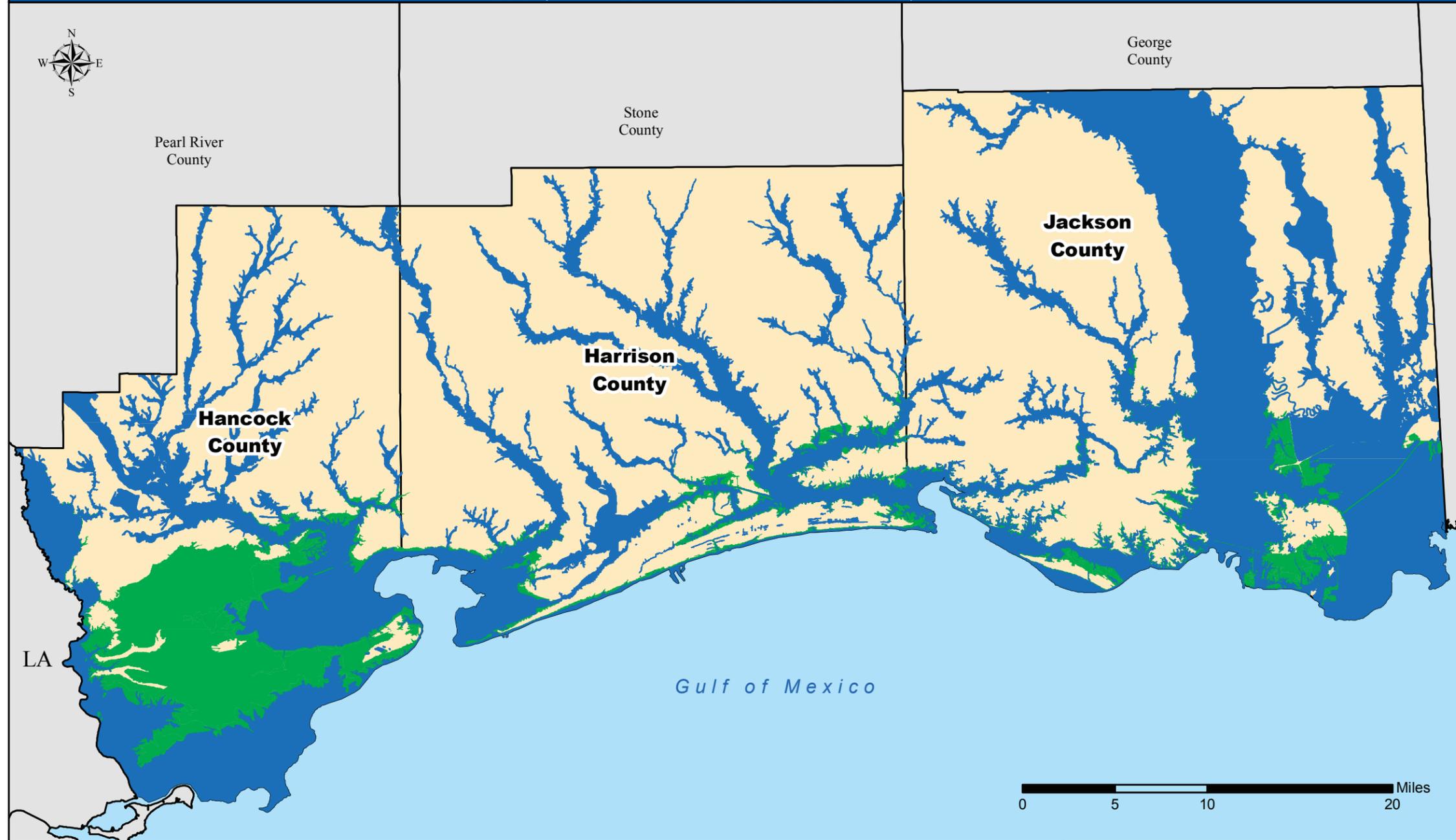
# HURRICANE KATRINA FLOOD: GIS SPATIAL ANALYSIS OF FLOOD IMPACTS IN MISSISSIPPI

## SECTION 1

### POST HURRICANE KATRINA BASE FLOOD ELEVATION AND Q3 COMPARISON

# POST HURRICANE KATRINA ADVISORY BASE FLOOD ELEVATION AND Q3 COMPARISON

HANCOCK, HARRISON AND JACKSON COUNTIES, MS



### Legend

- ABFE Areas Outside 100 Year Flood Zone
- 100 Year Flood Zone (A, AE, AH, AO, VE)

Area Calculations	Hancock		Harrison		Jackson		Combined	
	SqMiles	Acres	SqMiles	Acres	SqMiles	Acres	SqMiles	Acres
ABFE areas outside 100yr Q3 Flood	93	59,520	13	8,320	22	14,080	128	81,920
100yr Q3 Flood	150	96,000	107	68,480	279	178,560	536	343,040

Source: FEMA, MARIS

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# POST HURRICANE KATRINA ADVISORY BASE FLOOD ELEVATION AND Q3 COMPARISON

HANCOCK COUNTY, MISSISSIPPI



### Legend

- ABFE Areas Outside 100 Year Flood Zone
- 100 Year Flood Zone (A, AE, AH, VE)

Area Calculations	Hancock	
	SqMiles	Acres
ABFE areas outside 100yr Q3 Flood	93	59,520
100yr Q3 Flood	150	96,000

Source: FEMA, MARIS

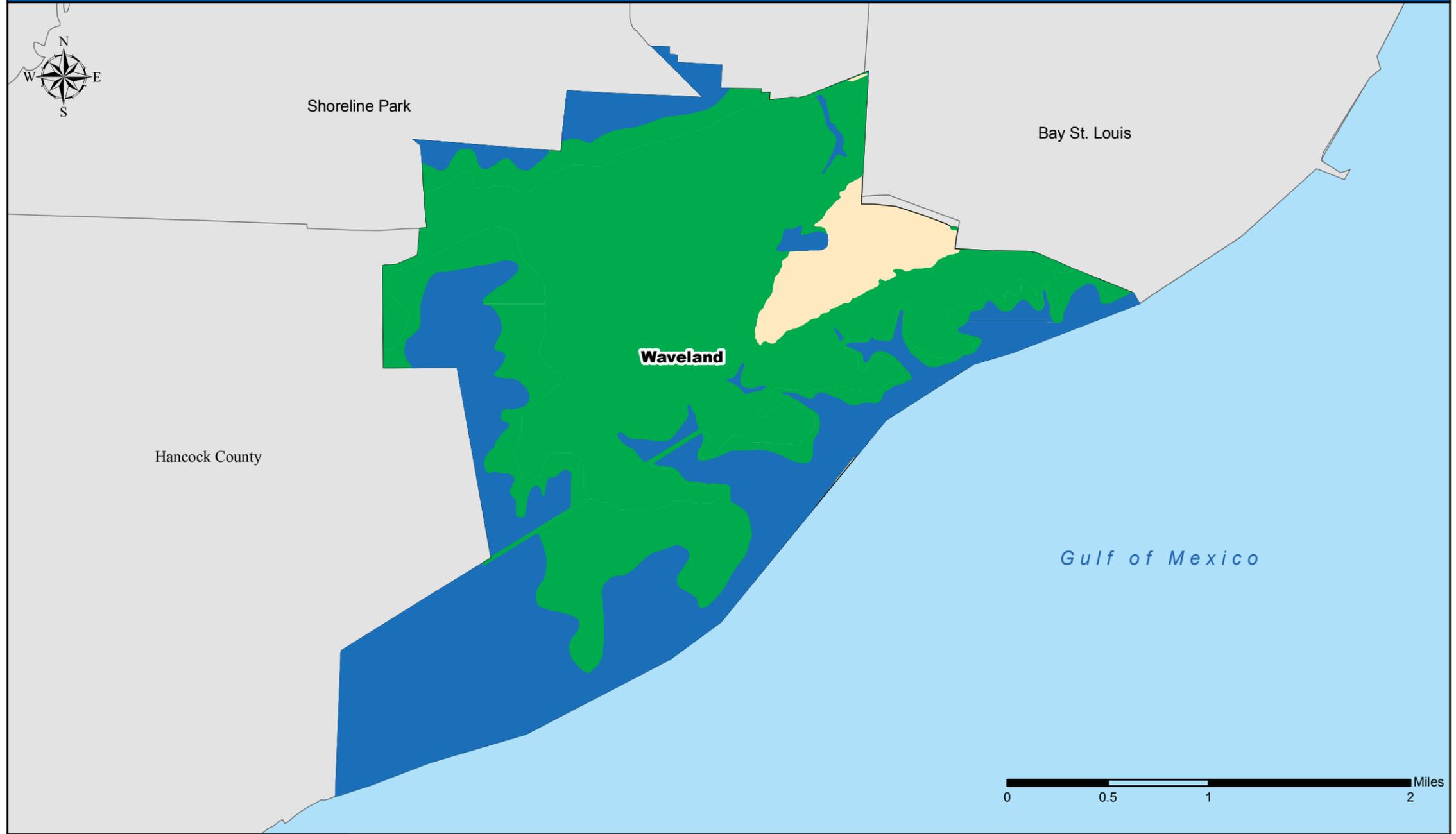
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# POST HURRICANE KATRINA ADVISORY BASE FLOOD ELEVATION AND Q3 COMPARISON

WAVELAND, MISSISSIPPI



## Legend

- ABFE Areas Outside 100 Year Flood Zone
- 100 Year Flood Zone (A, AE, AH, VE)

Area Calculations		Sq Miles	Acres
ABFE areas outside 100yr Q3 Flood		4	2560
100 yr Q3 Flood		2.47	1580.8

Source: FEMA, MARIS

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# POST HURRICANE KATRINA ADVISORY BASE FLOOD ELEVATION AND Q3 COMPARISON

BAY ST. LOUIS, MISSISSIPPI



## Legend

- ABFE Areas Outside 100 Year Flood Zone
- 100 Year Flood Zone (A, AE, AH, VE)

Area Calculations		Sq Miles	Acres
ABFE areas outside 100yr Q3 Flood	■	2.03	1299.2
100 yr Q3 Flood	■	1.55	992

Source: FEMA, MARIS

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# POST HURRICANE KATRINA ADVISORY BASE FLOOD ELEVATION AND Q3 COMPARISON

HARRISON COUNTY, MISSISSIPPI



### Legend

- ABFE Areas Outside 100 Year Flood Zone
- 100 Year Flood Zone (A, AE, AH, VE)

Area Calculations		Harrison	
		SqMiles	Acres
ABFE areas outside 100yr Q3 Flood		13	8,320
100yr Q3 Flood		107	68,480

Source: FEMA, MARIS

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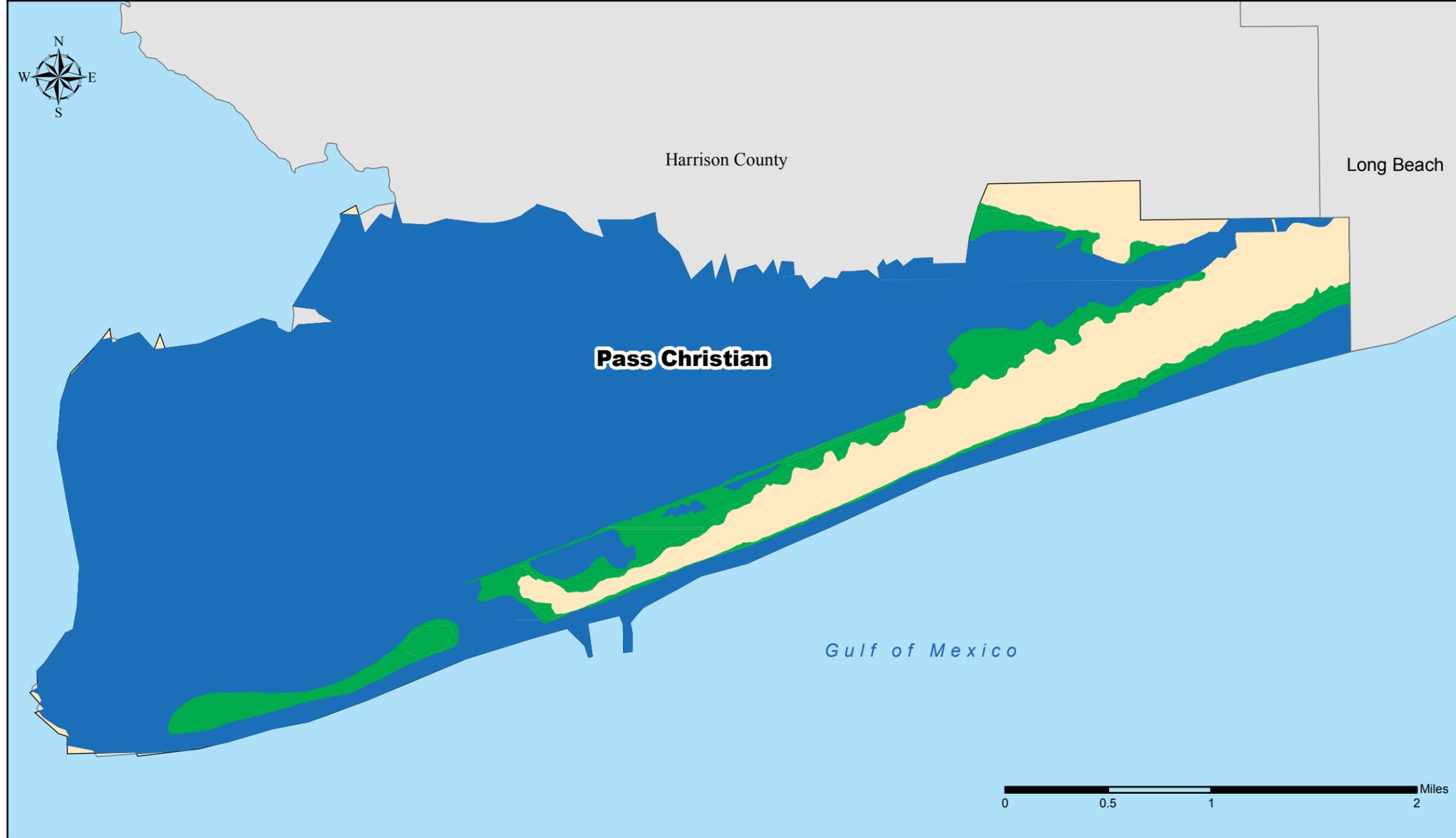
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# POST HURRICANE KATRINA ADVISORY BASE FLOOD ELEVATION AND Q3 COMPARISON

PASS CHRISTIAN, MISSISSIPPI



## Legend

- ABFE Areas Outside 100 Year Flood Zone
- 100 Year Flood Zone (AE, AH, VE)

Area Calculations		Sq Miles	Acres
ABFE areas outside 100yr Q3 Flood		0.79	505.6
100 yr Q3 Flood		7.66	4902.4

Source: FEMA, MARIS

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# POST HURRICANE KATRINA ADVISORY BASE FLOOD ELEVATION AND Q3 COMPARISON

LONG BEACH, MISSISSIPPI



### Legend

- ABFE Areas Outside 100 Year Flood Zone
- 100 Year Flood Zone (A, AE, VE)

Area Calculations		Sq Miles	Acres
ABFE areas outside 100yr Q3 Flood		0.43	275.2
100 yr Q3 Flood		3.05	1952

Source: FEMA, MARIS

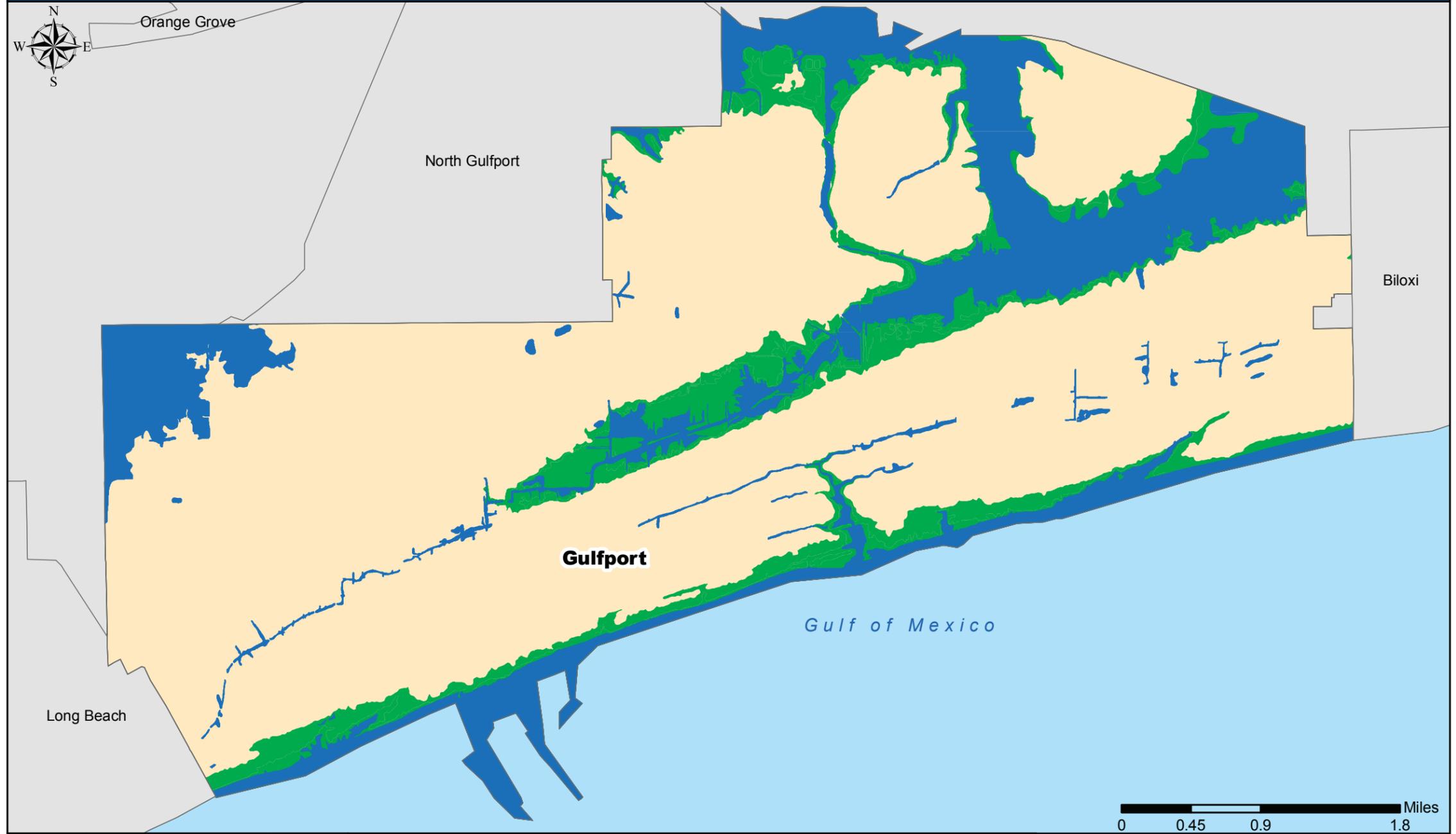
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# POST HURRICANE KATRINA ADVISORY BASE FLOOD ELEVATION AND Q3 COMPARISON

GULFPORT, MISSISSIPPI



## Legend

- ABFE Areas Outside 100 Year Flood Zone
- 100 Year Flood Zone (A - VE)

Area Calculations		Sq Miles	Acres
ABFE areas outside 100yr Q3 Flood	■	2.34	1497.6
100 yr Q3 Flood	■	4.31	2758.4

Source: FEMA, MARIS

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# POST HURRICANE KATRINA ADVISORY BASE FLOOD ELEVATION AND Q3 COMPARISON

BILOXI, MISSISSIPPI



**Legend**

- ABFE Areas Outside 100 Year Flood Zone
- 100 Year Flood Zone (A, AE, AH, VE)

Area Calculations		Sq Miles	Acres
ABFE areas outside 100yr Q3 Flood	<span style="color: green;">■</span>	2.51	1606.4
100 yr Q3 Flood	<span style="color: blue;">■</span>	9.34	5977.6

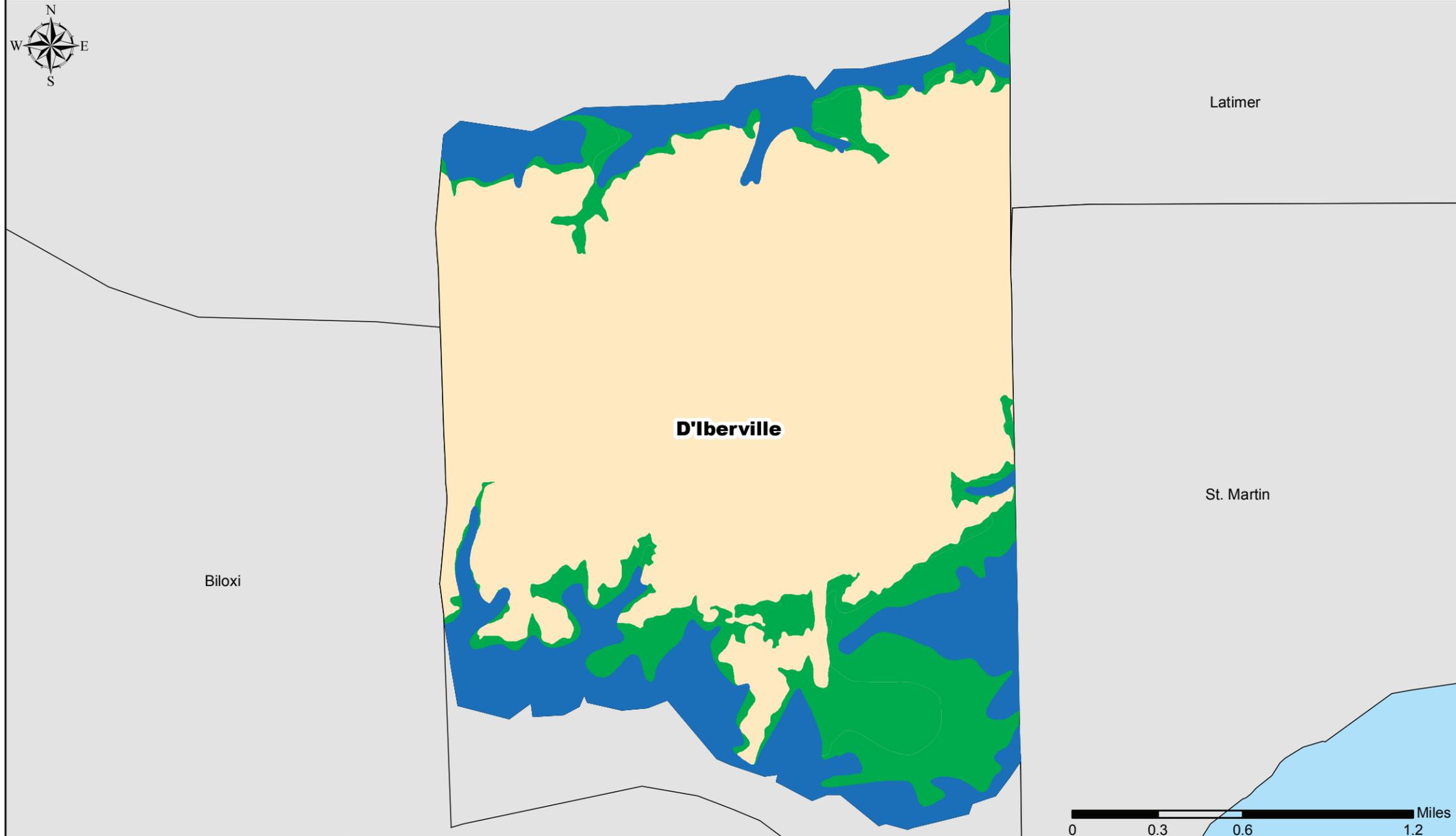
Source: FEMA, MARIS

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# POST HURRICANE KATRINA ADVISORY BASE FLOOD ELEVATION AND Q3 COMPARISON

D'IBERVILLE, MISSISSIPPI



## Legend

- ABFE Areas Outside 100 Year Flood Zone
- 100 Year Flood Zone (AE, VE)

Area Calculations		Sq Miles	Acres
ABFE areas outside 100yr Q3 Flood	■	0.34	217.6
100 yr Q3 Flood	■	0.85	544

Source: FEMA, MARIS

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# POST HURRICANE KATRINA ADVISORY BASE FLOOD ELEVATION AND Q3 COMPARISON

JACKSON COUNTY, MISSISSIPPI



### Legend

- ABFE Areas Outside 100 Year Flood Zone
- 100 Year Flood Zone (A, AE, AH, VE)

Area Calculations	Jackson	
	SqMiles	Acres
ABFE areas outside 100yr Q3 Flood	22	14,080
100yr Q3 Flood	279	178,560

Source: FEMA, MARIS

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# POST HURRICANE KATRINA ADVISORY BASE FLOOD ELEVATION AND Q3 COMPARISON

OCEAN SPRINGS, MISSISSIPPI



## Legend

- ABFE Areas Outside 100 Year Flood Zone
- 100 Year Flood Zone (A, AE, AH, VE)

Area Calculations		Sq Miles	Acres
ABFE areas outside 100yr Q3 Flood		0.5	320
100 yr Q3 Flood		3.19	2041.6

Source: FEMA, MARIS

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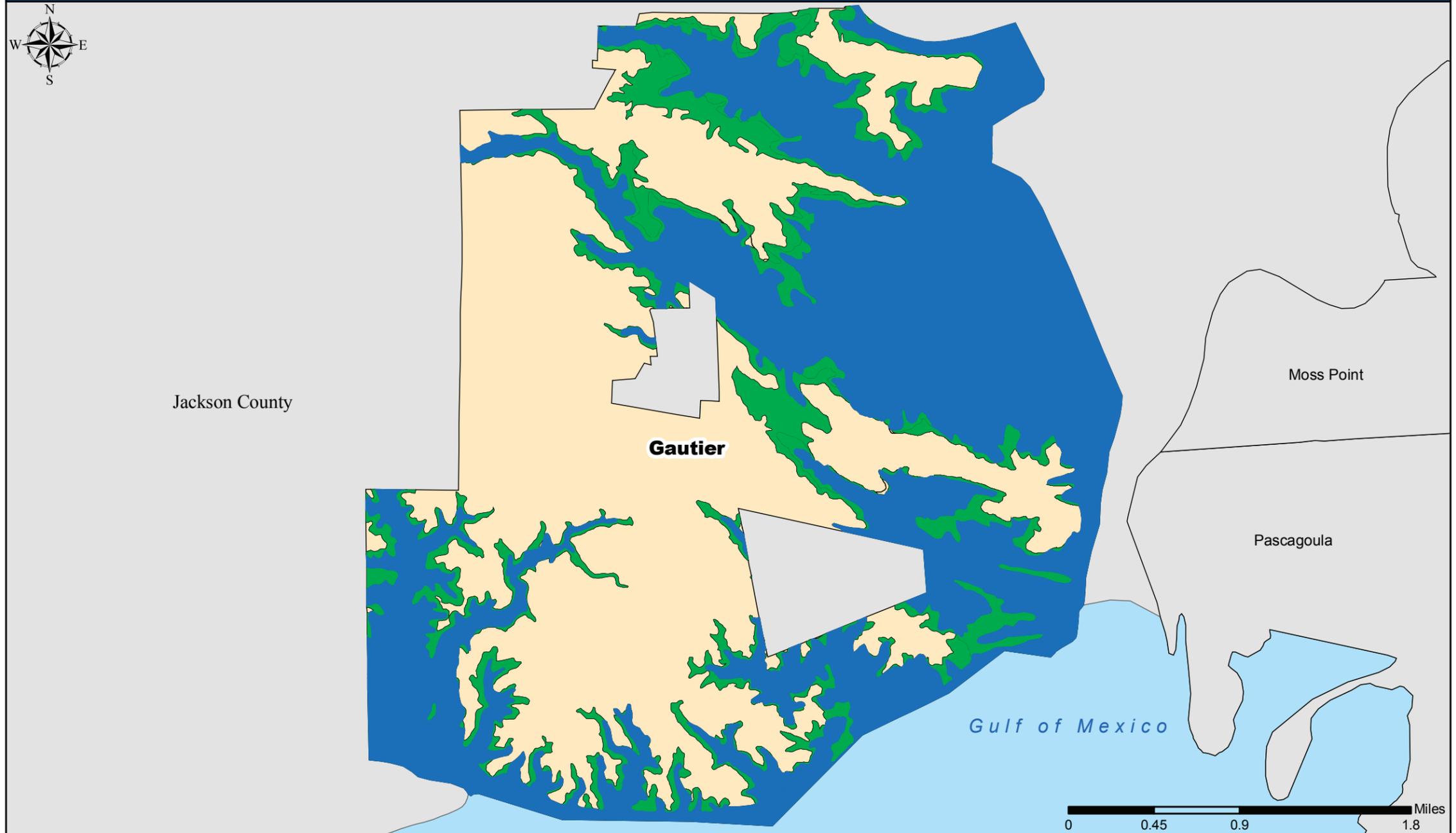
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# POST HURRICANE KATRINA ADVISORY BASE FLOOD ELEVATION AND Q3 COMPARISON

GAUTIER, MISSISSIPPI



## Legend

- ABFE Areas Outside 100 Year Flood Zone
- 100 Year Flood Zone (A, AE, VE)

Area Calculations		Sq Miles	Acres
ABFE areas outside 100yr Q3 Flood		1.43	915.2
100 yr Q3 Flood		5.35	3424

Source: FEMA, MARIS

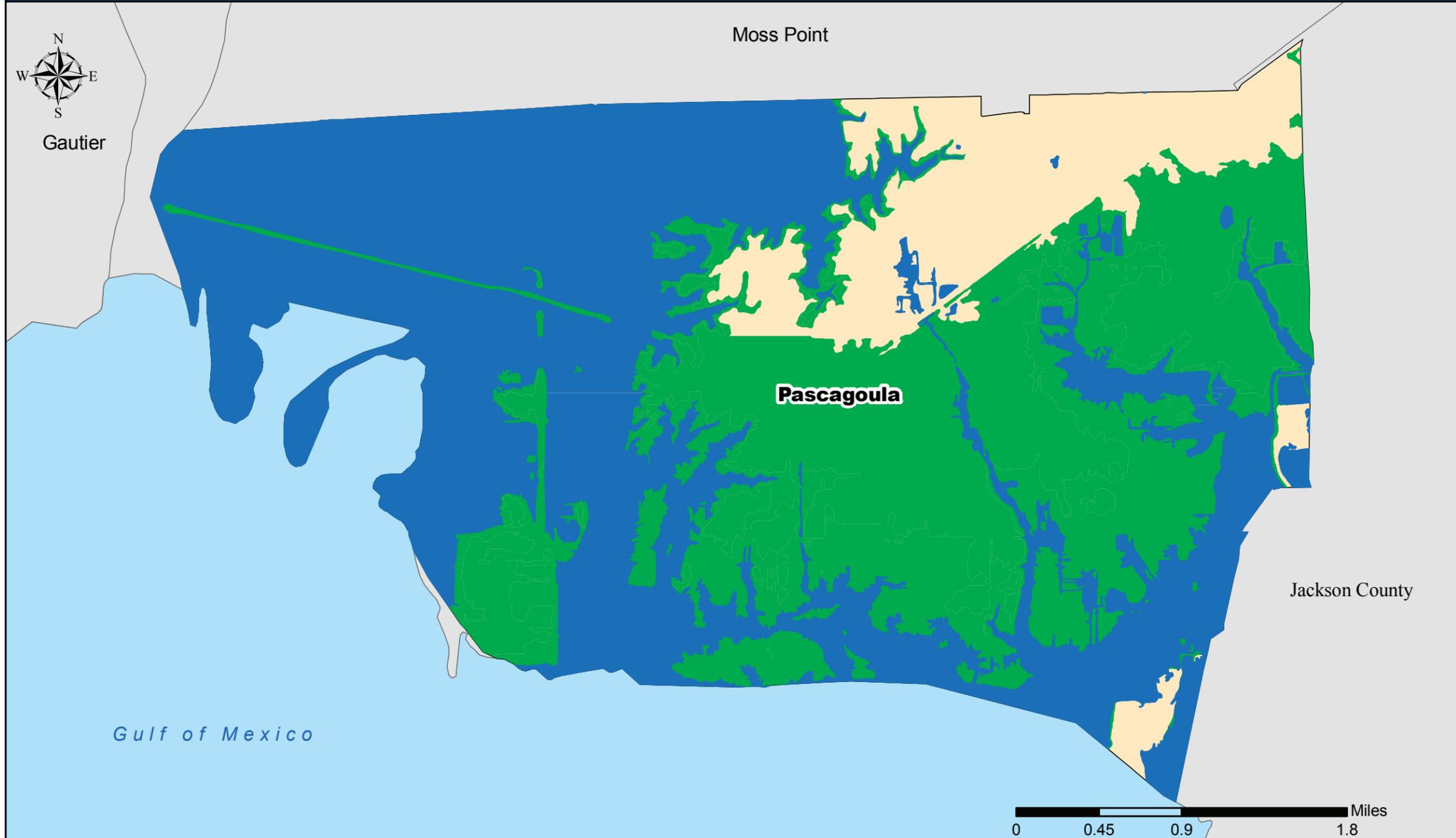
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# POST HURRICANE KATRINA ADVISORY BASE FLOOD ELEVATION AND Q3 COMPARISON

PASCAGOULA, MISSISSIPPI



## Legend

- ABFE Areas Outside 100 Year Flood Zone
- 100 Year Flood Zone (A, AE, AH, VE)

Area Calculations		Sq Miles	Acres
ABFE areas outside 100yr Q3 Flood		6.54	4185.6
100 yr Q3 Flood		8.15	5216

Source: FEMA, MARIS

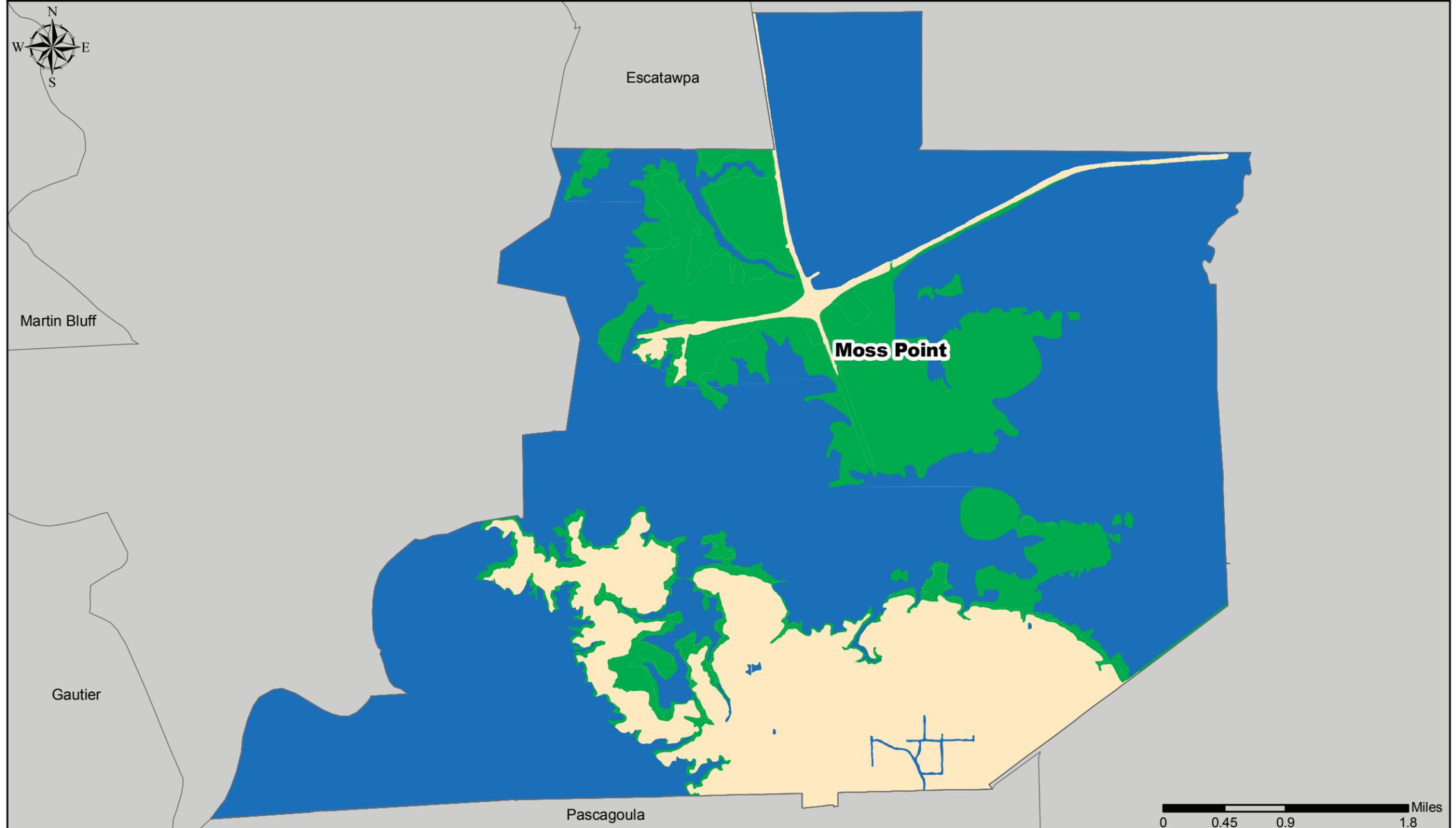
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# POST HURRICANE KATRINA ADVISORY BASE FLOOD ELEVATION AND Q3 COMPARISON

MOSS POINT, MISSISSIPPI



## Legend

- ABFE Areas Outside 100 Year Flood Zone
- 100 Year Flood Zone (A, AE, AH, VE)

Area Calculations		Sq Miles	Acres
ABFE areas outside 100yr Q3 Flood	■	4.72	3020.8
100 yr Q3 Flood	■	17.25	11040

Source: FEMA, MARIS

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# HURRICANE KATRINA FLOOD: GIS SPATIAL ANALYSIS OF FLOOD IMPACTS IN MISSISSIPPI

## SECTION 2

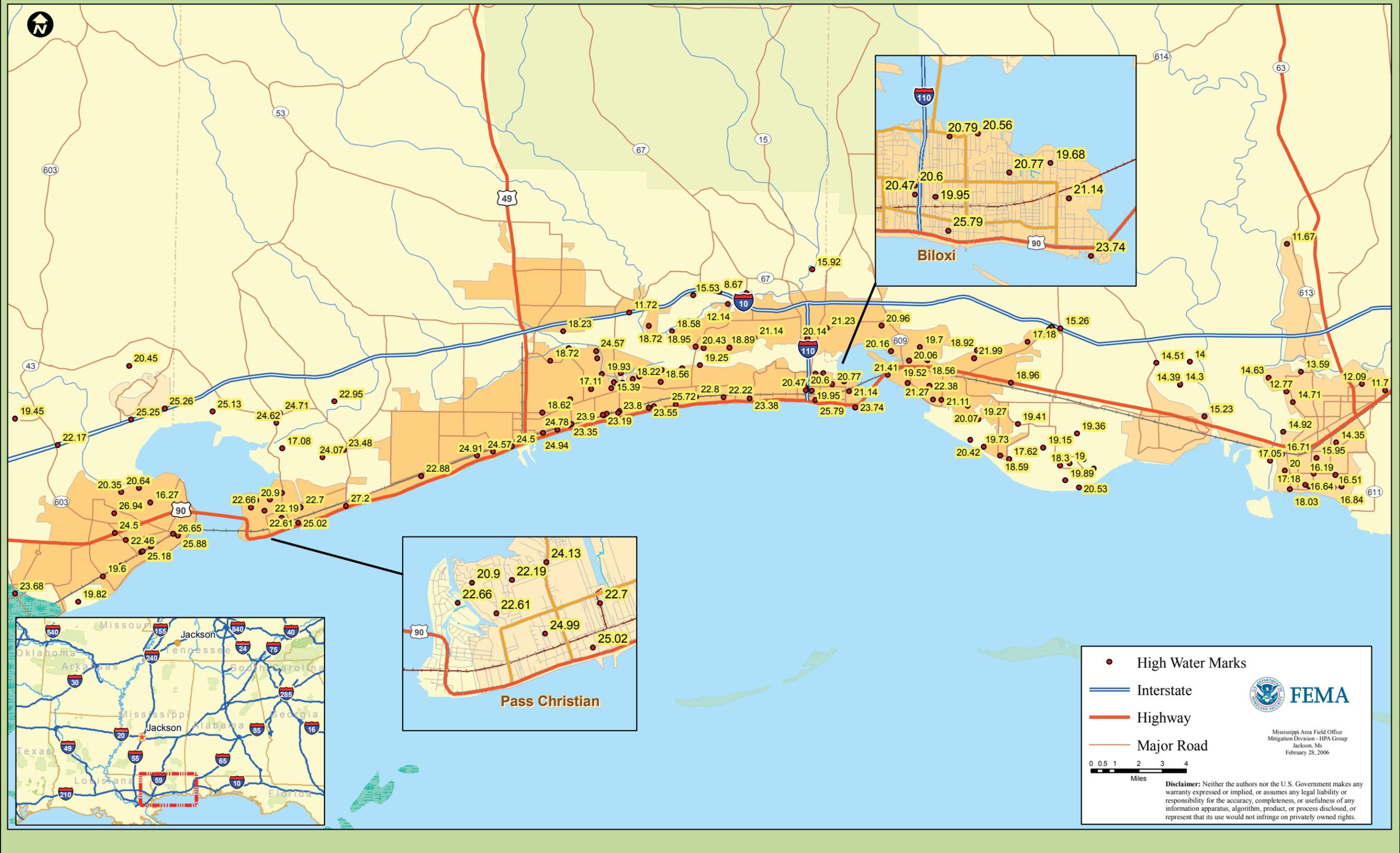
### COASTAL MISSISSIPPI HIGH WATER MARKS

# COASTAL MISSISSIPPI HIGH WATER MARKS

DR - 1604 - MS

COASTAL COUNTIES

HANCOCK, HARRISON, JACKSON



# HURRICANE KATRINA FLOOD: GIS SPATIAL ANALYSIS OF FLOOD IMPACTS IN MISSISSIPPI

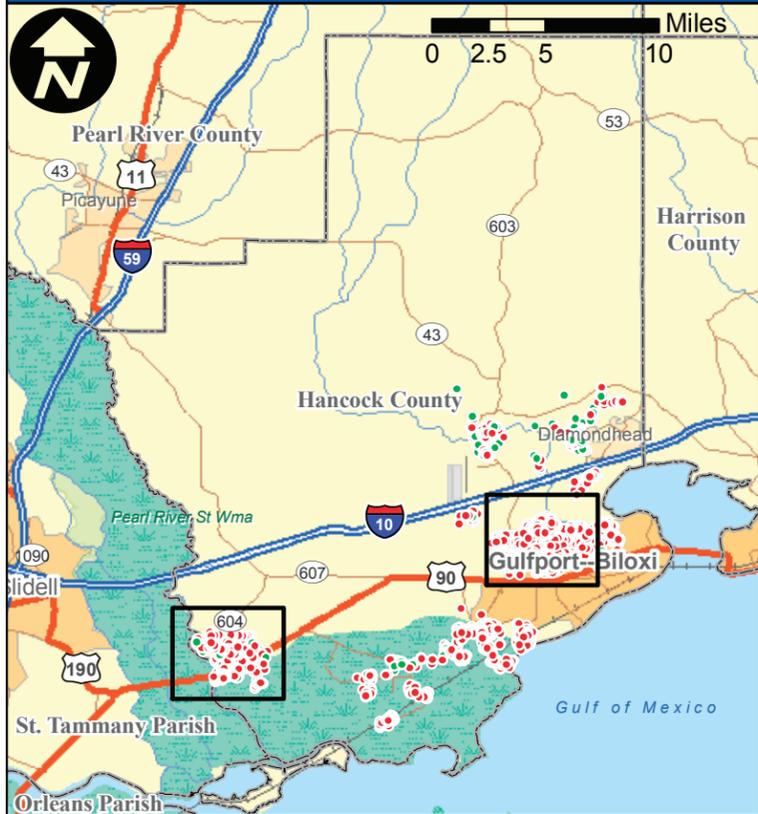
## SECTION 3

### RSDEs WITHIN 100 YEAR FLOOD ZONE

# RSDEs WITHIN 100 YEAR FLOOD ZONE

HANCOCK COUNTY UNINCORPORATED, MS

HURRICANE KATRINA: DR-1604-MS



## Residential Structures

Percent Damaged

- > 50% 244
- < 50% 4769

## Flood Advisory-Related Data

- Inland Limit of ABFE
- Limit of Wave Action

## Q3 Flood Delineation

- 100 Year Floodplain (A - VE)
- Limited Access
- Highway
- Major Road
- Local Road

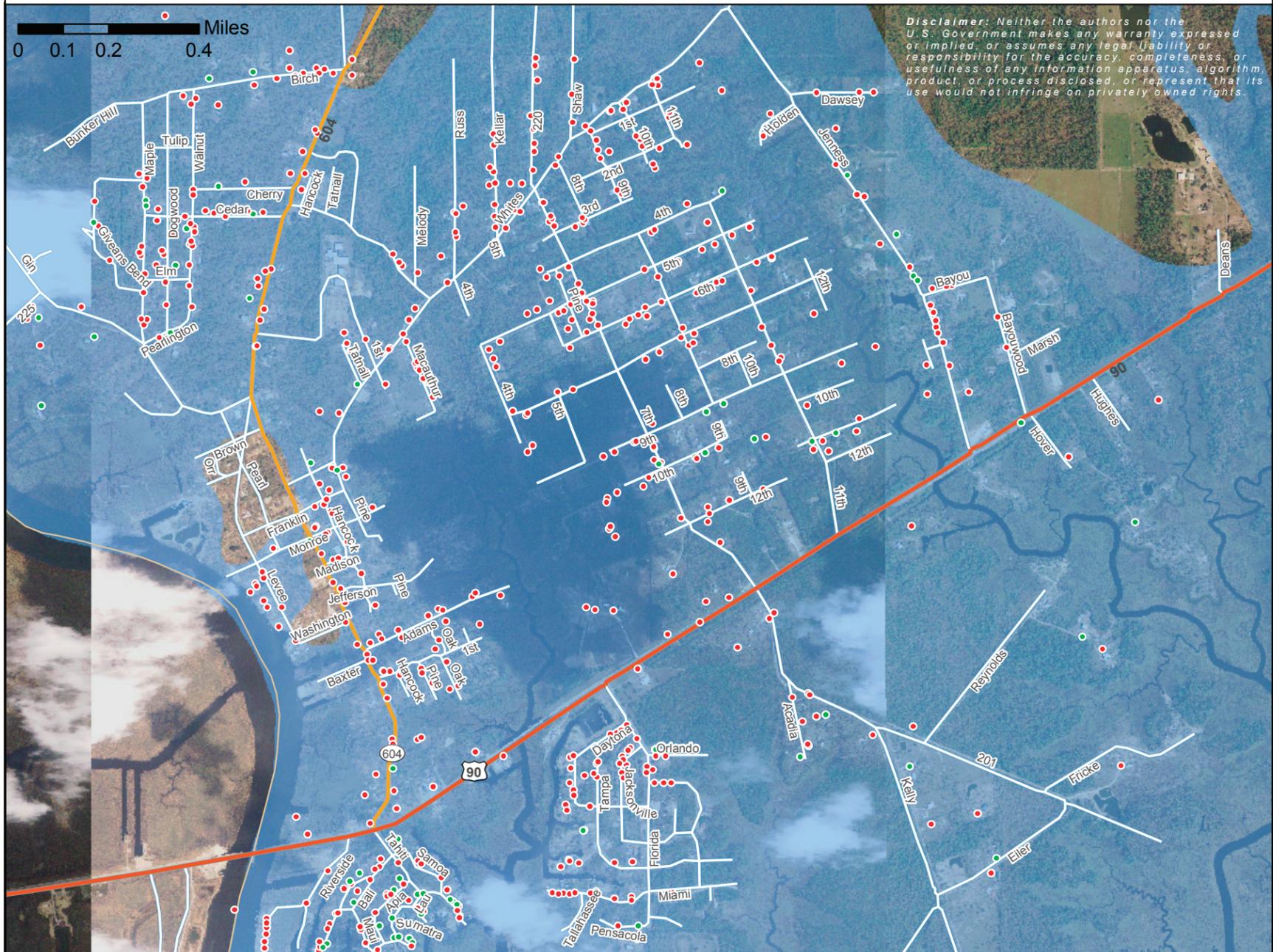
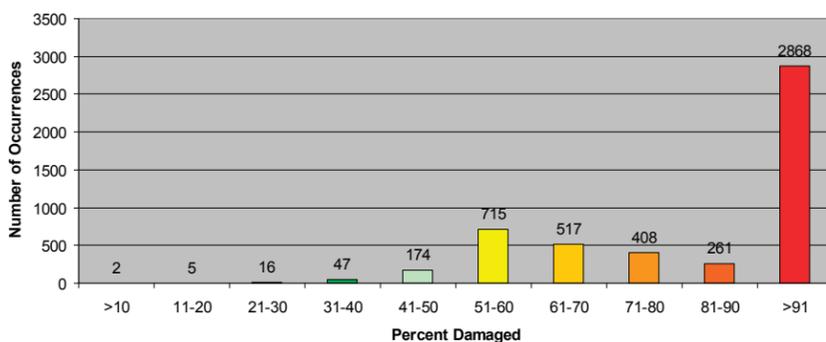


FEMA

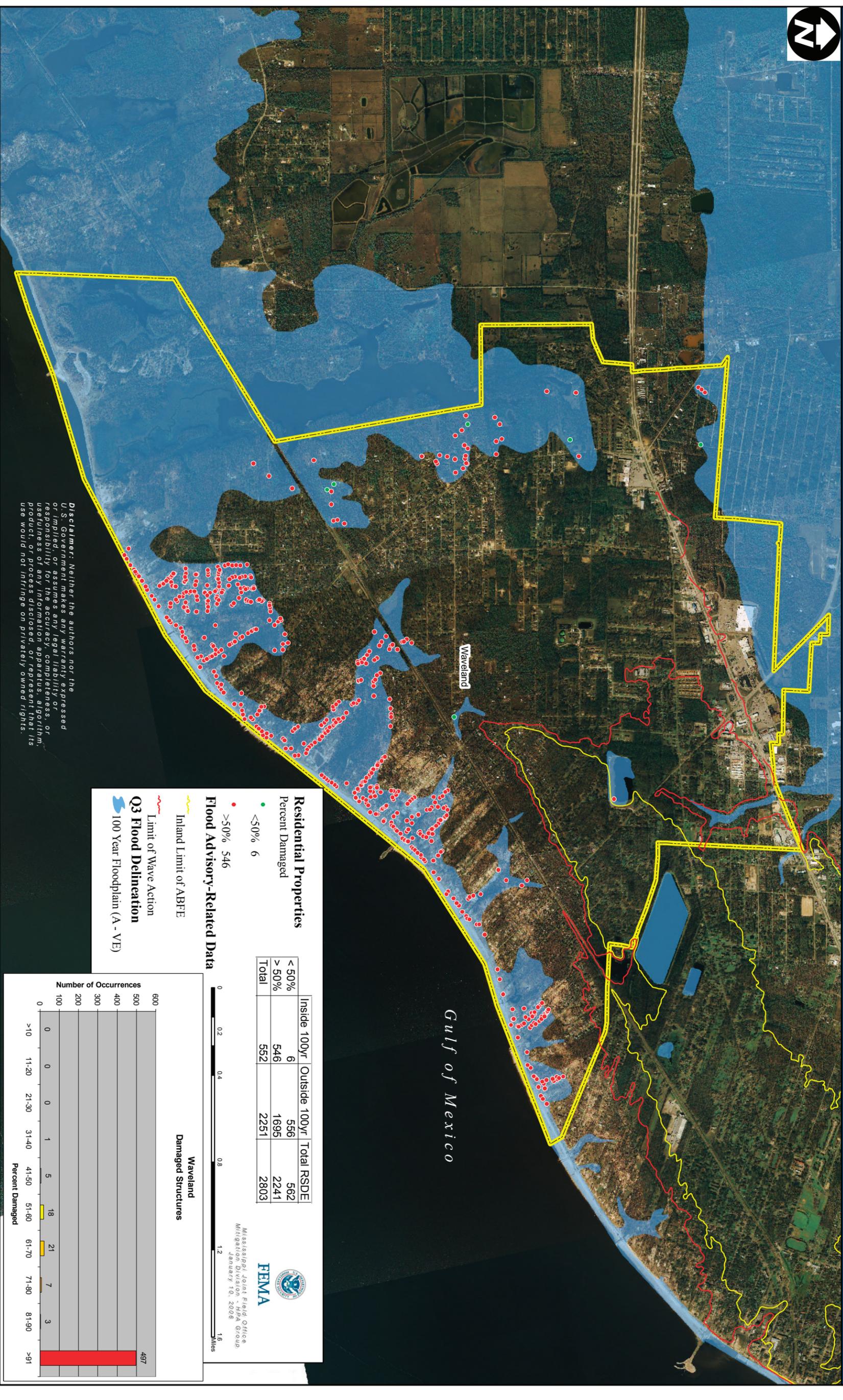
	Inside 100yr	Outside 100yr	Total RSDE
< 50%	244	110	354
> 50%	4769	196	4965
<b>Total</b>	<b>5013</b>	<b>306</b>	<b>5319</b>

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January 10, 2006

## Hancock County Unincorporated Damaged Structures



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**Residential Properties**

Percent Damaged	Inside 100yr	Outside 100yr	Total RSDE
< 50%	6	556	562
> 50%	546	1695	2241
<b>Total</b>	<b>552</b>	<b>2251</b>	<b>2803</b>

- >50% 546
- <50% 6

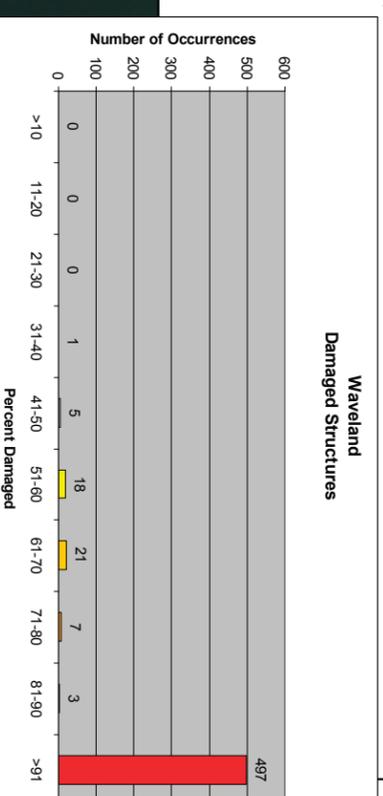
**Flood Advisory-Related Data**

- Inland Limit of ABFE
- Limit of Wave Action
- **Q3 Flood Delineation**
- 100 Year Floodplain (A - VE)



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 January 10, 2006

**Waveland Damaged Structures**



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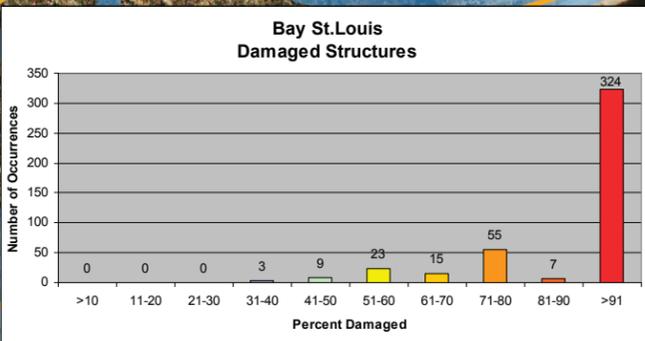
# RSDEs WITHIN 100 YEAR FLOOD ZONE

CITY OF BAY ST. LOUIS, MS

HURRICANE KATRINA: DR-1604-MS



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### Residential Properties

Percent Damaged

- <50% 12
- >50% 424

### Flood Advisory-Related Data

- Inland Limit of ABFE
- Limit of Wave Action

### Q3 Flood Delineation

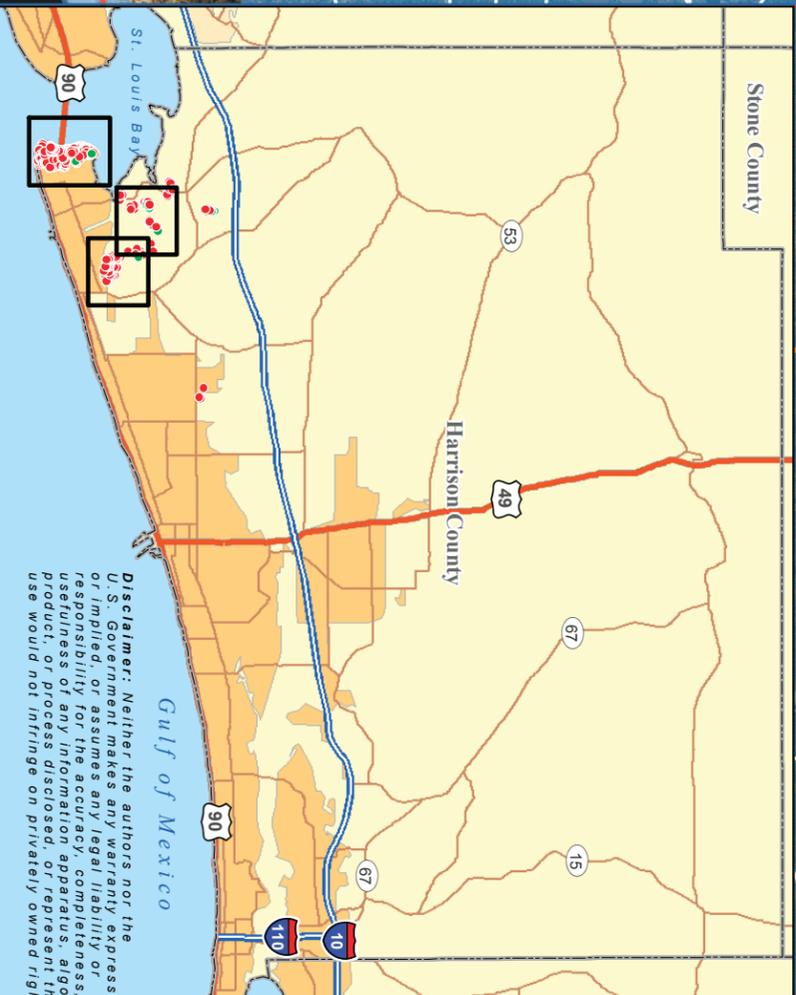
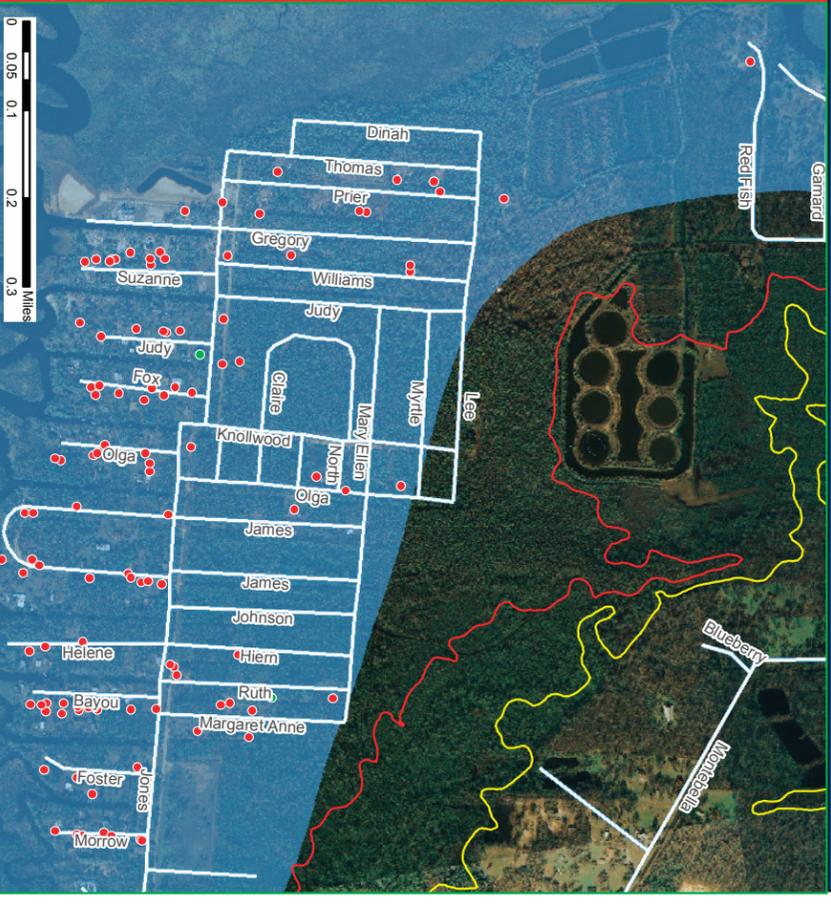
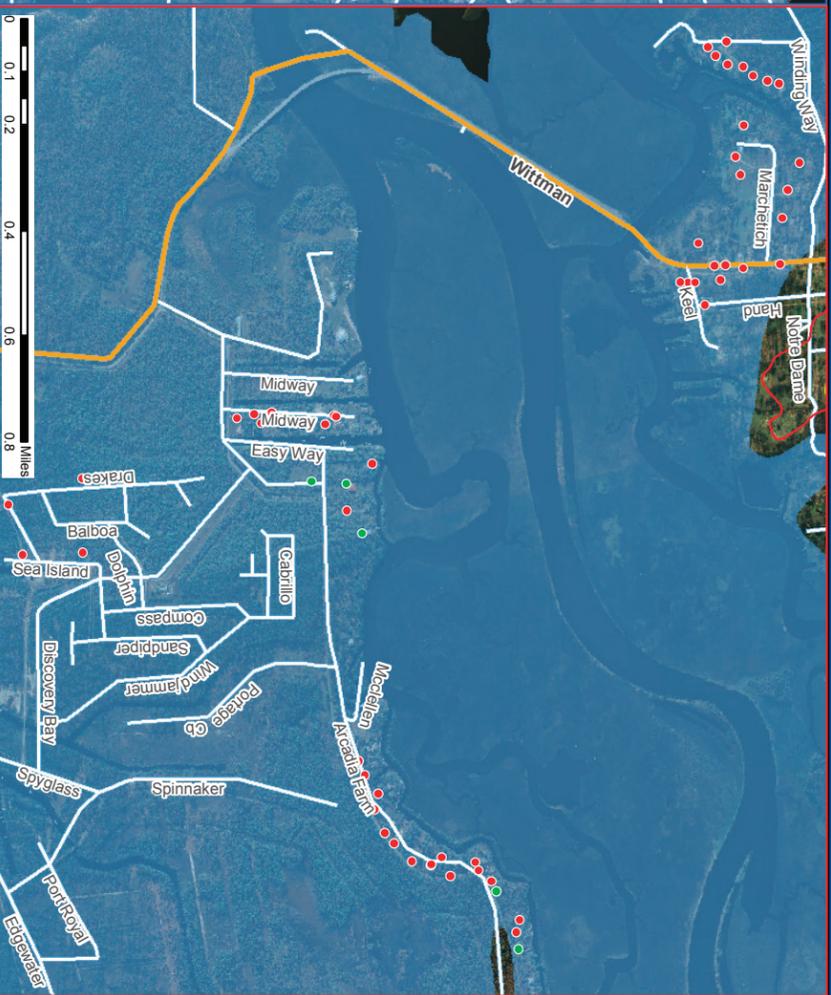
- 100 Year Floodplain (A-VE)
- Railroads (Local)
- Limited Access
- Highway
- Major Road

	Inside 100yr	Outside 100yr	Total RSDE
< 50%	12	906	918
>50%	424	947	1371
<b>Total</b>	<b>436</b>	<b>1853</b>	<b>2289</b>



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**RSDES WITHIN 100 YEAR FLOOD ZONE**



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**Residential Structures**

- Percent Damaged
  - <50% 19
  - >50% 751

**Flood Advisory-Related Data**

- Inland Limit of ABFE
- Major Road
- Highway
- Limited Access
- Railroads (Local)
- Local Road

**Q3 Flood Delineation**

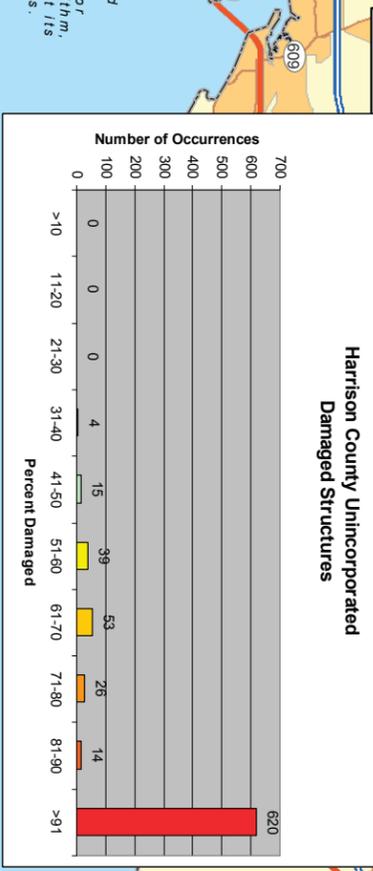
- 100 Year Floodplain (A - VE)

**Harrison County Unincorporated Damaged Structures**

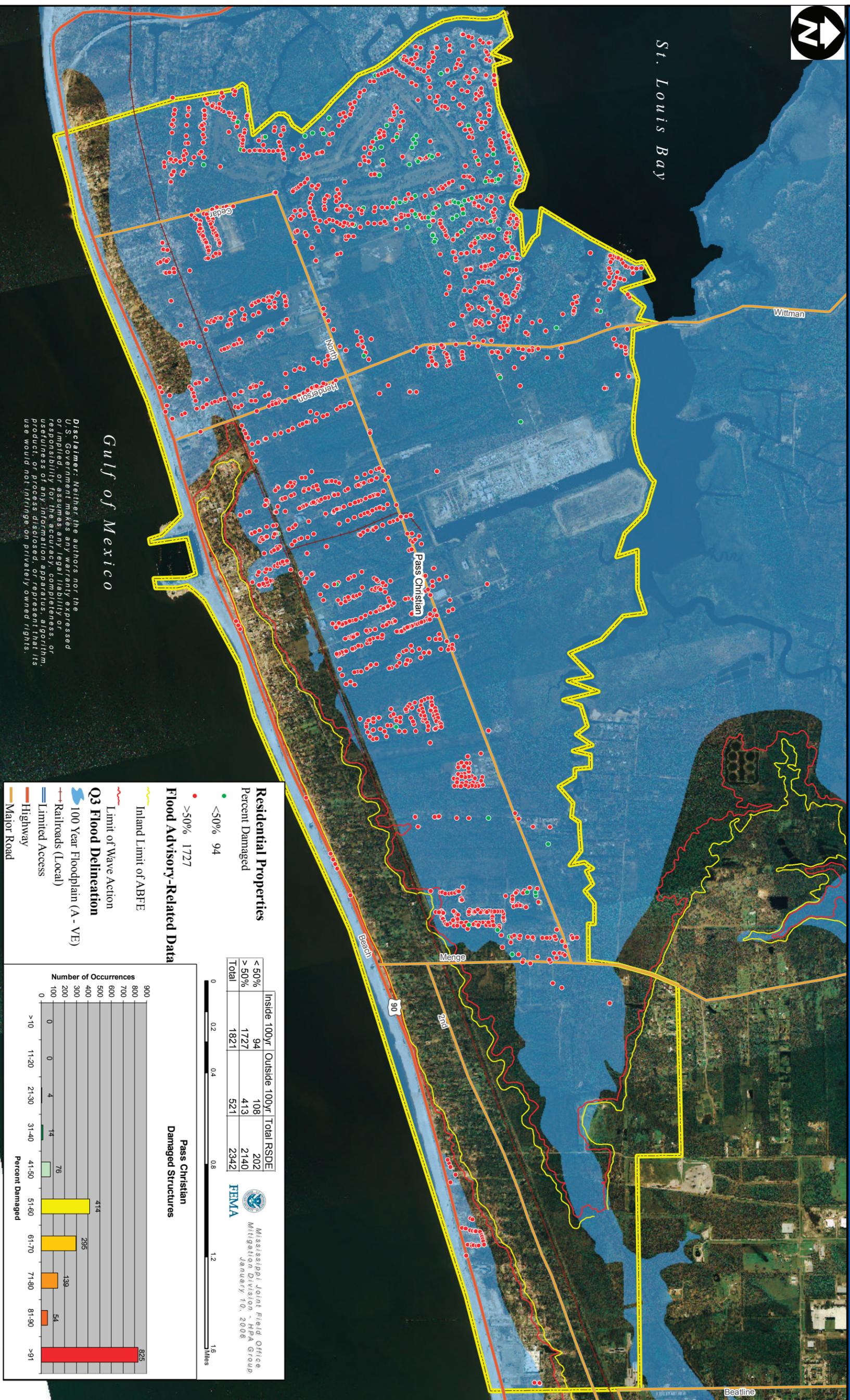
Percent Damaged	Inside 100Yr	Outside 100Yr	Total RSDE
< 50%	19	1	20
> 50%	752	30	782
<b>Total</b>	<b>771</b>	<b>31</b>	<b>802</b>

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Mitigation Division - FEMA Group  
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**FEMA**



**RSDES WITHIN 100 YEAR FLOOD ZONE**



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**Residential Properties**  
Percent Damaged

- <50% 94
- >50% 1727

**Flood Advisory-Related Data**

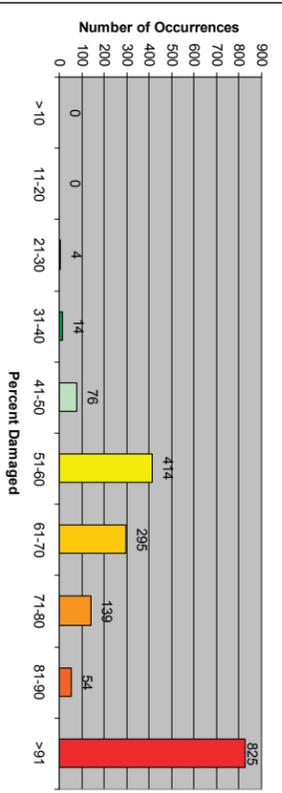
- Inland Limit of ABFE
- Limit of Wave Action
- Q3 Flood Delineation
- 100 Year Floodplain (A - VE)
- Railroads (Local)
- Limited Access
- Highway
- Major Road

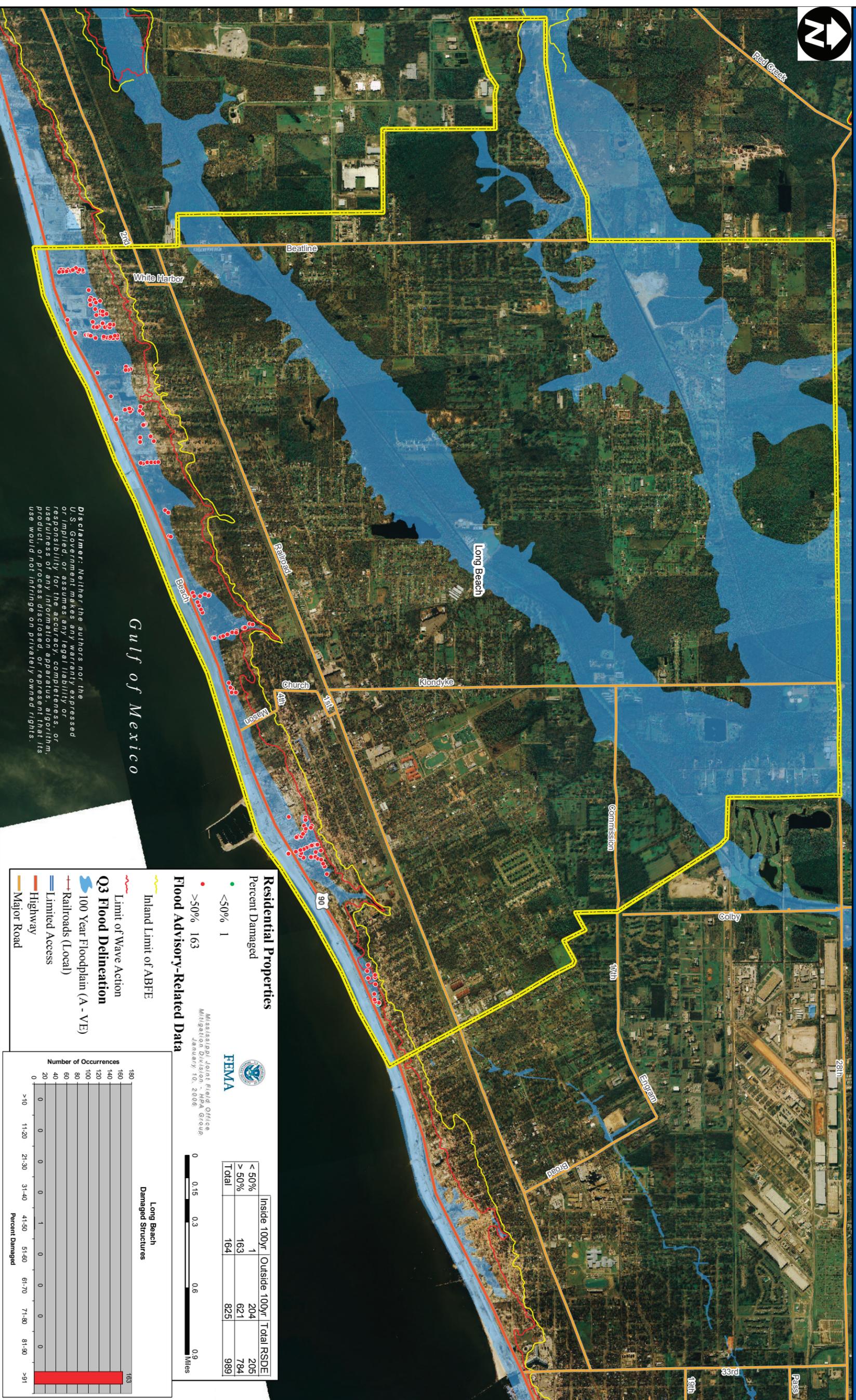
	Inside 100yr	Outside 100yr	Total
< 50%	94	108	202
> 50%	1727	413	2140
<b>Total</b>	<b>1821</b>	<b>521</b>	<b>2342</b>

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**Pass Christian Damaged Structures**





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*Gulf of Mexico*

**Residential Properties**

Percent Damaged

- <50% 1
- >50% 163

**Flood Advisory-Related Data**

- Inland Limit of ABEF
- Limit of Wave Action
- Q3 Flood Delineation
- 100 Year Floodplain (A - VE)
- Railroads (Local)
- Limited Access
- Highway
- Major Road

**Number of Occurrences**

Percent Damaged	Number of Occurrences
>10	0
11-20	0
21-30	0
31-40	0
41-50	1
51-60	0
61-70	0
71-80	0
81-90	0
>91	163

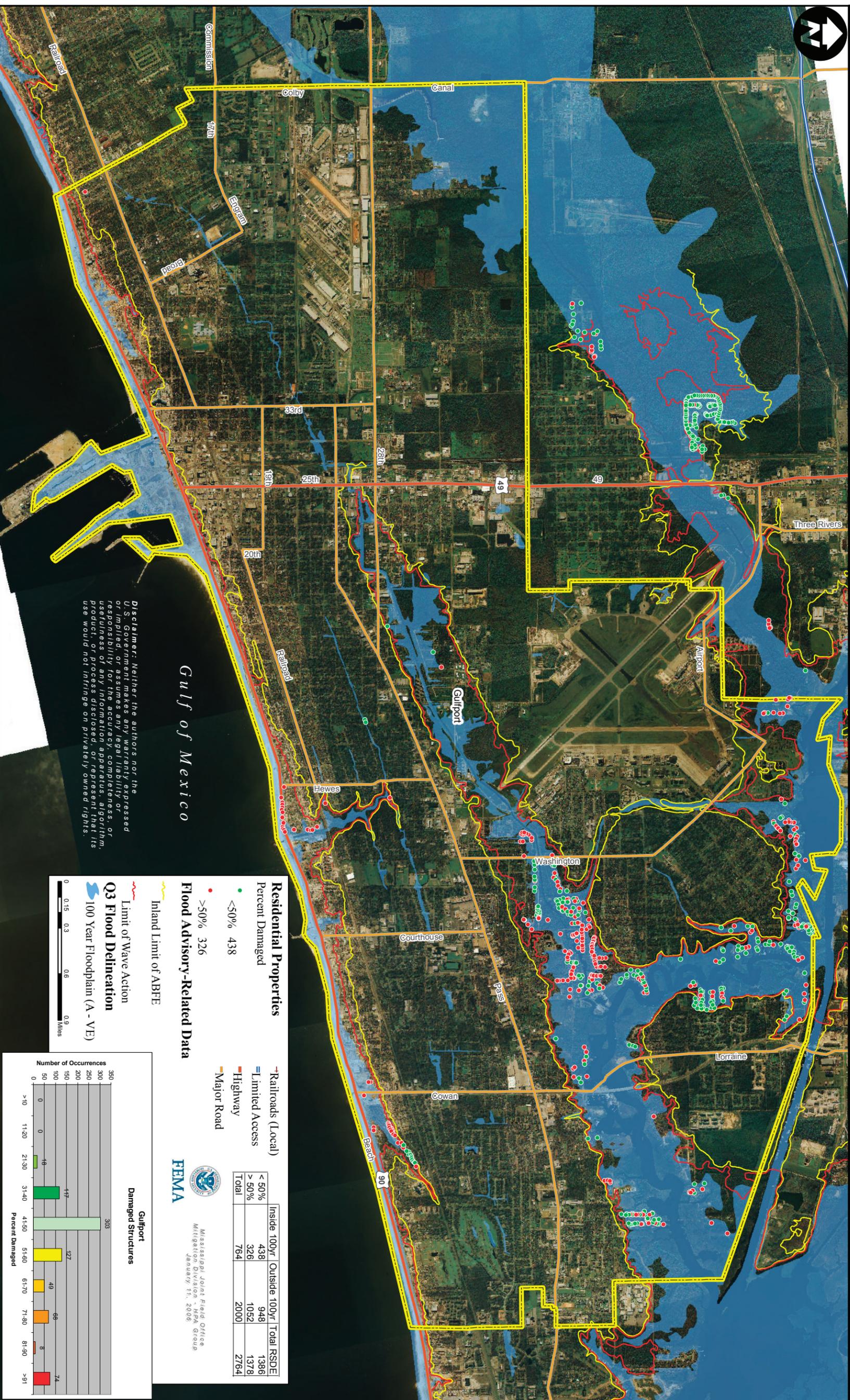
Long Beach  
Damaged Structures

**Summary Statistics**

Category	Inside 100yr	Outside 100yr	Total RSDE
< 50%	1	204	205
> 50%	163	621	784
<b>Total</b>	<b>164</b>	<b>825</b>	<b>989</b>

**Source:** FEMA, Mississippi Joint Field Office, Mitigation Division - HPA Group, January 10, 2008

**Scale:** 0 to 0.9 Miles



*Gulf of Mexico*

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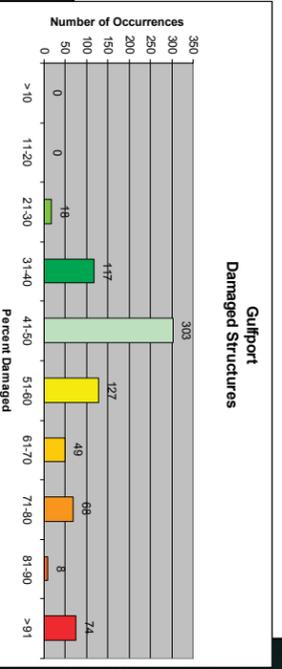
**Residential Properties Percent Damaged**

- <50% 438
- >50% 326

**Flood Advisory-Related Data**

- Inland Limit of ABFE
- Limit of Wave Action
- 03 Flood Delineation**
- 100 Year Floodplain (A - VE)

	Inside 100yr	Outside 100yr	Total RSDE
➤ Railroads (Local)	438	948	1386
➤ Limited Access	326	1052	1378
➤ Highway	764	2000	2764
➤ Major Road			





**Residential Structures Percent Damaged**

- <50% 163
- >50% 1072

**Flood Advisory-Related Data**

- Inland Limit of ABFE
- Limit of Wave Action
- Q3 Flood Delineation
- 100 Year Floodplain (A - VE)

**Railroads (Local)**

**Limited Access**

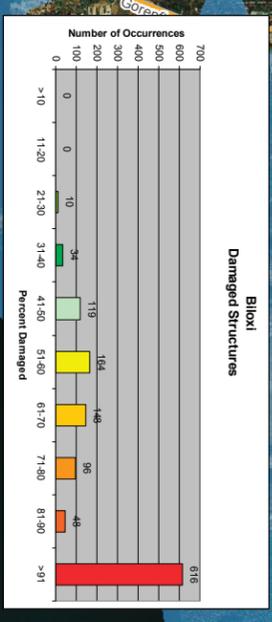
**Highway**

**Major Road**

**FEMA**

Mississippi Joint Field Office  
Mitigation Division - HPA Group  
January 10, 2008

	Inside 100Yr	Outside 100Yr	Total RSDE
<50%	163	971	1134
>50%	1072	1719	2791
<b>Total</b>	<b>1235</b>	<b>2690</b>	<b>3925</b>



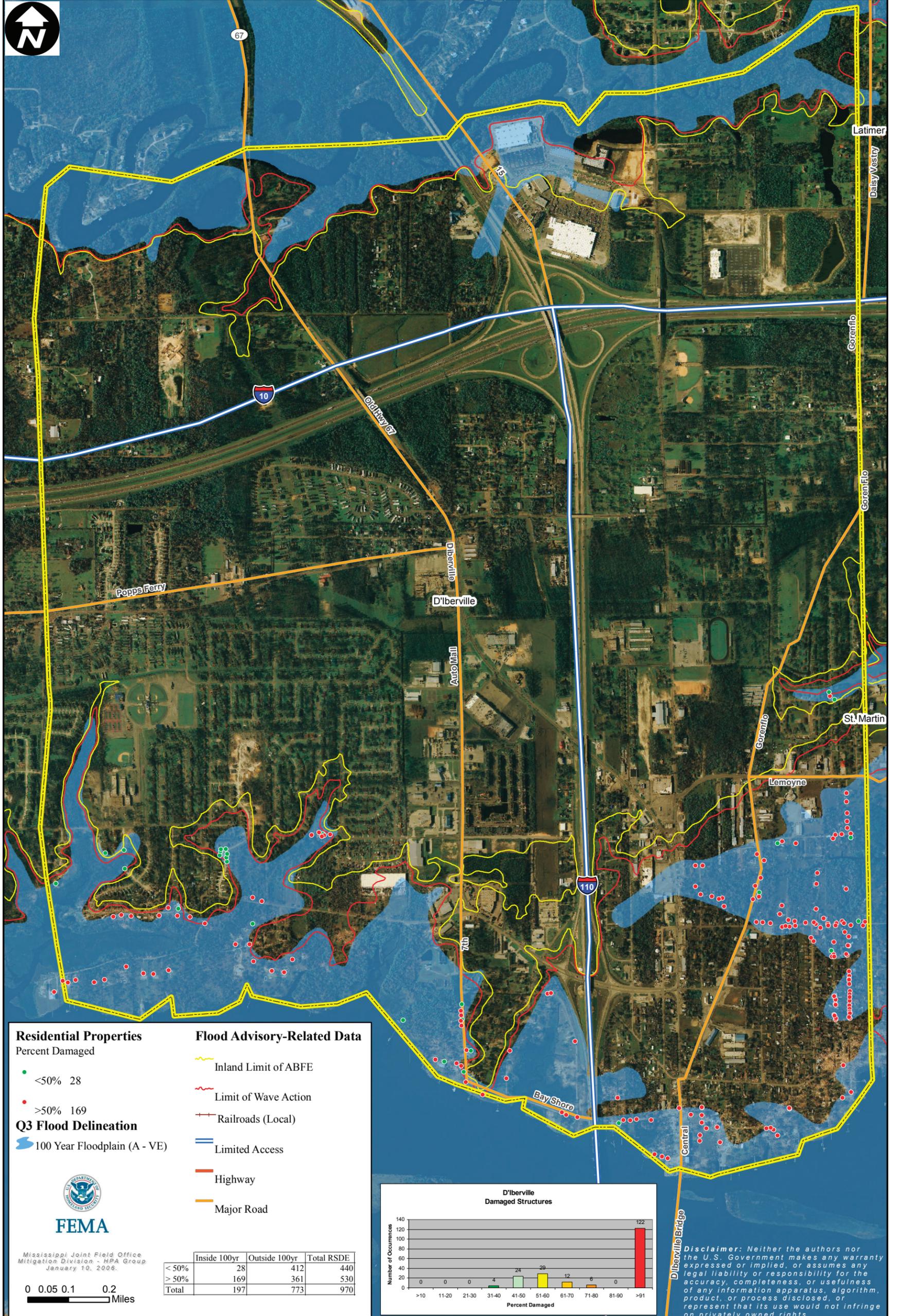
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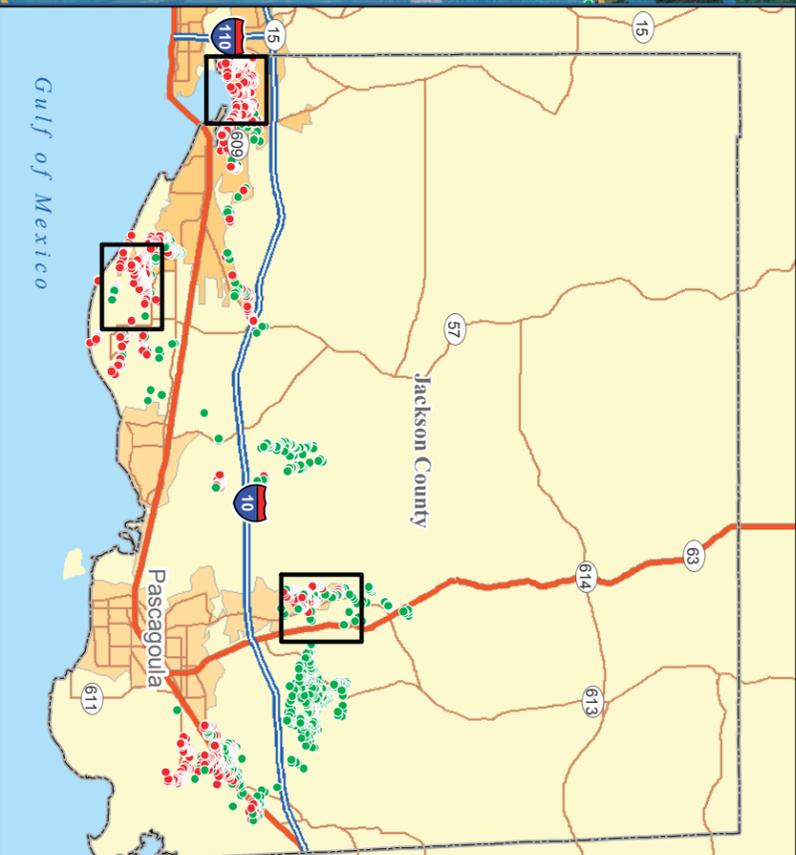
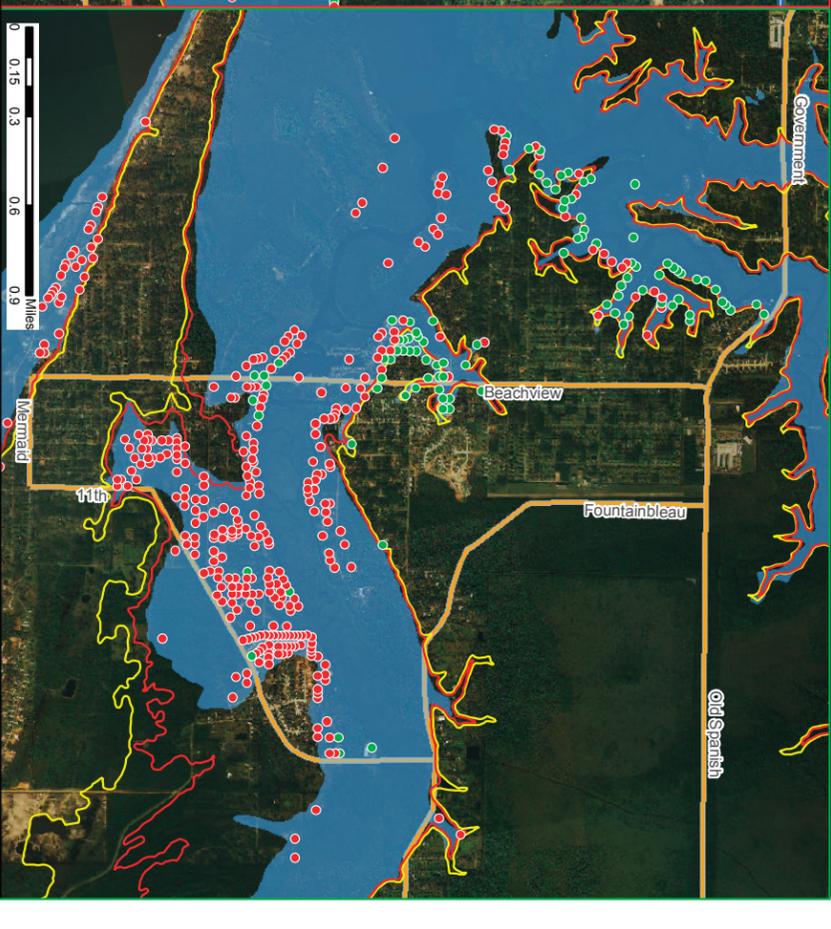
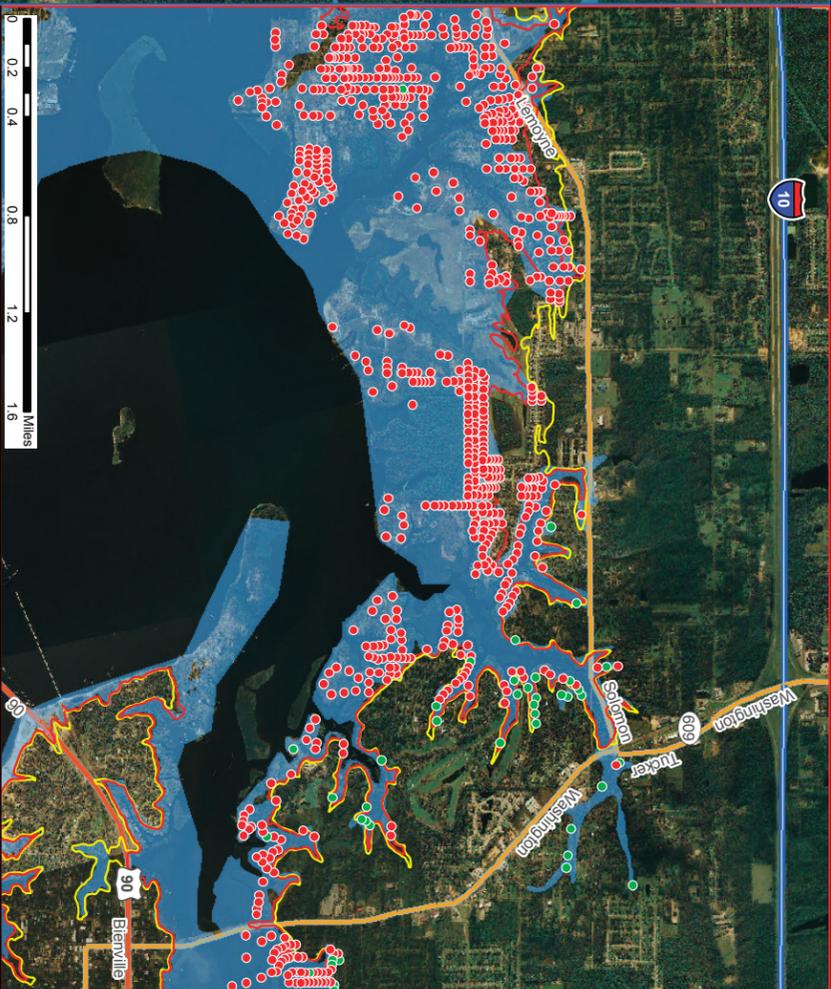
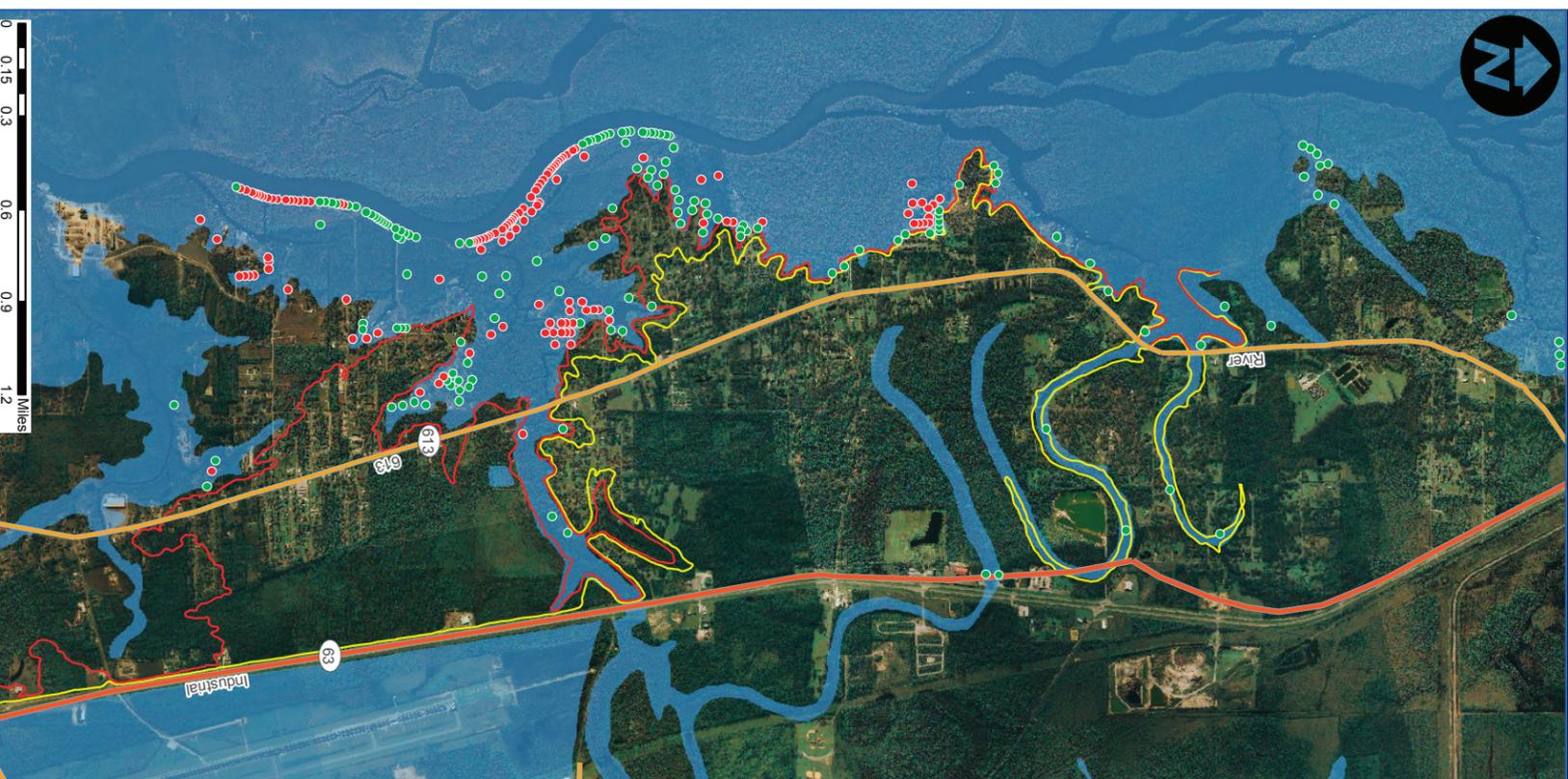
# RSDEs WITHIN 100 YEAR FLOOD ZONE

CITY OF D'IBERVILLE, MS

HURRICANE KATRINA: DR-1604-MS



**RSDES WITHIN 100 YEAR FLOOD ZONE**



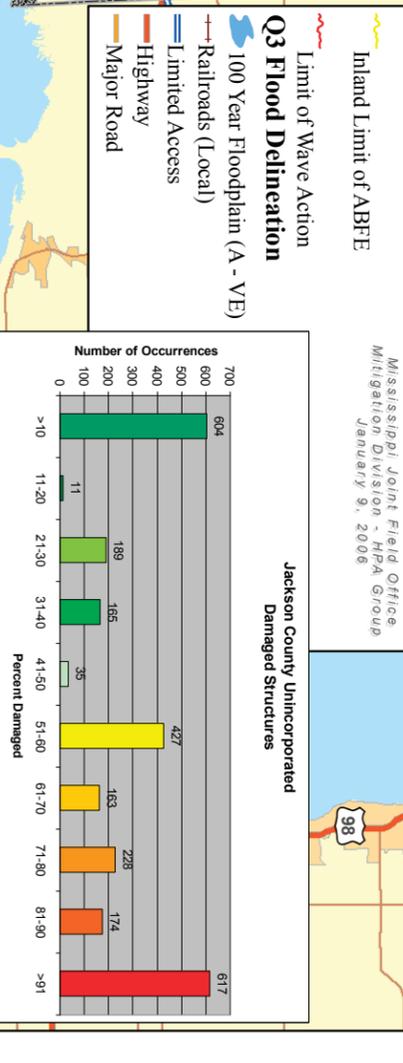
**Residential Properties**

Percent Damaged	Inside 100Yr	Outside 100Yr	Total RSDE
<50%	1004	537	1541
>50%	1609	278	1887
<b>Total</b>	<b>2613</b>	<b>815</b>	<b>3428</b>

**Flood Advisory-Related Data**

- >50% 1609
- <50% 1004

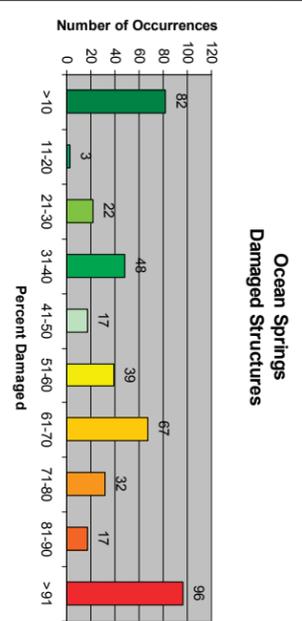
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Mitigation Division - HPA Group  
January 9, 2006



**Q3 Flood Delineation**

- Limit of Wave Action
- 100 Year Floodplain (A - VE)
- Railroads (Local)
- Limited Access
- Highway
- Major Road

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### Residential Properties Percent Damaged

- <50% 172
- >50% 251

### Flood Advisory-Related Data

- Inland Limit of ABFE
- Limit of Wave Action
- 100 Year Floodplain (A - VE)
- Railroads (Local)
- Limited Access
- Highway
- Major Road

	Inside 100yr	Outside 100yr	Total RSDE
< 50%	172	359	531
> 50%	251	126	377
<b>Total</b>	<b>423</b>	<b>485</b>	<b>908</b>

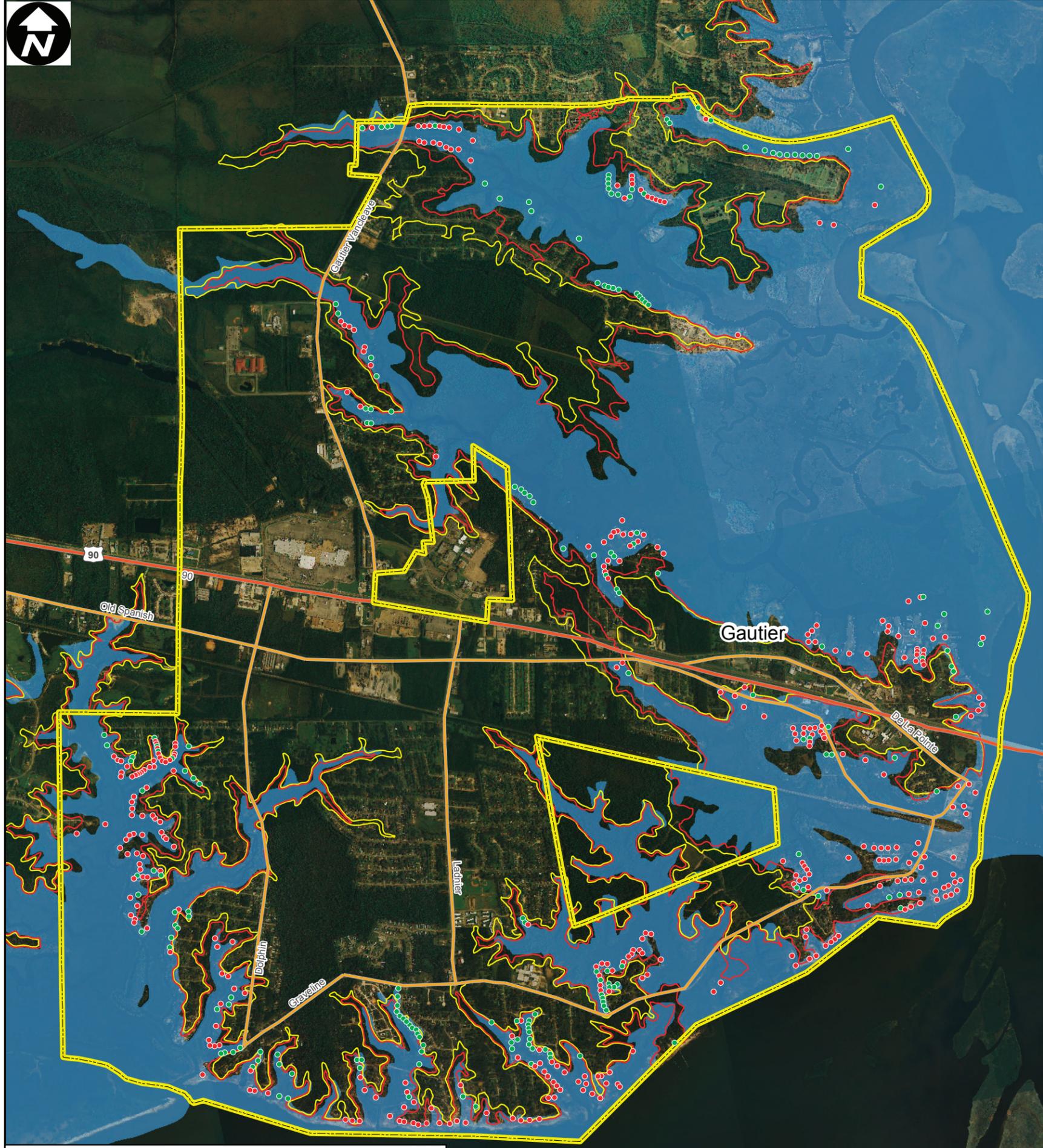


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# RSDEs WITHIN 100 YEAR FLOOD ZONE

CITY OF GAUTIER, MS

HURRICANE KATRINA: DR-1604-MS



### Residential Properties

Percent Damaged	Inside 100yr	Outside 100yr	Total RSDE
<50%	190	206	396
>50%	344	104	448
<b>Total</b>	<b>534</b>	<b>310</b>	<b>844</b>

- <50% 190
- >50% 344

### Flood Advisory-Related Data

- Inland Limit of ABFE
- Limit of Wave Action
- Railroads (Local)
- Limited Access
- Highway
- Major Road



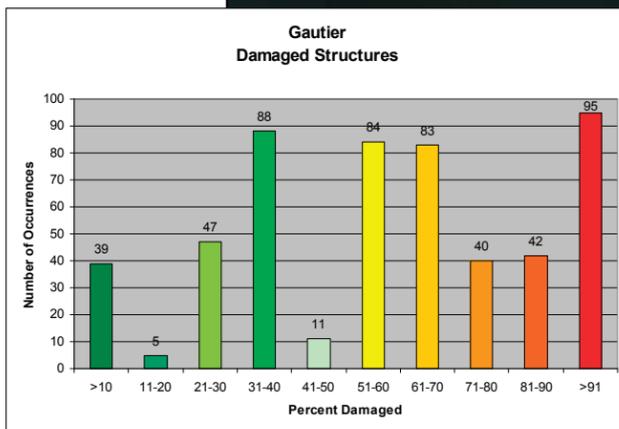
Mississippi Joint Field Office  
Mitigation Division - HPA Group  
January 9, 2005.

### Q3 Flood Delineation

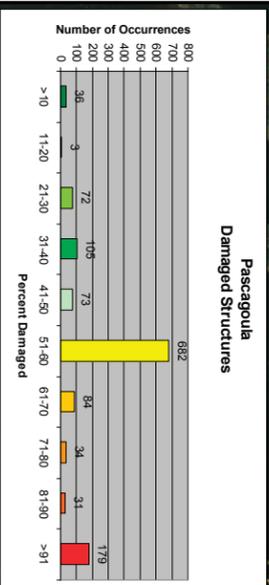
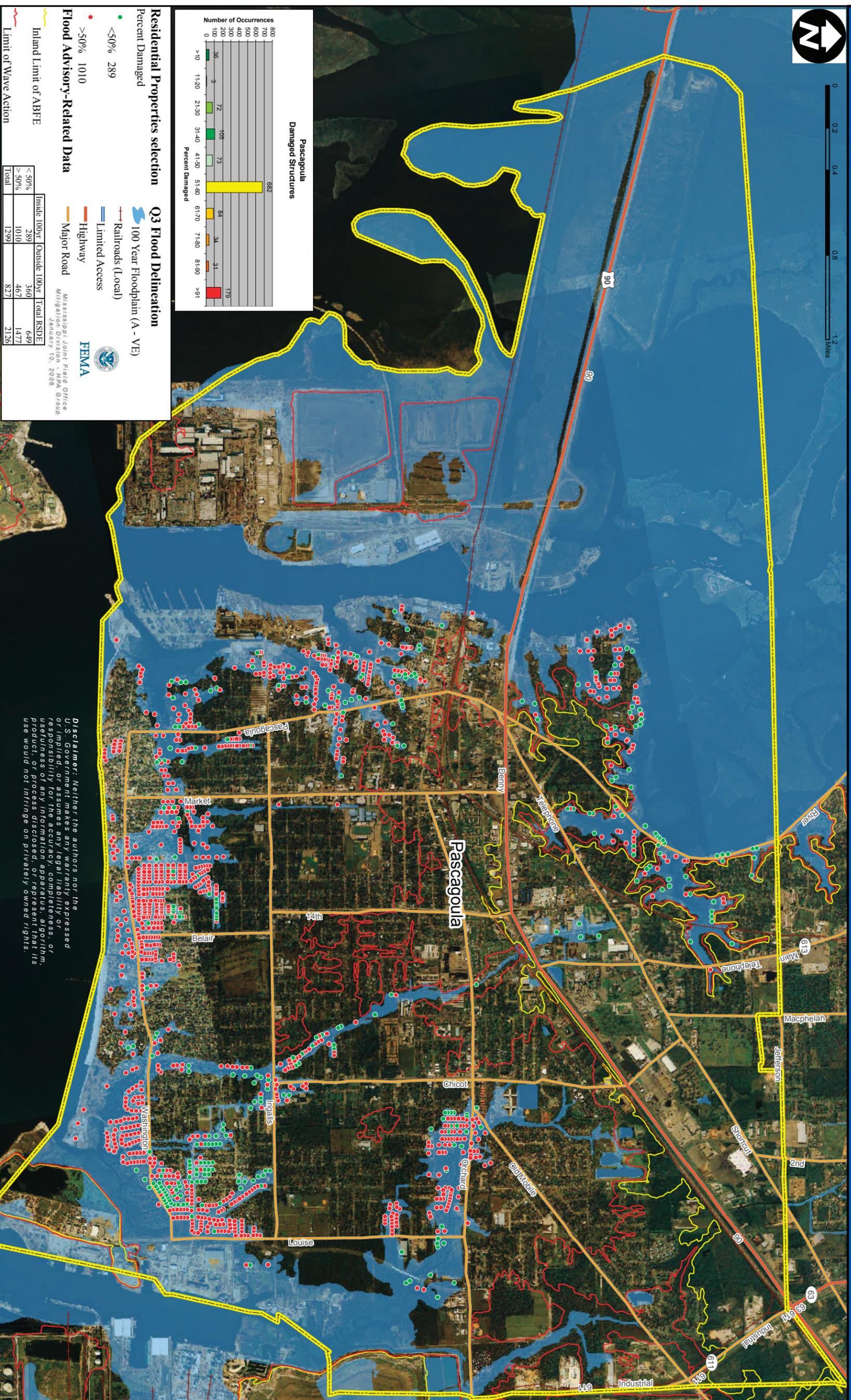
- 100 Year Floodplain (A - VE)



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**Residential Properties selection**  
 Percent Damaged  
 • <50% 289  
 • >50% 1010

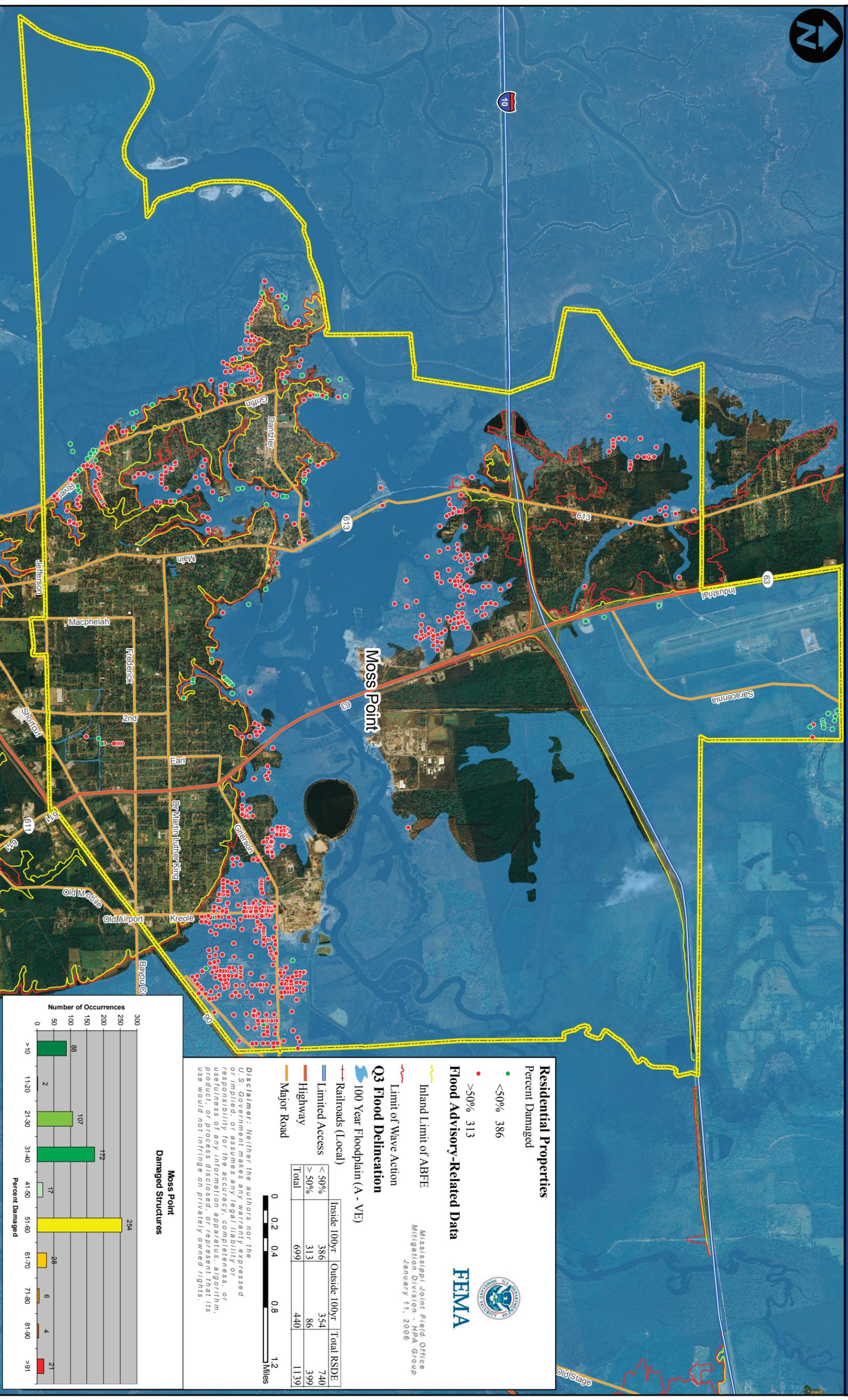
**Flood Advisory-Related Data**  
 Inland Limit of ABFE  
 Limit of Wave Action

	Inside 100yr	Outside 100yr	Total RSDE
<50%	289	360	649
>50%	1010	467	1477
<b>Total</b>	<b>1299</b>	<b>827</b>	<b>2126</b>



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 Mitigation Division - HPA Group  
 January 10, 2006

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# HURRICANE KATRINA FLOOD: GIS SPATIAL ANALYSIS OF FLOOD IMPACTS IN MISSISSIPPI

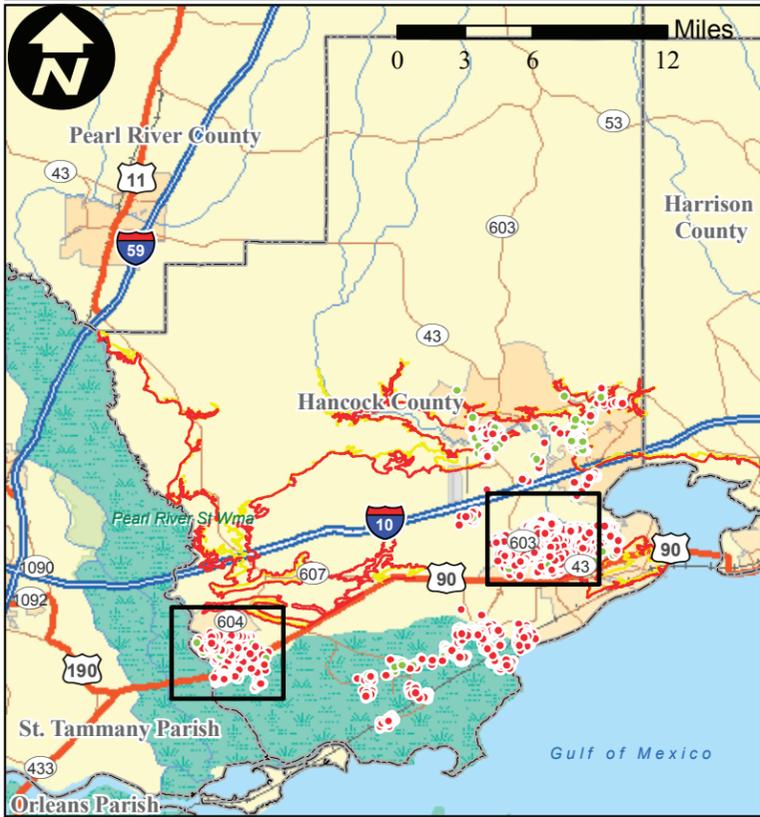
## SECTION 4

### RSDEs IN RELATION TO THE ABFEs AND Q3

# RSDS IN RELATION TO THE ABFES AND Q-3

HANCOCK COUNTY UNINCORPORATED, MS

HURRICANE KATRINA: DR-1604-MS



### Residential Structures

Percent Damaged

> 50% 354

< 50% 4965

### Flood Advisory-Related Data

Inland Limit of ABFE

Limit of Wave Action

### Q3 Flood Delineation

Flood Zone

100 Year Floodplain (A - VE)

500 Year Floodplain

Limited Access

Highway

Major Road

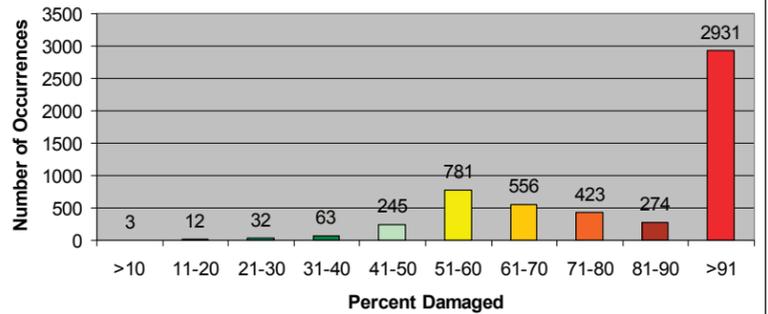
Local Road



**FEMA**

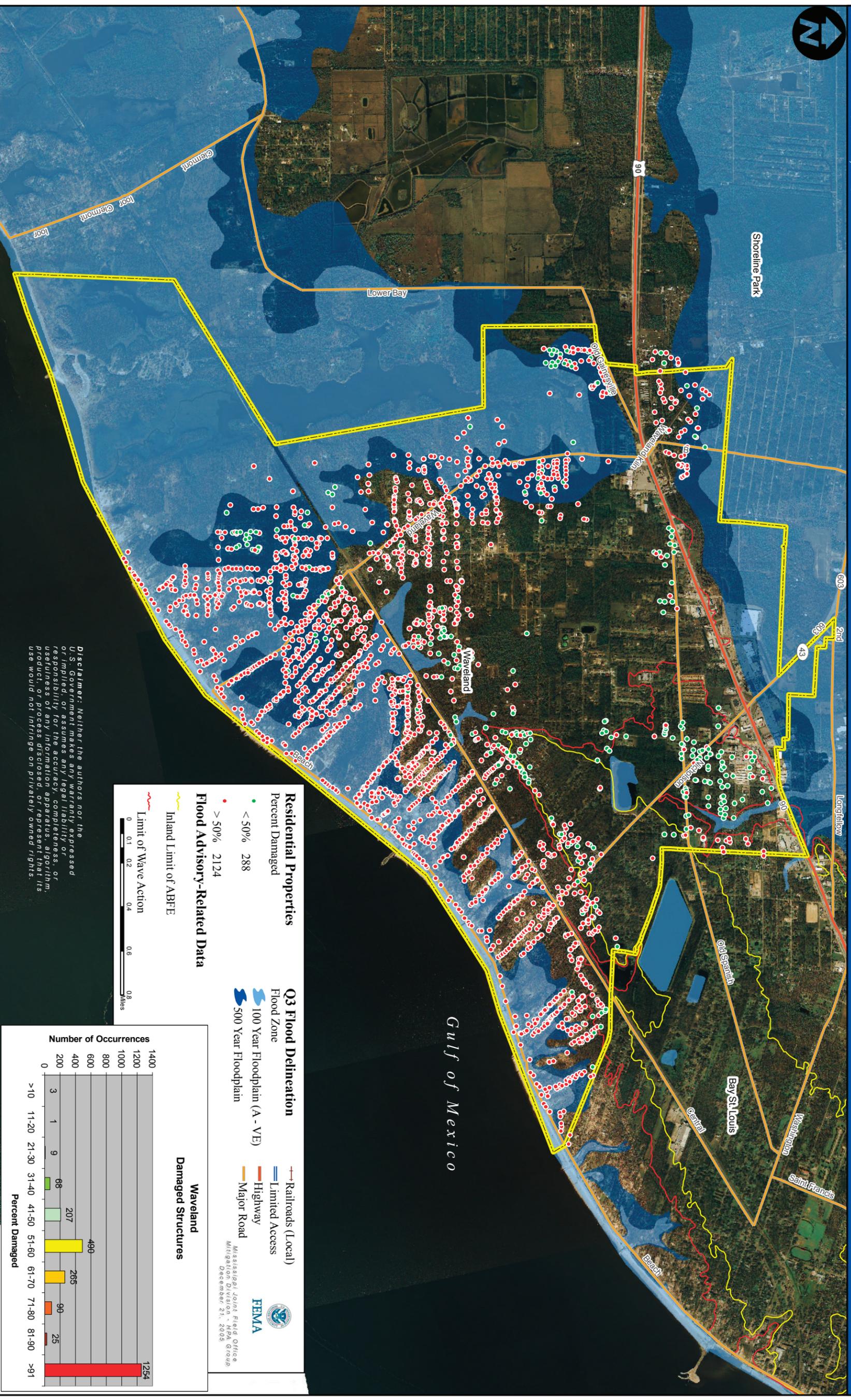
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### Hancock County Unincorporated Damaged Structures



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**RSDES IN RELATION TO THE ABFES AND Q-3**



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**Residential Properties Percent Damaged**

- < 50% 288
- > 50% 2124

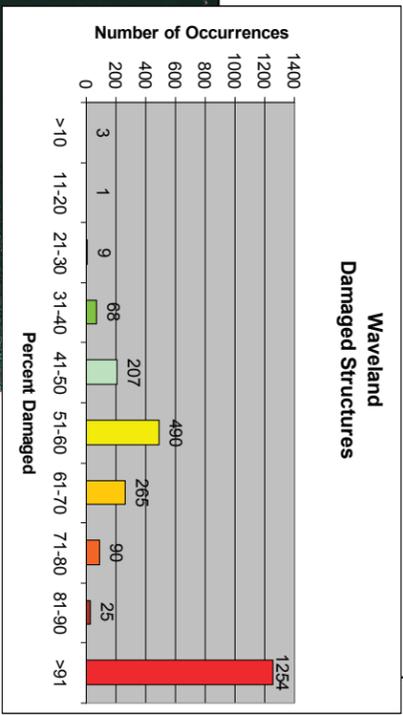
**Flood Advisory-Related Data**

- Inland Limit of ABFE
- Limit of Wave Action

**Q3 Flood Delineation**

- 100 Year Floodplain (A - VE)
- 500 Year Floodplain
- Railroads (Local)
- Limited Access
- Highway
- Major Road

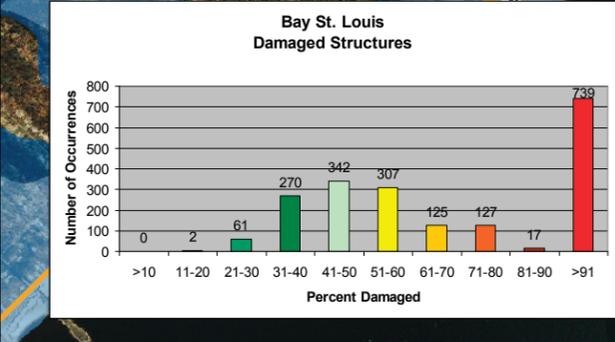
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Mitigation Group  
December 21, 2005



# RSDs IN RELATION TO THE ABFEs AND Q-3

CITY OF BAY ST. LOUIS, MS

HURRICANE KATRINA: DR-1604-MS



**Residential Properties**  
Percent Damaged

- < 50% 675
- > 50% 1315

**Flood Advisory-Related Data**

- Inland Limit of ABFE
- Limit of Wave Action

**Q3 Flood Delineation**  
Flood Zone

- 100 Year Floodplain (A - VE)
- 500 Year Floodplain

**Infrastructure**

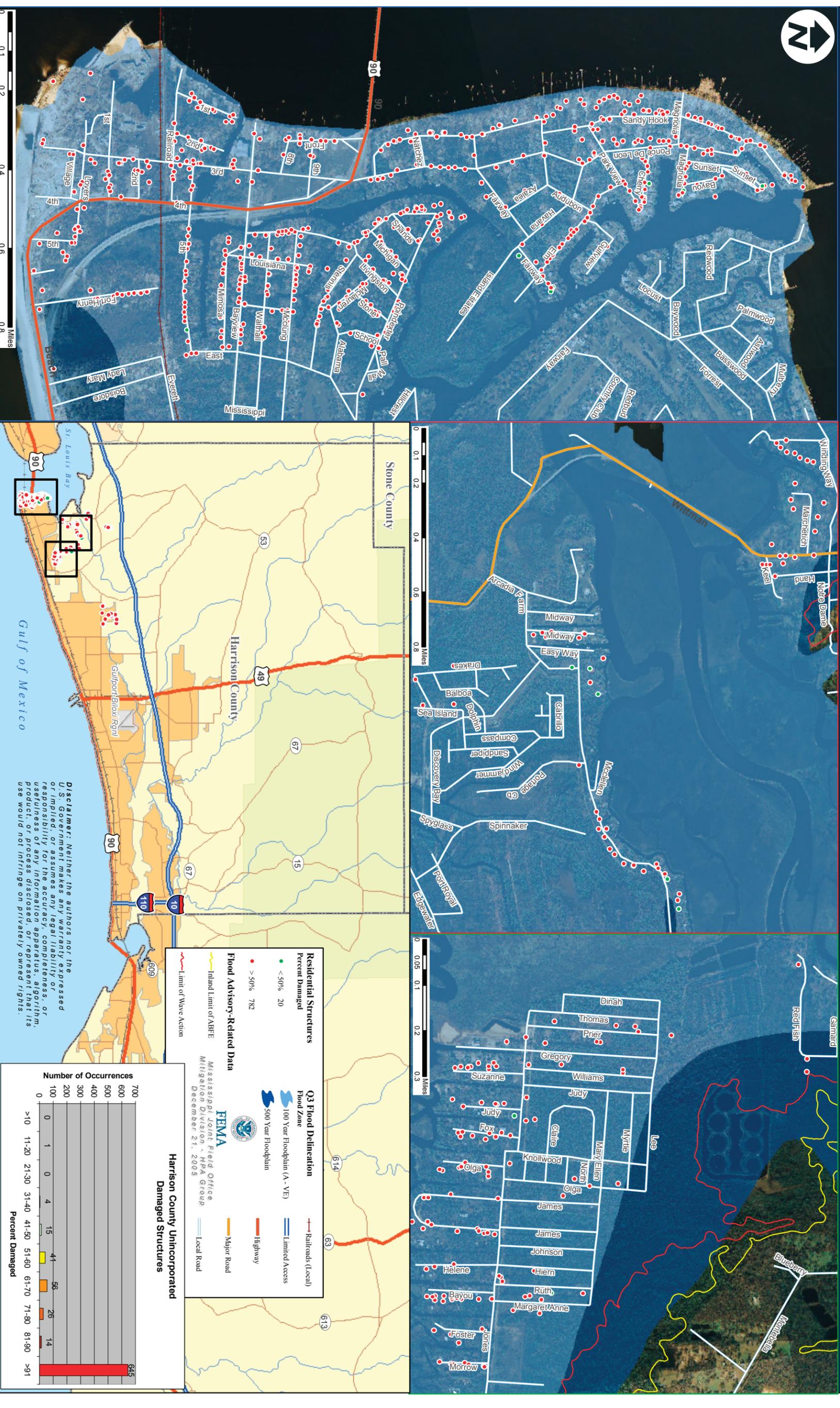
- Railroads (Local)
- Limited Access
- Highway
- Major Road

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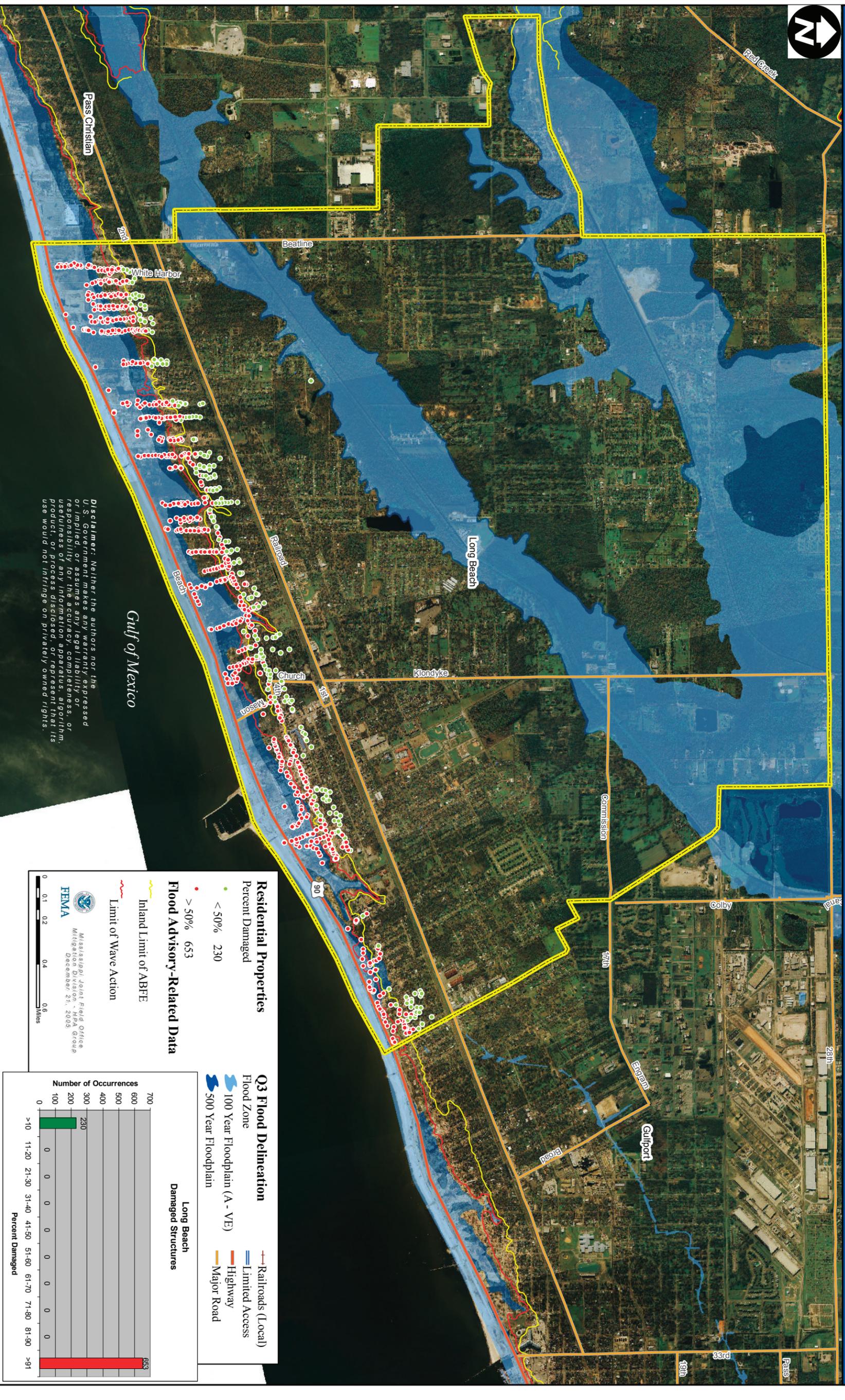
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0 0.15 0.3 0.6 0.9 Miles

RSDES IN RELATION TO THE ABFES AND Q-3







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**Residential Properties**  
Percent Damaged

- < 50% 230
- > 50% 653

**Q3 Flood Delineation**

- Flood Zone
- 100 Year Floodplain (A - VE)
- 500 Year Floodplain

**Flood Advisory-Related Data**

- ~ Inland Limit of ABFE
- ~ Limit of Wave Action

**Long Beach Damaged Structures**

Percent Damaged	Number of Occurrences
>10	230
11-20	0
21-30	0
31-40	0
41-50	0
51-60	0
61-70	0
71-80	0
81-90	0
>91	653

**Railroads (Local)** —

**Limited Access** —

**Highway** —

**Major Road** —

**Scale:** 0 to 0.6 Miles

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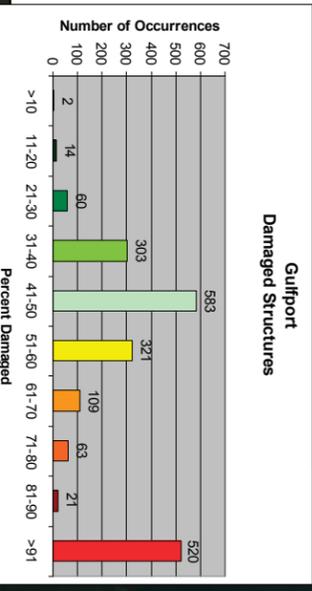
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**Residential Properties**  
 Percent Damaged  
 • <50% 962  
 • >50% 1034

**Flood Advisory-Related Data**  
 ~ Inland Limit of ABFE  
 ~ Limit of Wave Action  
**Q3 Flood Delineation**  
 Flood Zone  
 100 Year Floodplain (A - VE)  
 500 Year Floodplain

— Railroads (Local)  
 — Limited Access  
 — Highway  
 — Major Road

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**RSDES IN RELATION TO THE ABFFES AND Q-3**



**Residential Properties Percent Damaged**

- < 50% 1135
- > 50% 2793

**Flood Advisory-Related Data**

- Inland Limit of ABFE
- Limit of Wave Action

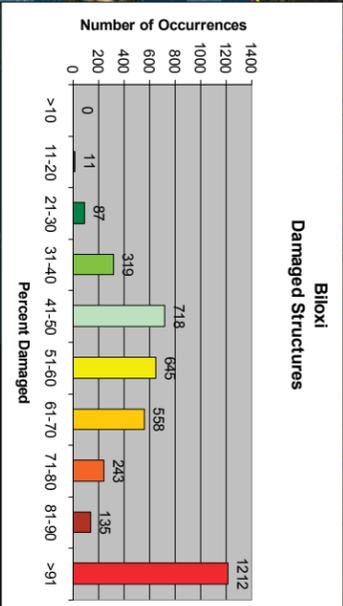
**Q3 Flood Delineation**

- 100 Year Floodplain (A - VE)
- 500 Year Floodplain

**Infrastructure**

- Railroads (Local)
- Limited Access
- Highway
- Major Road

**Logos:** FEMA, Mississippi Joint Field Office, Mitigation December 21, 2005



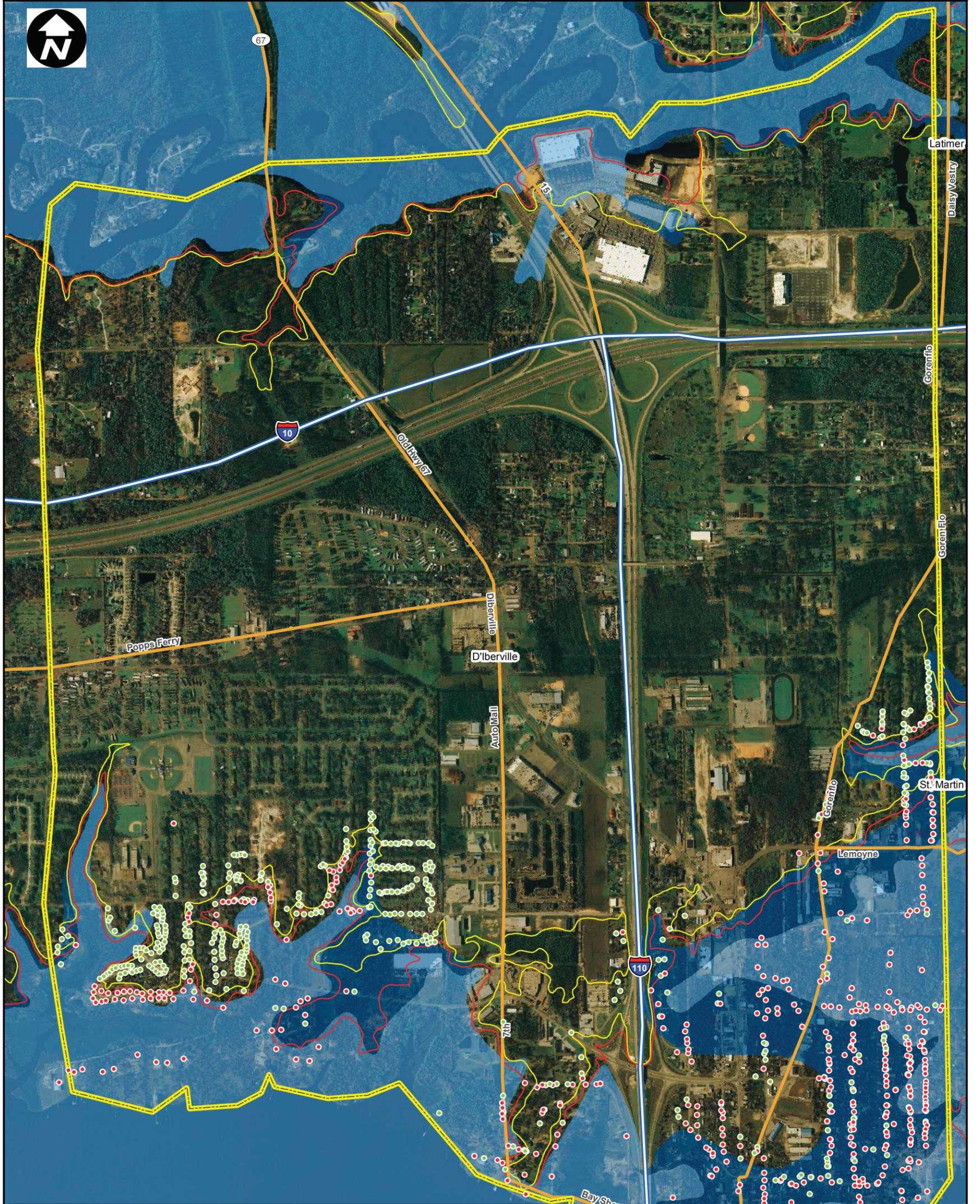
Gulf of Mexico

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# RSDs IN RELATION TO THE ABFEs AND Q-3

CITY OF D'IBERVILLE, MS

HURRICANE KATRINA: DR-1604-MS



### Residential Properties

- Percent Damaged
- < 50% 440
  - > 50% 531

### Flood Advisory-Related Data

- Inland Limit of ABFE
- Limit of Wave Action

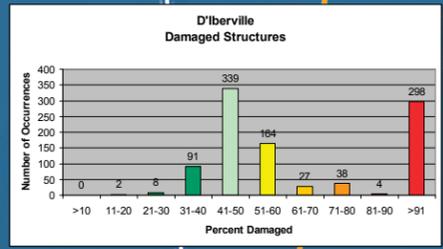
- Railroads (Local)
- Limited Access
- Highway
- Major Road

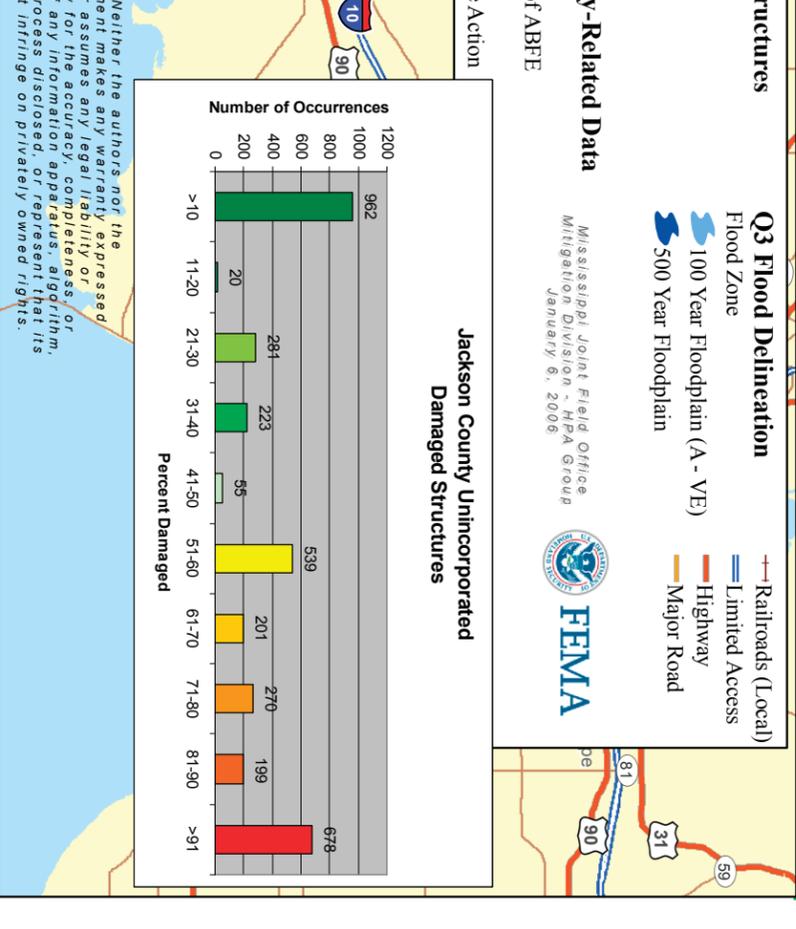
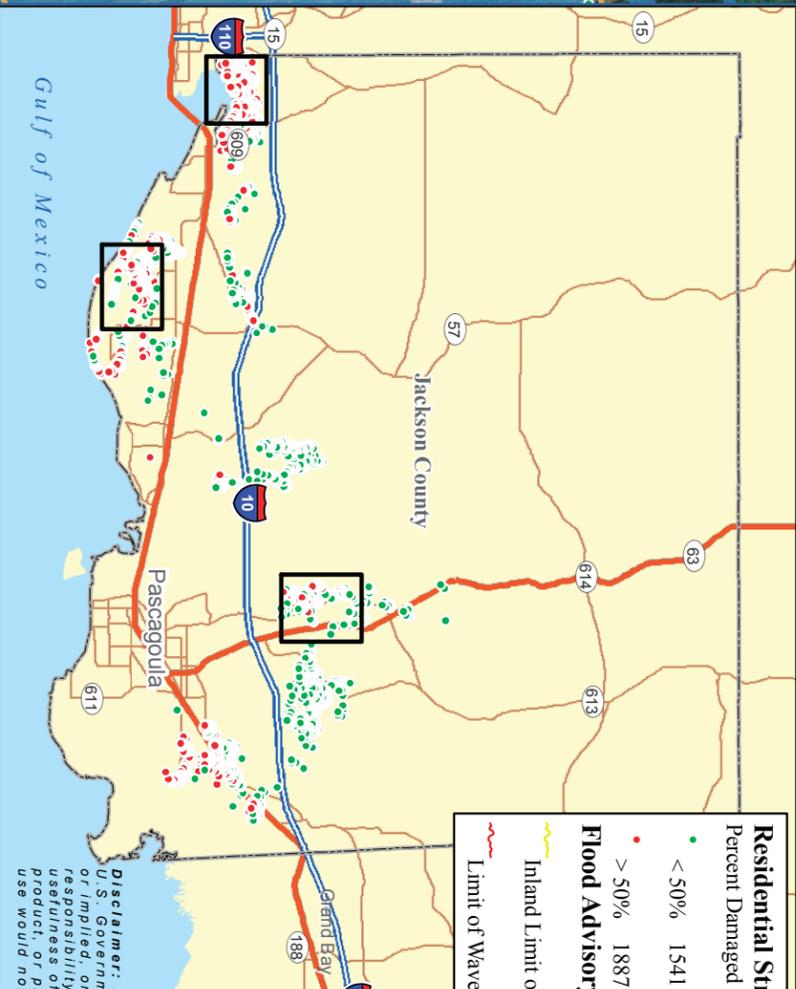
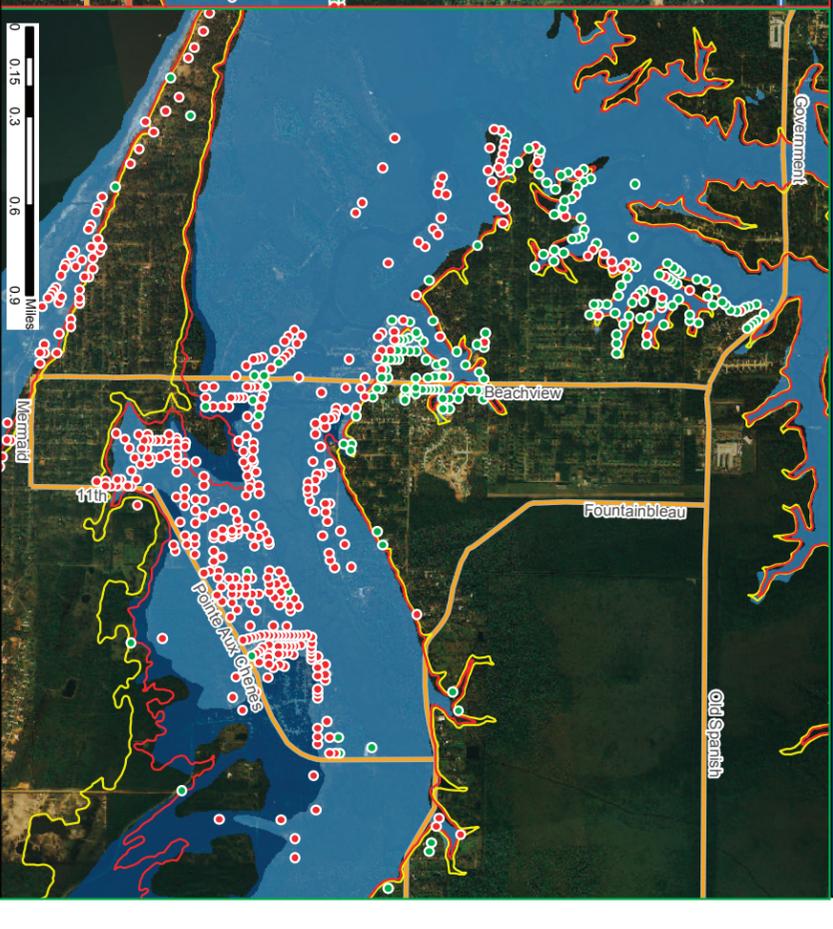
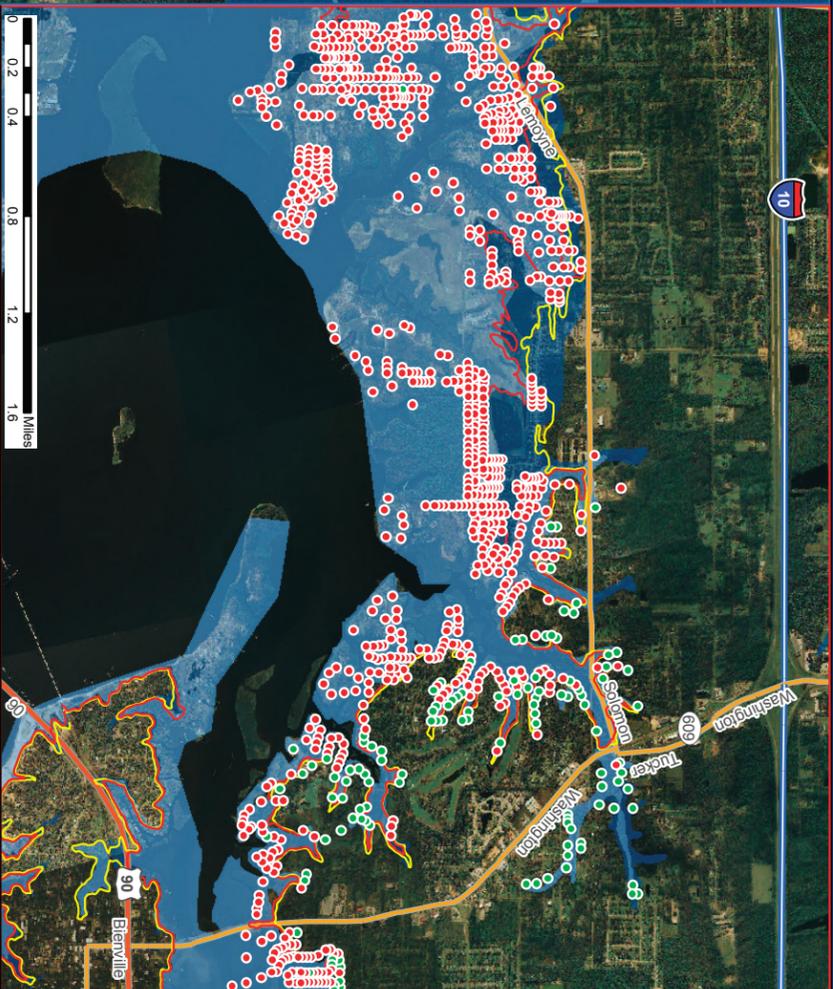
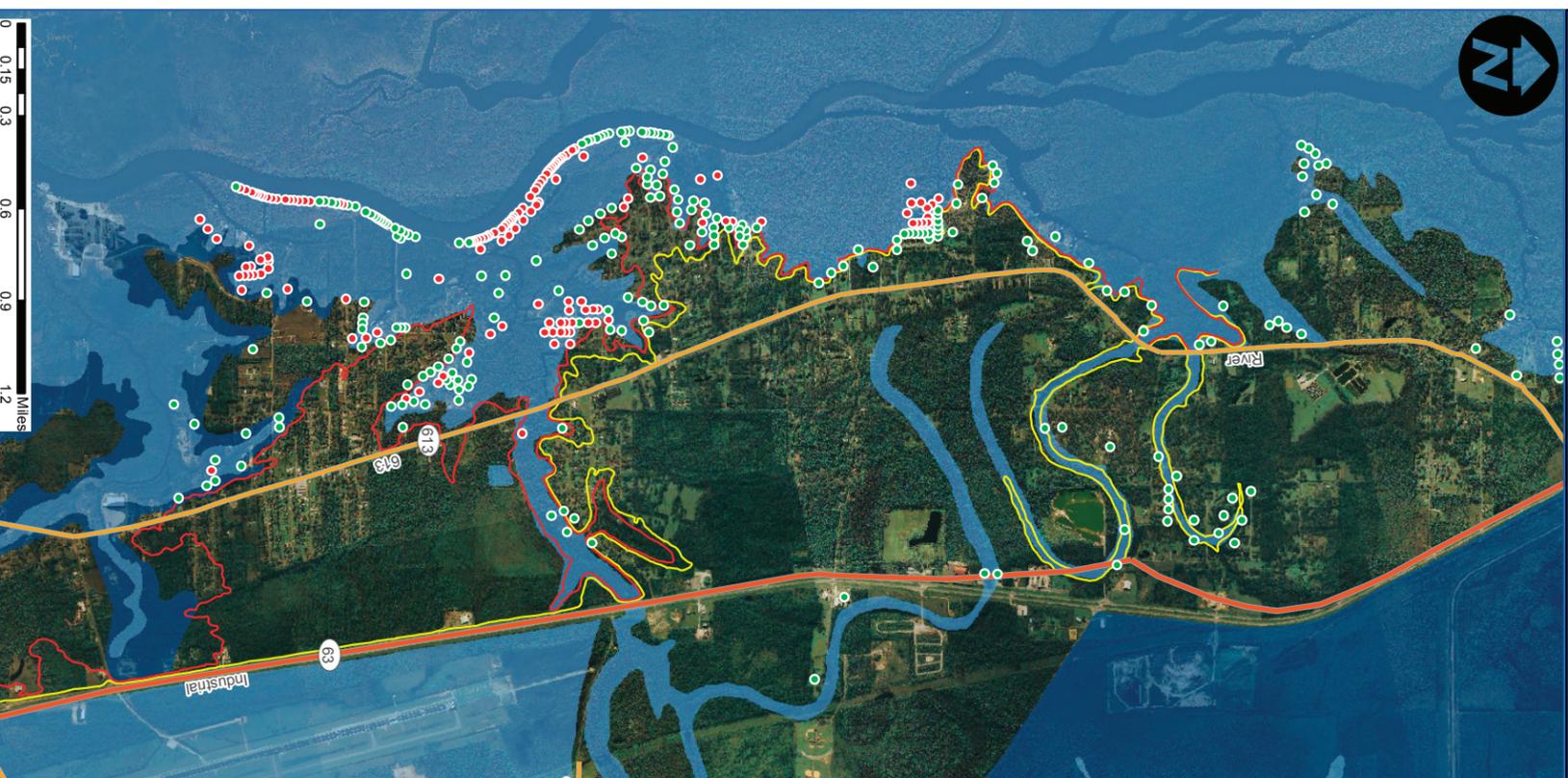
- ### Q3 Flood Delineation
- Flood Zone
- 100 Year Floodplain (A - VE)
  - 500 Year Floodplain

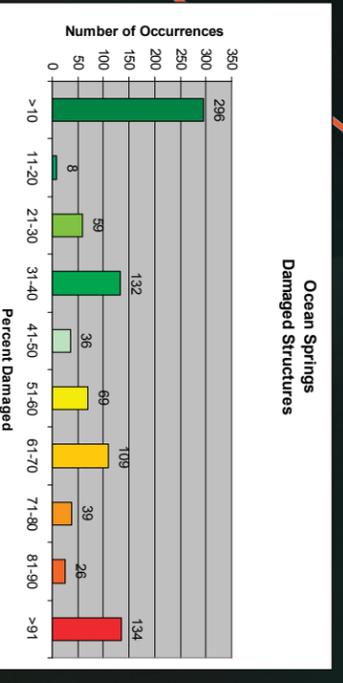
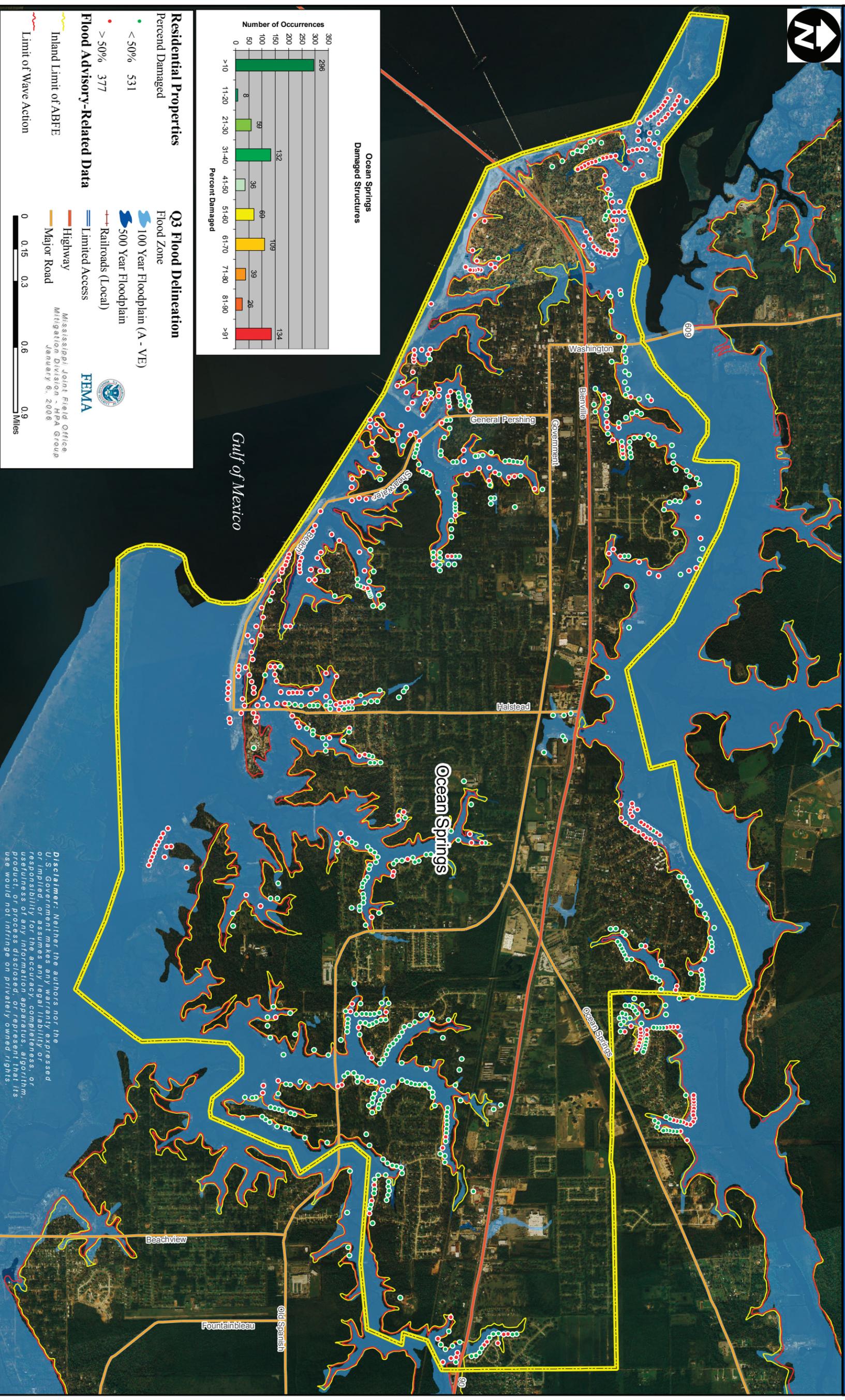
Mississippi Joint Field Office  
Mitigation Division - HPA Group  
December 15, 2005.



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**Residential Properties Percent Damaged**

- < 50% 531
- > 50% 377

**Q3 Flood Delineation**

- Flood Zone
- 100 Year Floodplain (A - VE)
- 500 Year Floodplain
- Railroads (Local)
- Limited Access
- Highway
- Major Road



Mississippi Joint Field Office  
Mitigation Division - HPA Group  
January 6, 2006

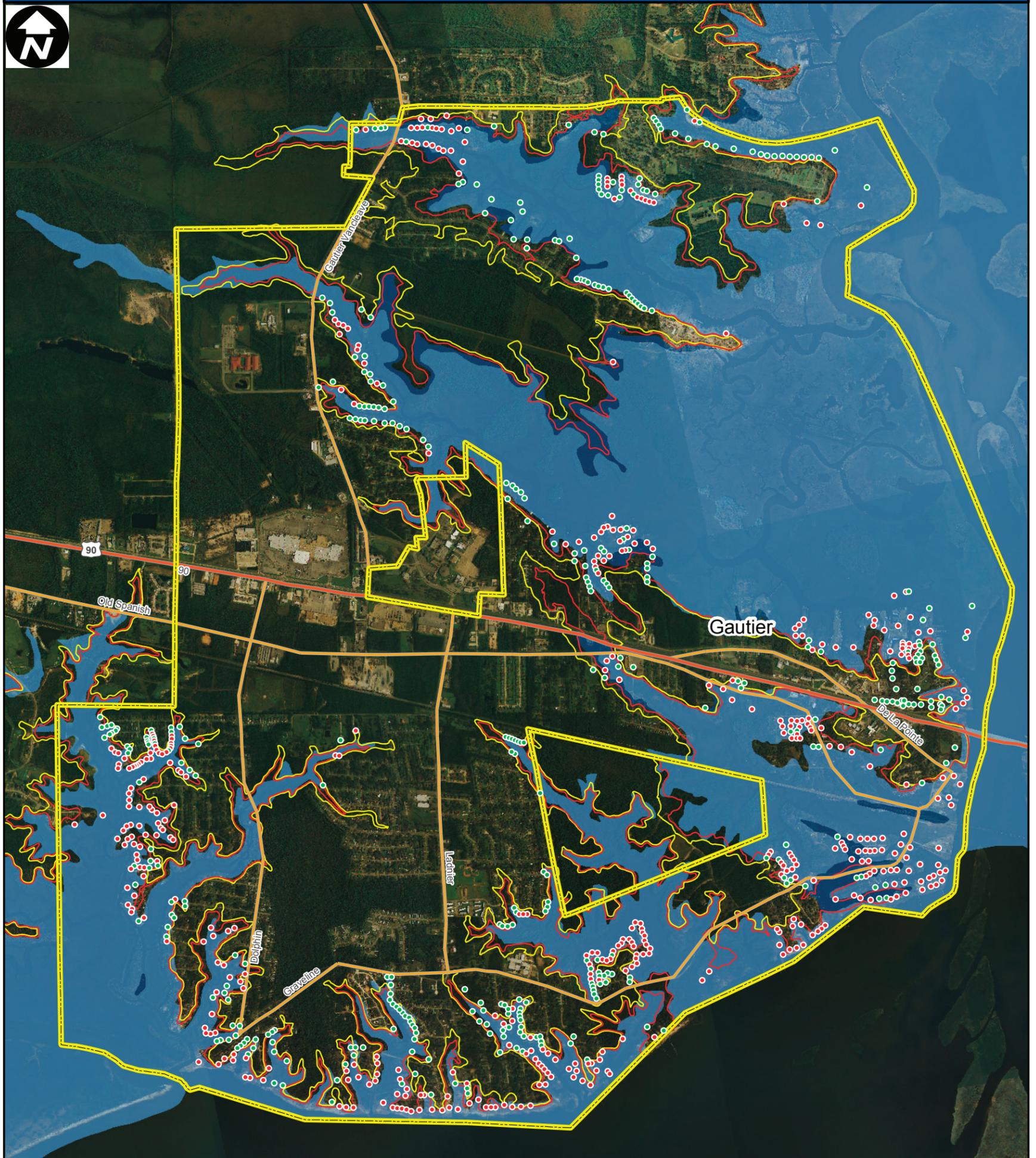


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# RSDDES IN RELATION TO THE ABFEs AND Q-3

CITY OF GAUTIER, MS

HURRICANE KATRINA: DR-1604-MS



### Residential Properties

Percent Damaged

- < 50% 396
- > 50% 448

### Flood Advisory-Related Data

- Inland Limit of ABFE
- Limit of Wave Action
- Railroads (Local)
- Limited Access
- Highway
- Major Road

### Q3 Flood Delineation

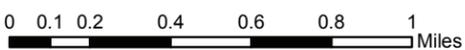
Flood Zone

- 100 Year Floodplain (A - VE)
- 500 Year Floodplain



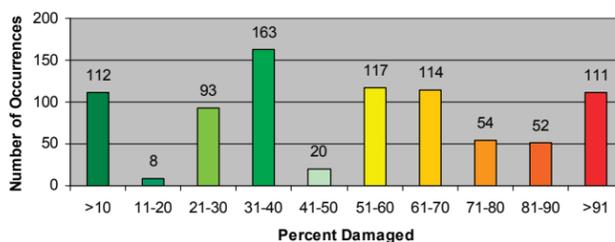
**FEMA**

Mississippi Joint Field Office  
Mitigation Division - NPA Group  
January 6, 2005.

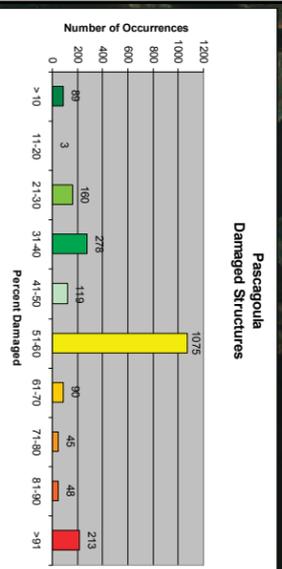
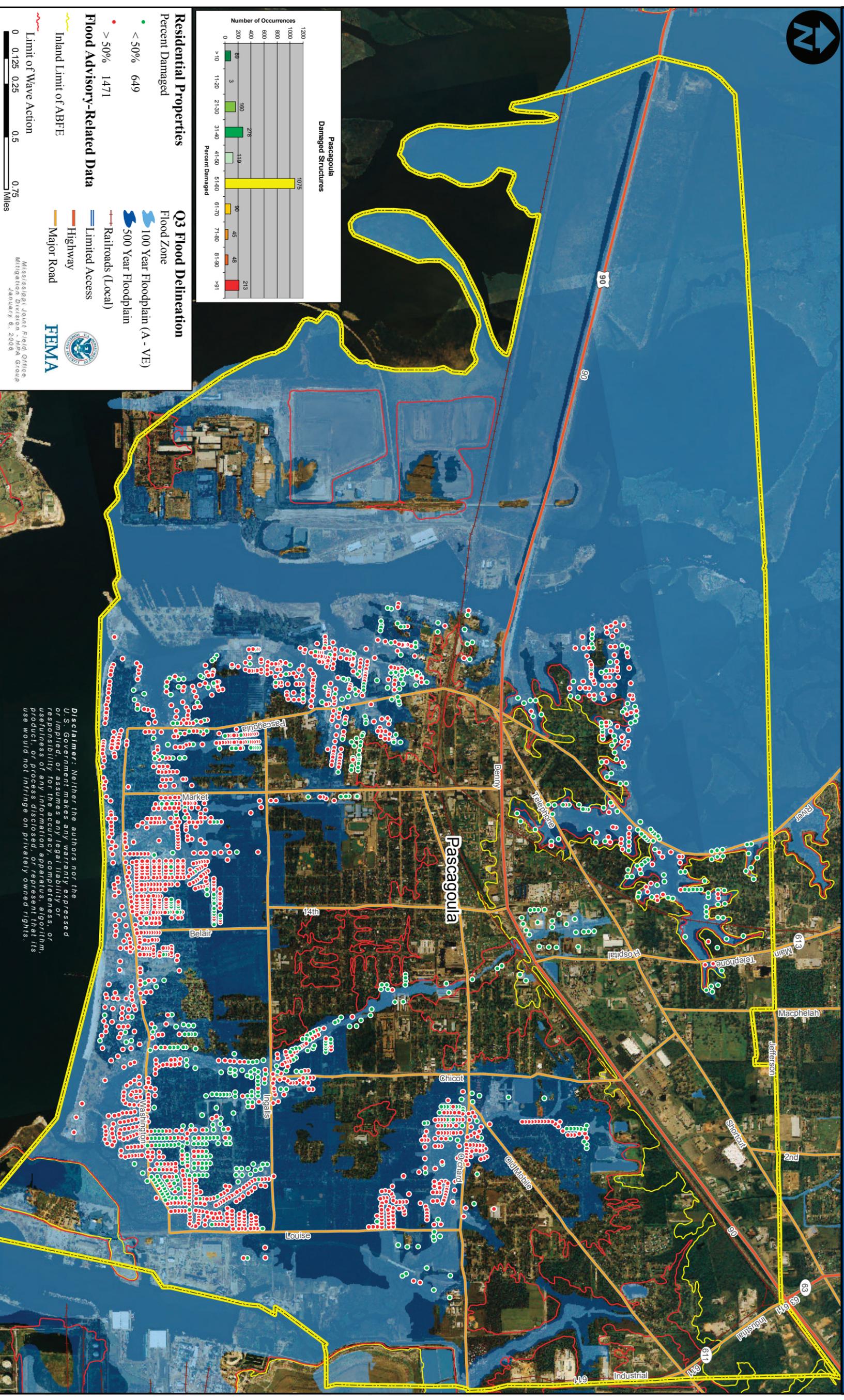


*Gulf of Mexico*

**Gautier  
Damaged Structures**



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**Residential Properties**  
Percent Damaged

- > 50% 1471
- < 50% 649

**Q3 Flood Delineation**  
Flood Zone

- 100 Year Floodplain (A - VE)
- 500 Year Floodplain

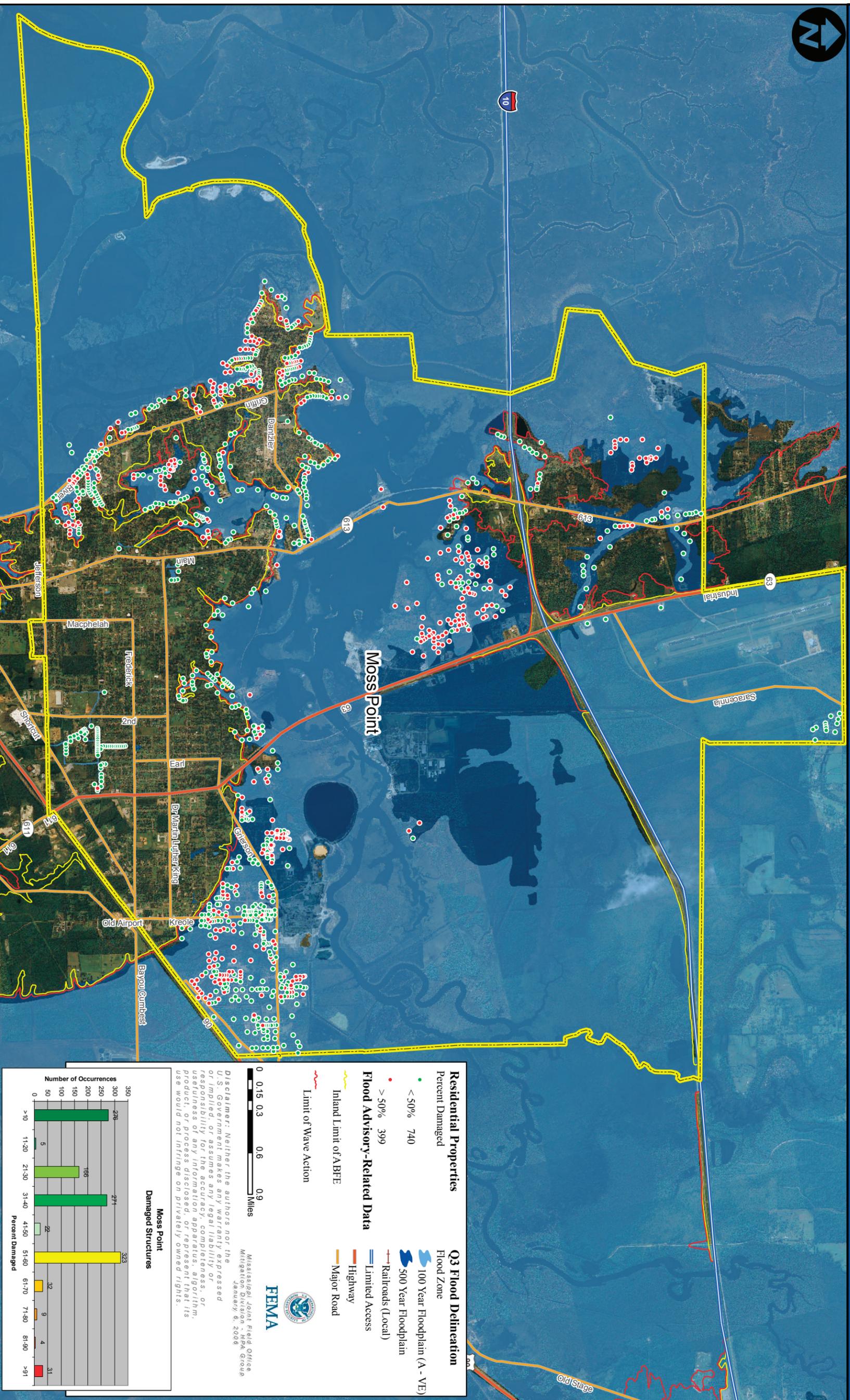
**Flood Advisory-Related Data**

- Inland Limit of ABFE
- Limit of Wave Action



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Mitigation Division - HPA Group  
January 8, 2008

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**Residential Properties Percent Damaged**

- < 50% 740
- > 50% 399

**Q3 Flood Delineation**

- 100 Year Floodplain (A - VE)
- 500 Year Floodplain
- Railroads (Local)
- Limited Access
- Highway
- Major Road

**Flood Advisory-Related Data**

- Inland Limit of ABFE
- Limit of Wave Action

**Damaged Structures**

Percent Damaged	Number of Occurrences
>10	276
11-20	5
21-30	166
31-40	274
41-50	22
51-60	323
61-70	32
71-80	9
81-90	4
>91	31

**Scale:** 0, 0.15, 0.3, 0.6, 0.9, 1.8 Miles

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**FEMA**  
Mississippi Joint Field Office  
Mitigation Division - HPA Group  
January 8, 2006

# HURRICANE KATRINA FLOOD: GIS SPATIAL ANALYSIS OF FLOOD IMPACTS IN MISSISSIPPI

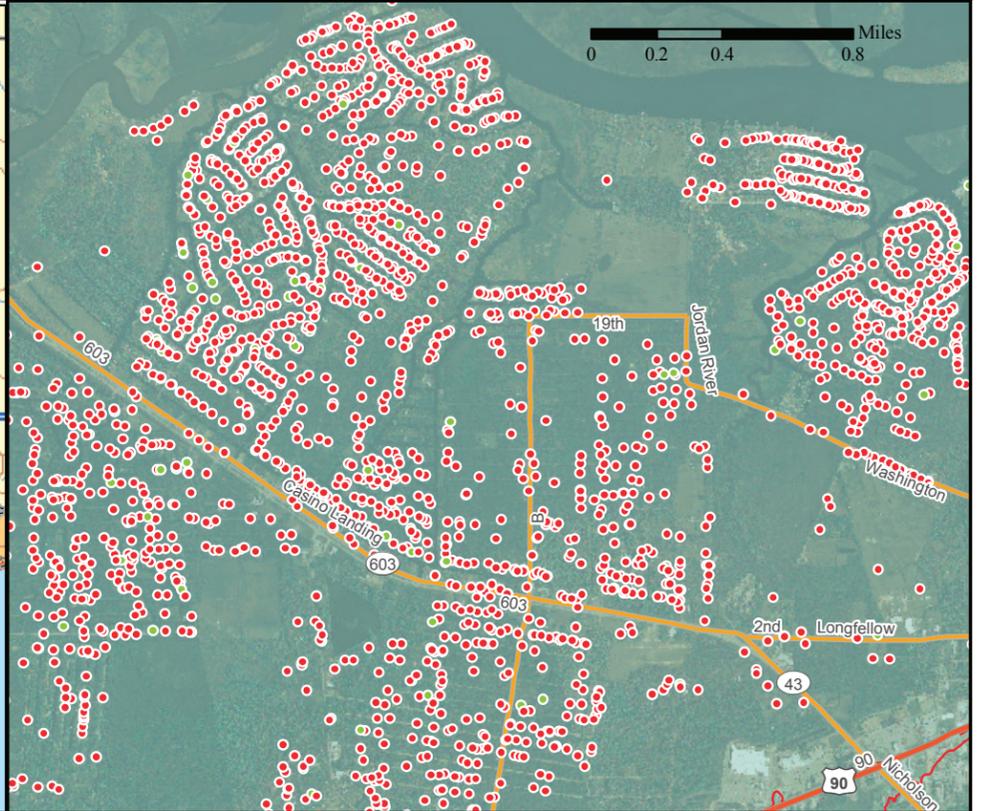
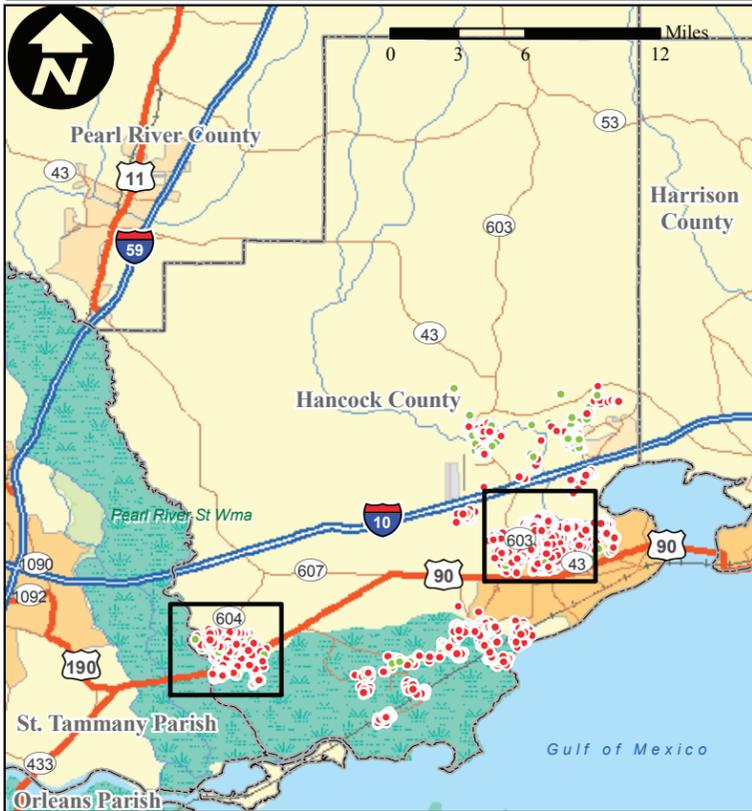
## SECTION 5

### RSDEs IN RELATION TO THE KATRINA SURGE INUNDATION AND ABFEs

# RSDE'S IN RELATION TO THE KATRINA SURGE LIMITS AND ABFE'S

HANCOCK COUNTY UNINCORPORATED, MS

HURRICANE KATRINA: DR-1604-MS



## Residential Structures

Percent Damaged

> 50% 354

< 50% 4965

## Flood Advisory-Related Data

Inland Limit of ABFE

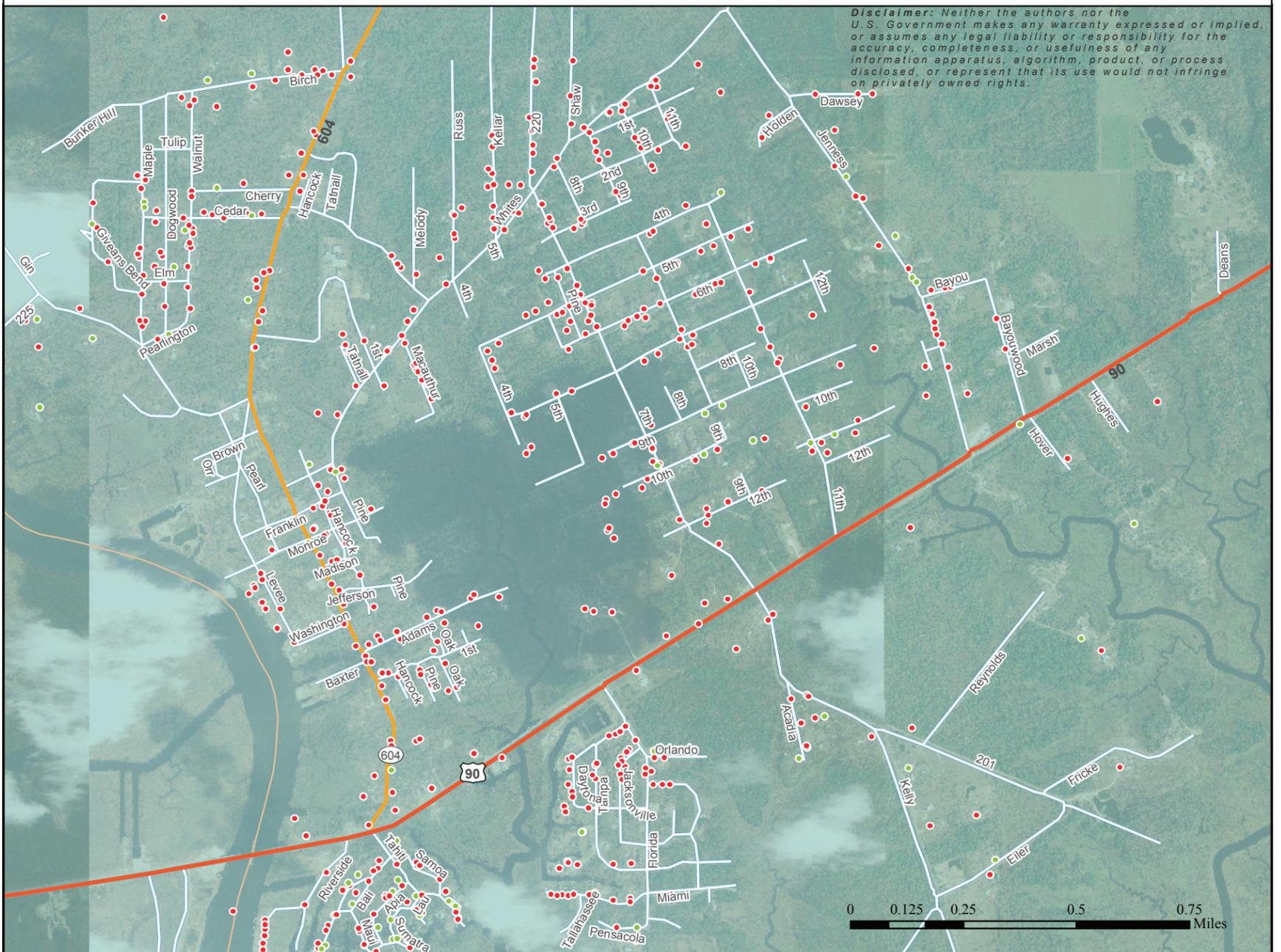
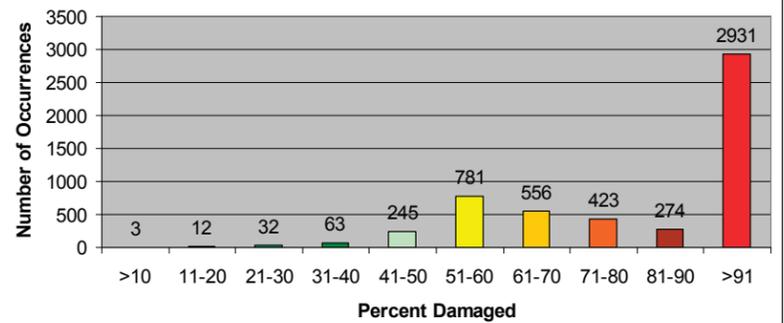
Limit of Wave Action

- Limited Access
- Highway
- Major Road
- Local Road
- Katrina Surge Limit



Mississippi Joint Field Office  
Mitigation Division - HPA Group  
December 21, 2005

Hancock County Unincorporated Damaged Structures



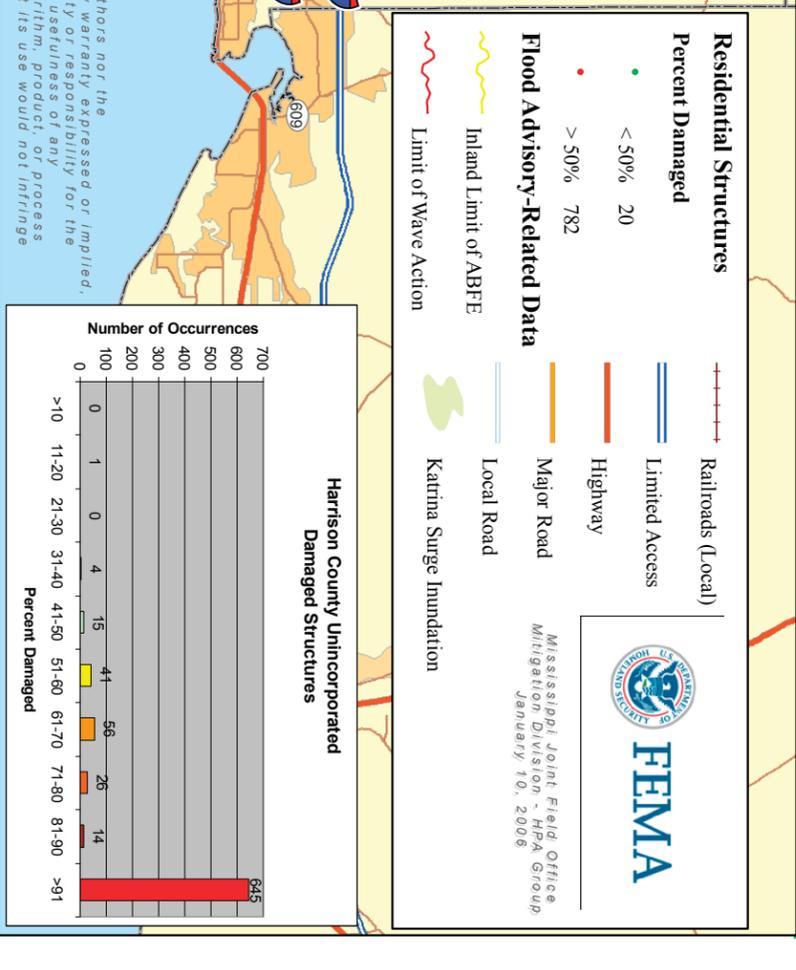
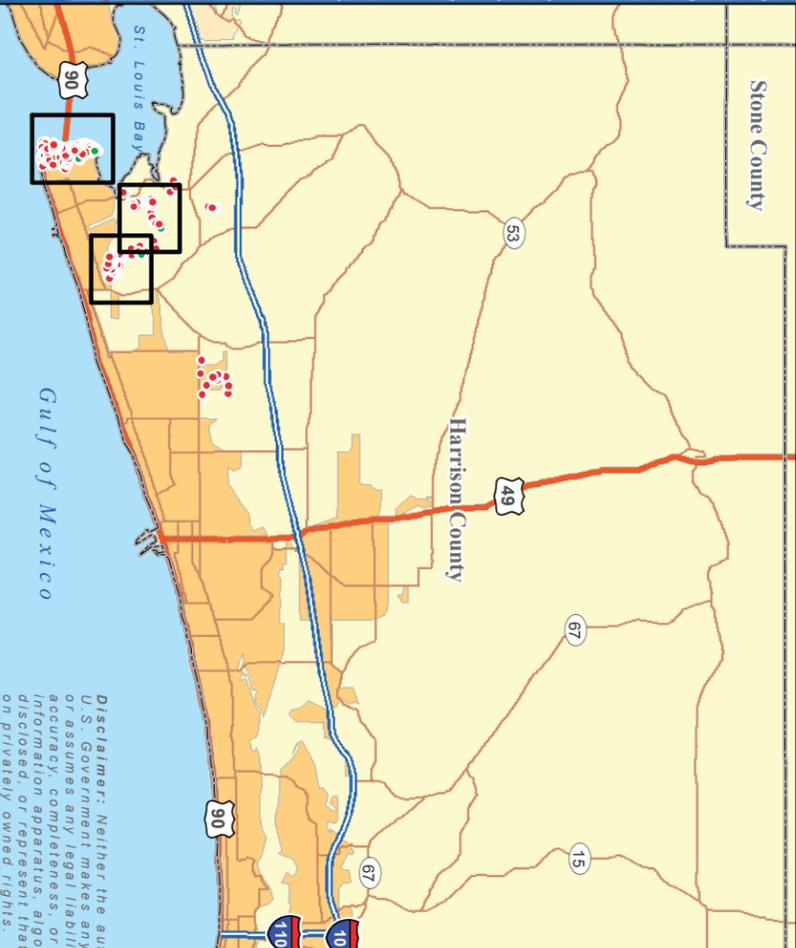
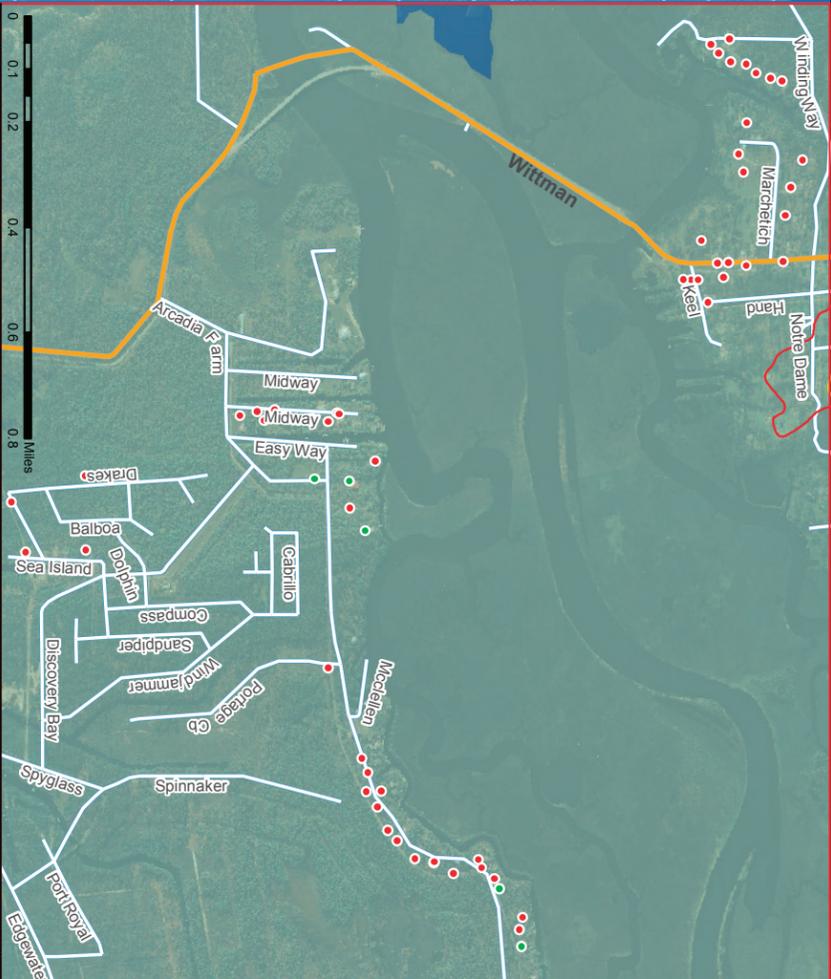


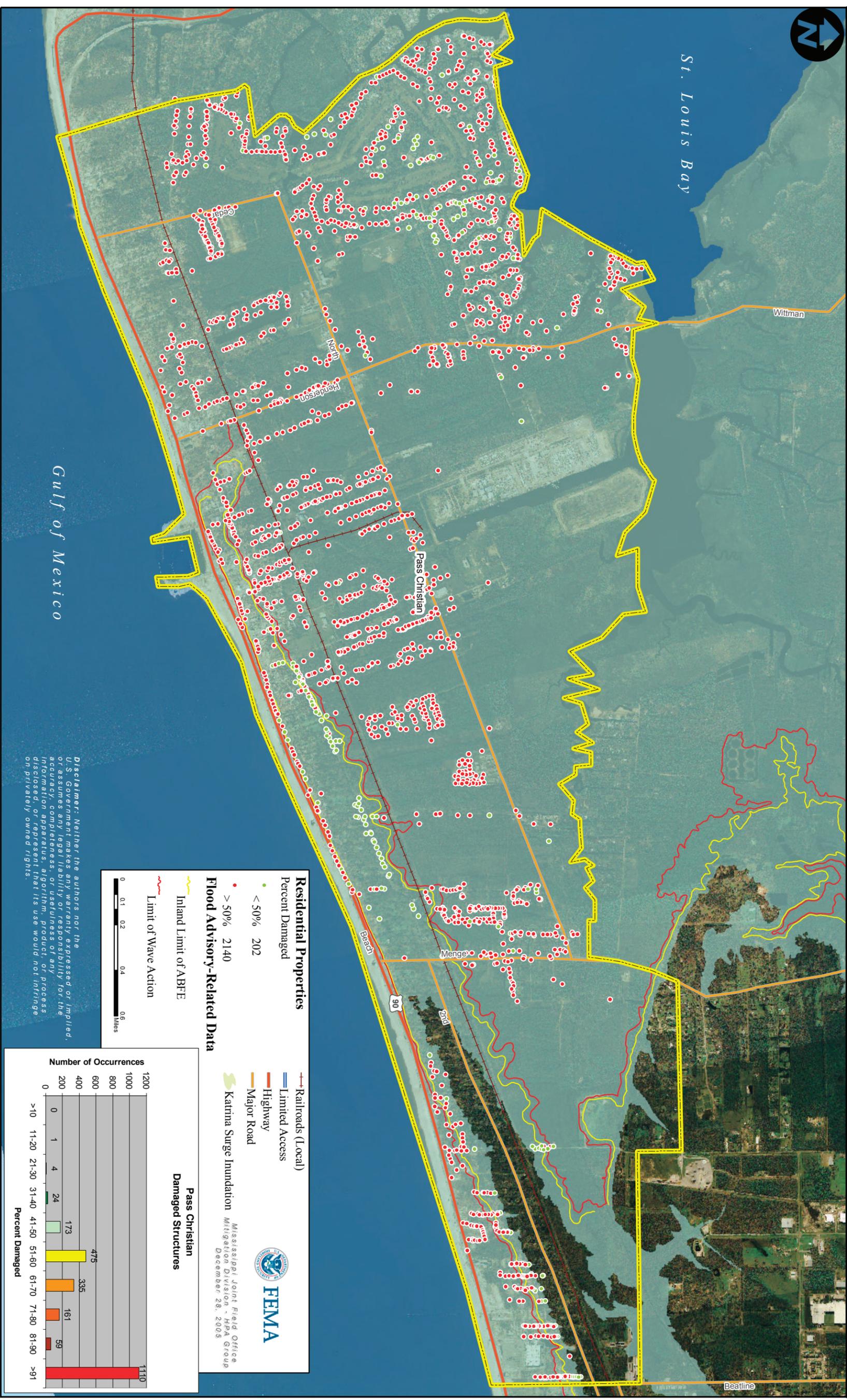
# RSDs IN RELATION TO THE KATRINA SURGE INUNDATION AND ABFES

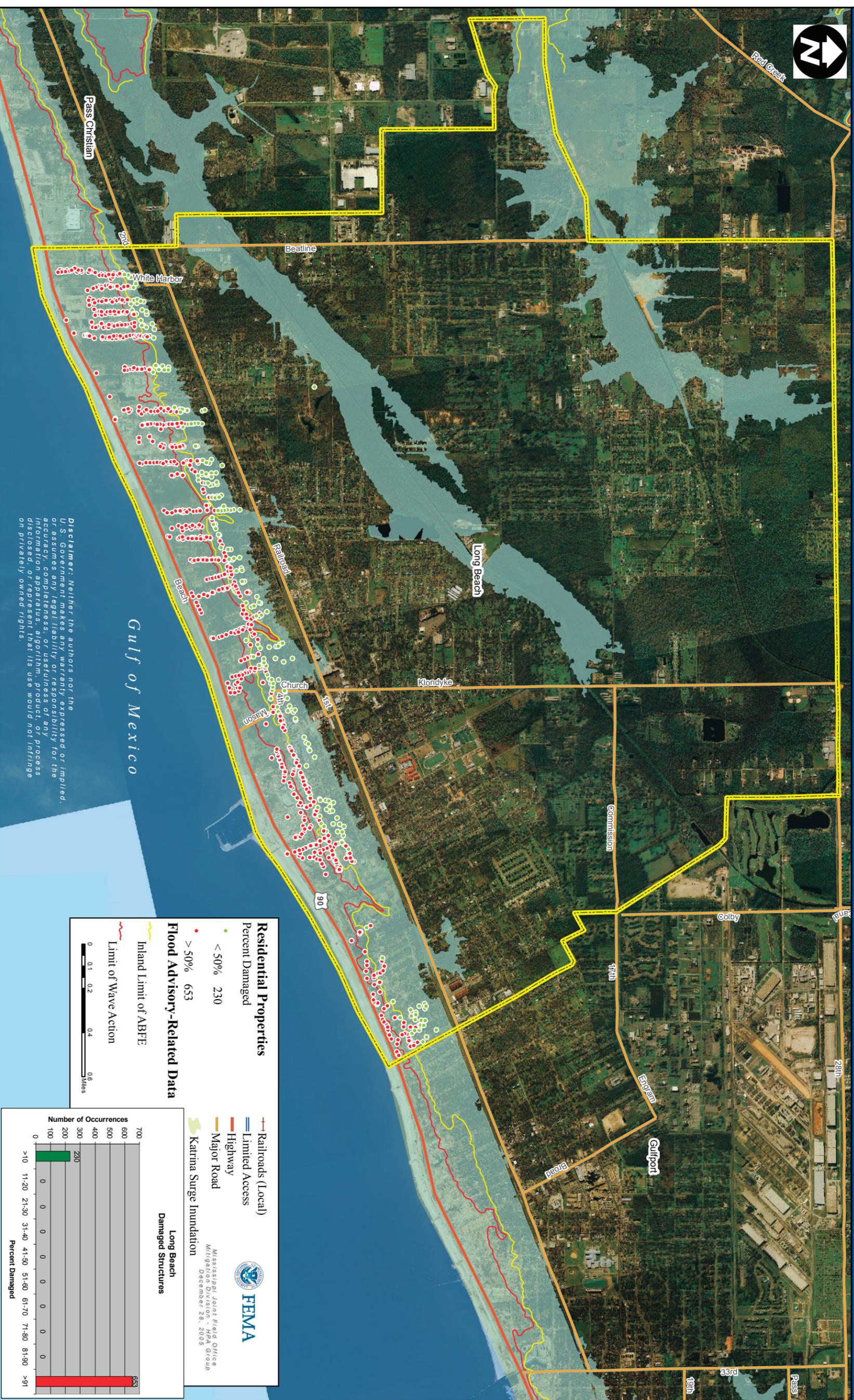
CITY OF BAY ST. LOUIS, MS

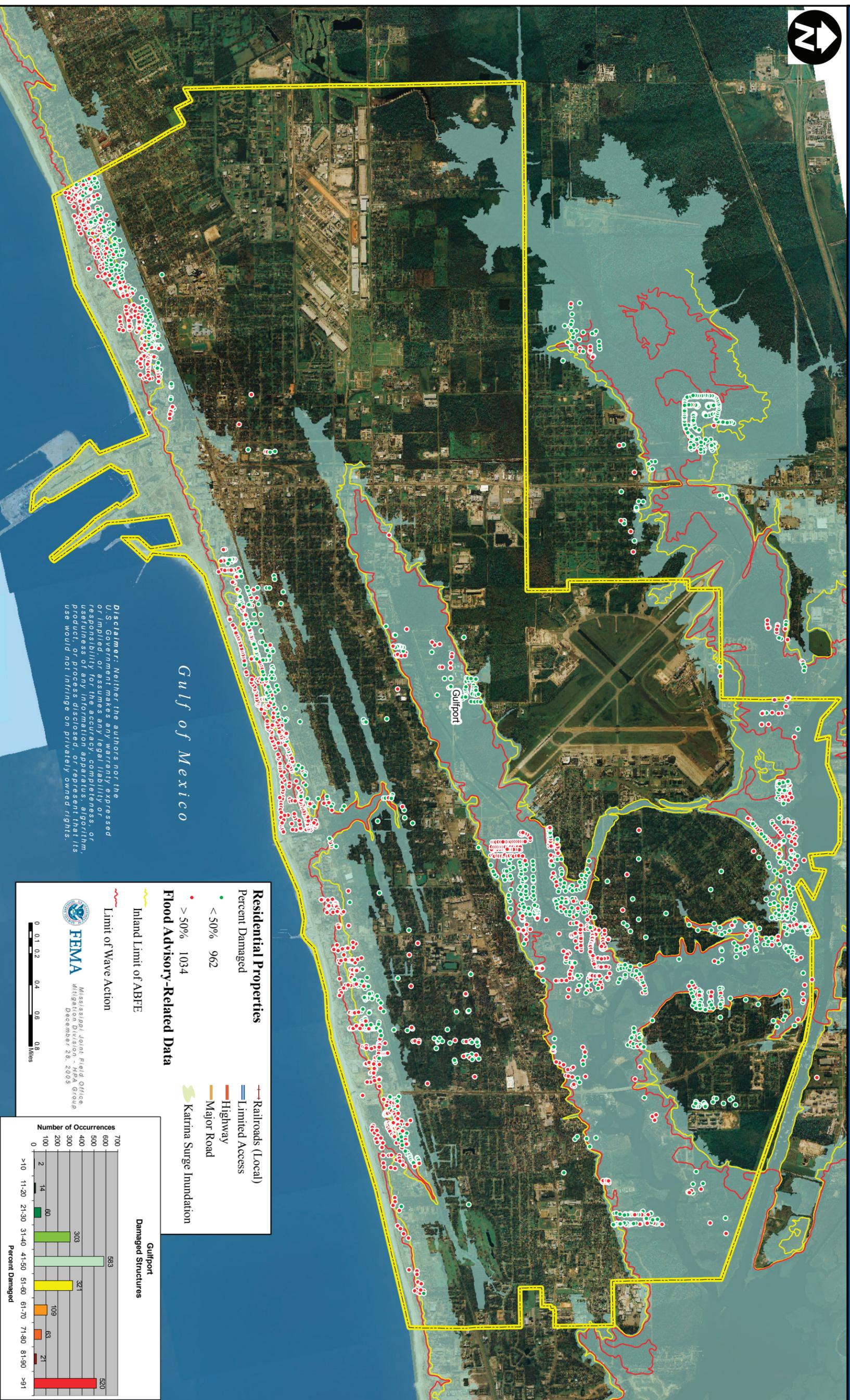
HURRICANE KATRINA: DR-1604-MS











*Gulf of Mexico*

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**Residential Properties Percent Damaged**

- < 50% 962
- > 50% 1034

**Flood Advisory-Related Data**

- Limit of Wave Action
- Inland Limit of ABFE
- Katrina Surge Inundation
- Railroads (Local)
- Limited Access
- Highway
- Major Road

**FEMA** Mississippi Joint Field Office  
Mitigation Division - HPA Group  
December 28, 2005

0 0.1 0.2 0.4 0.6 0.8 Miles

**Number of Occurrences**

Percent Damaged	Number of Occurrences
>10	2
11-20	14
21-30	60
31-40	303
41-50	883
51-60	321
61-70	109
71-80	63
81-90	21
>91	520

**Damaged Structures**

# RSDES IN RELATION TO THE KATRINA SURGE INUNDATION AND ABFES



**Residential Properties Percent Damaged**

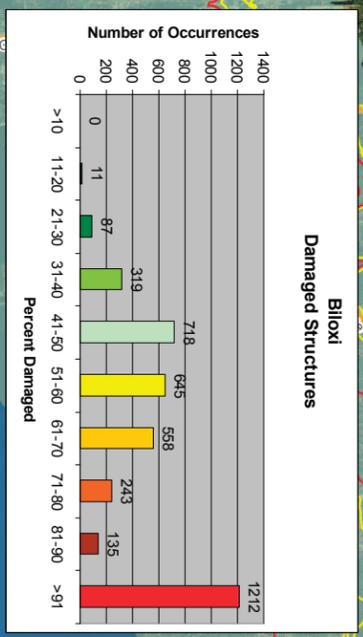
- < 50% 1135
- > 50% 2793

**Flood Advisory-Related Data**

- Limit of Wave Action
- Inland Limit of ABFE
- Limit of Wave Action
- Katrina Surge Inundation
- Major Road
- Highway
- Limited Access
- Railroads (Local)

**FEMA**  
 Mississippi Joint Field Office  
 Mobile Division Field Group  
 December 28, 2005

0 0.125 0.25 0.5 0.75 1 Miles



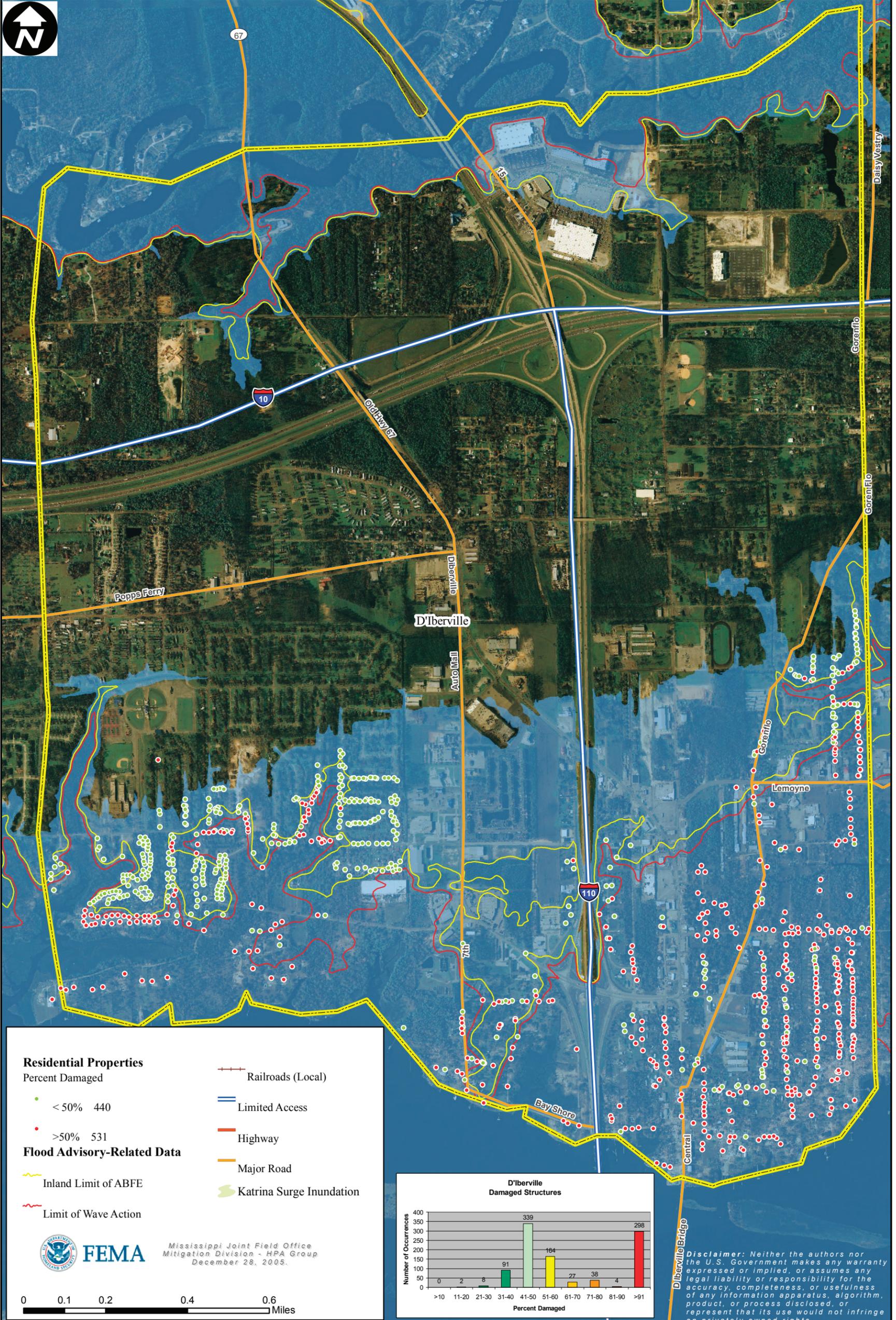
*Gulf of Mexico*

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# RSDs IN RELATION TO THE KATRINA SURGE INUNDATION AND ABFEs

CITY OF D'IBERVILLE, MS

HURRICANE KATRINA: DR-1604-MS



**Residential Properties**  
Percent Damaged

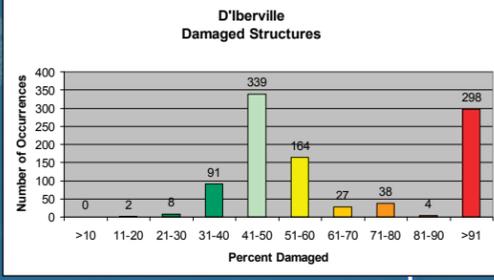
- < 50% 440
- > 50% 531

**Flood Advisory-Related Data**

- Inland Limit of ABFE
- Limit of Wave Action
- Railroads (Local)
- Limited Access
- Highway
- Major Road
- Katrina Surge Inundation

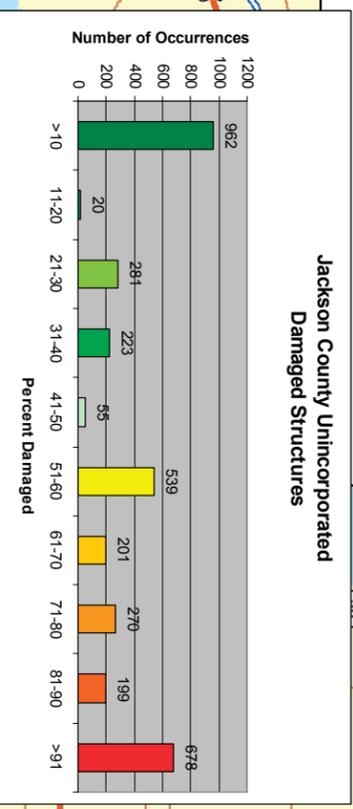
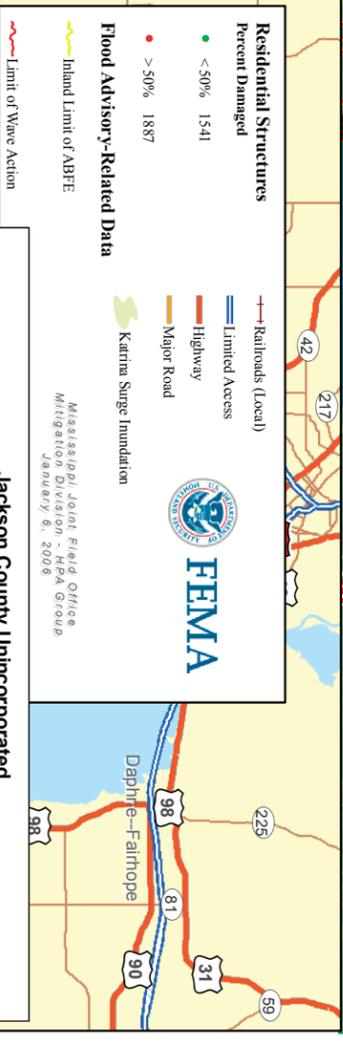
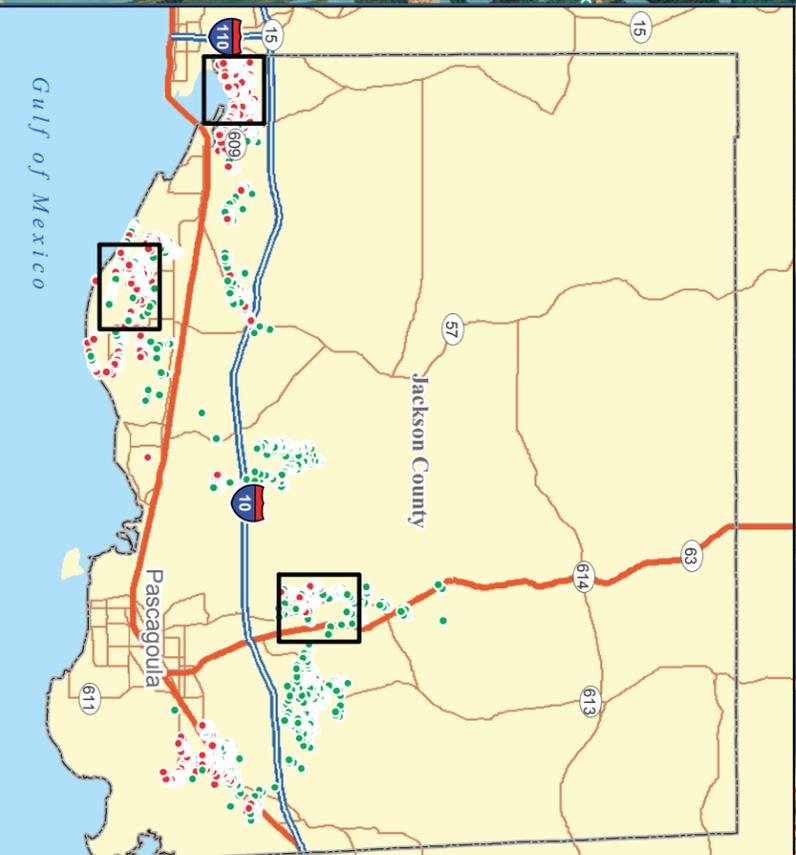
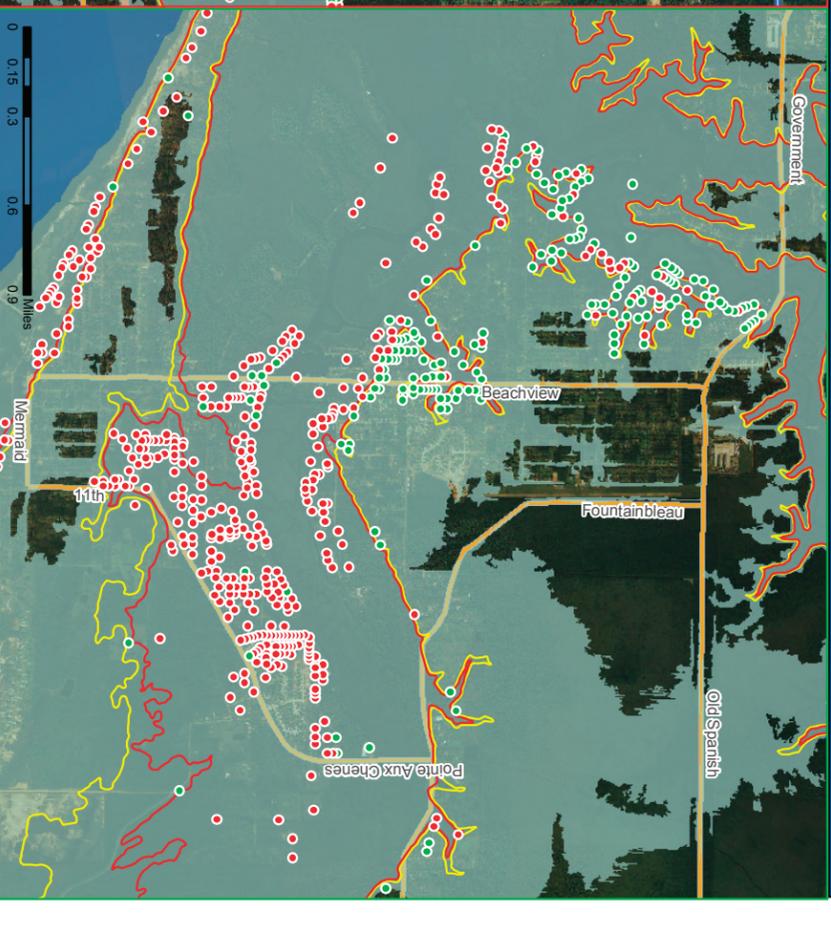
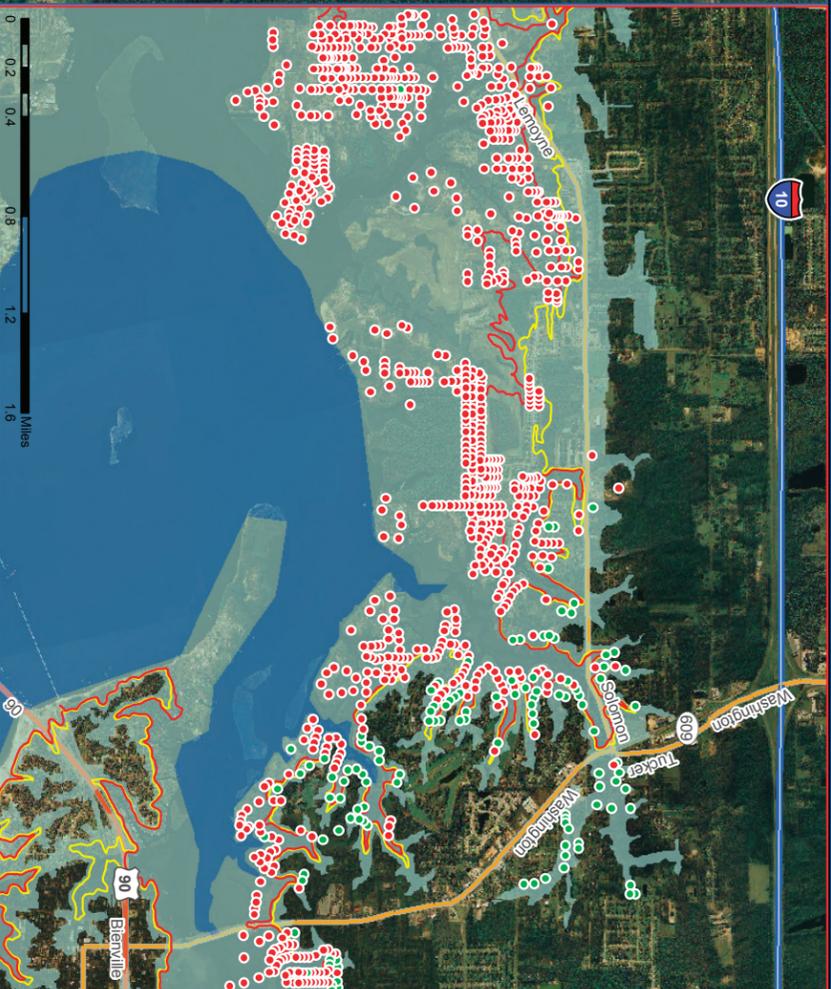
Mississippi Joint Field Office  
Mitigation Division - HPA Group  
December 28, 2005.

0 0.1 0.2 0.4 0.6 Miles

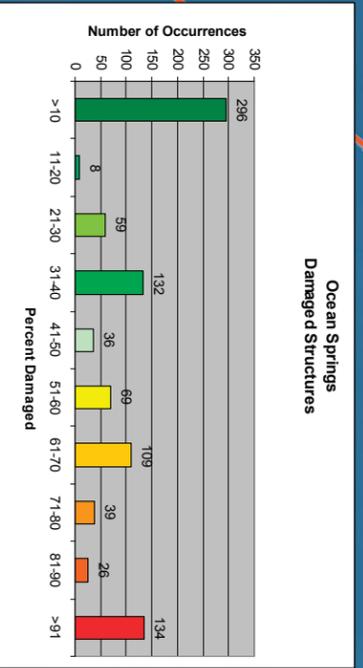
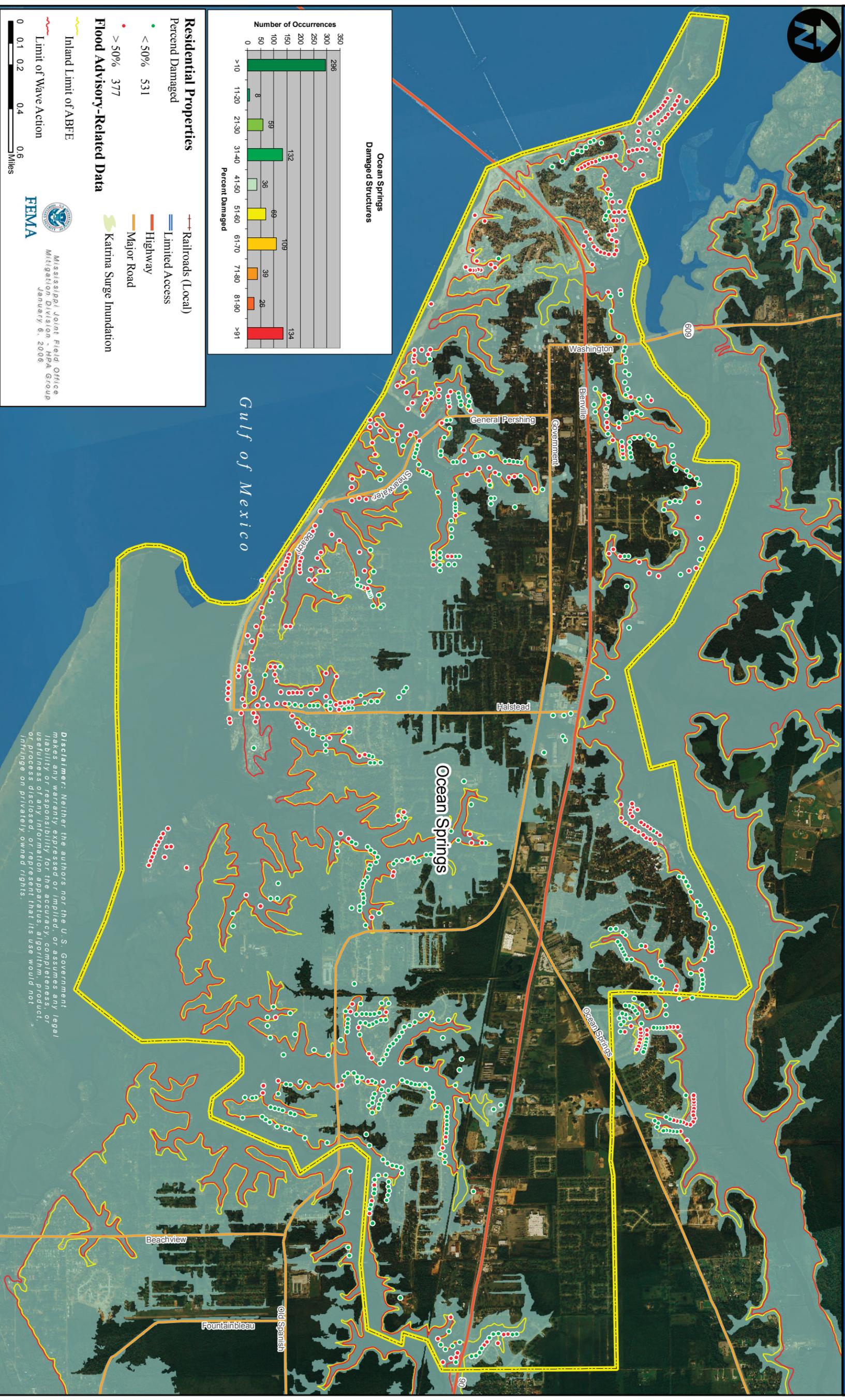


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**RSDES IN RELATION TO THE KATRINA SURGE INUNDATION AND ABFFES**



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- Residential Properties Percent Damaged**
- < 50% 531
  - > 50% 377
- Flood Advisory-Related Data**
- Inland Limit of ABFE
  - Limit of Wave Action
  - Railroads (Local)
  - Limited Access
  - Highway
  - Major Road
  - Katrina Surge Inundation

Mississippi Joint Field Office  
Mitigation Division - HPA Group  
January 6, 2006

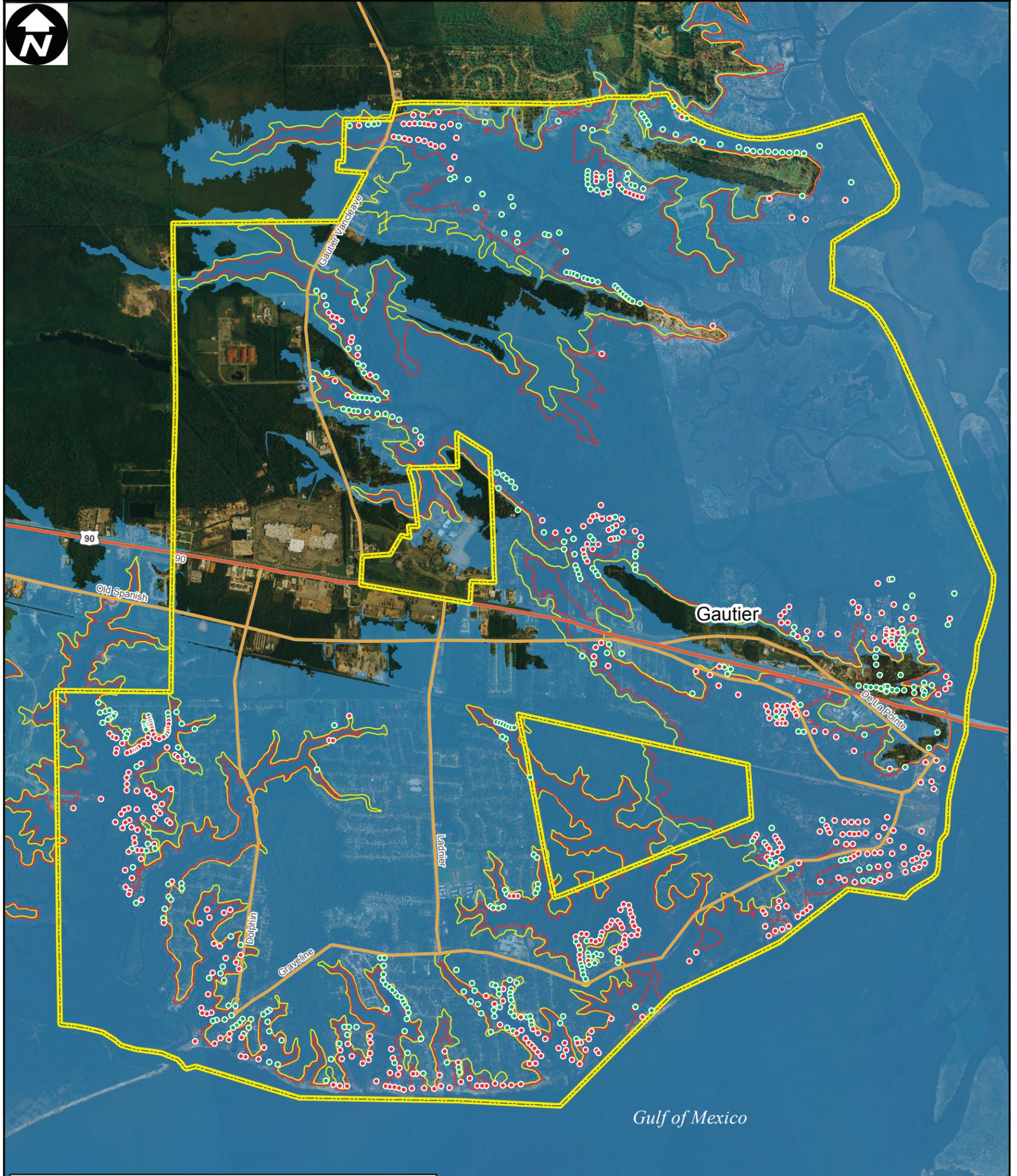
Scale: 0 0.1 0.2 0.4 0.6 Miles

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# RSDs IN RELATION TO THE KATRINA SURGE INUNDATION AND ABFES

CITY OF GAUTIER, MS

HURRICANE KATRINA: DR-1604-MS



**Residential Properties**  
Percent Damaged

- < 50% 396
- > 50% 448

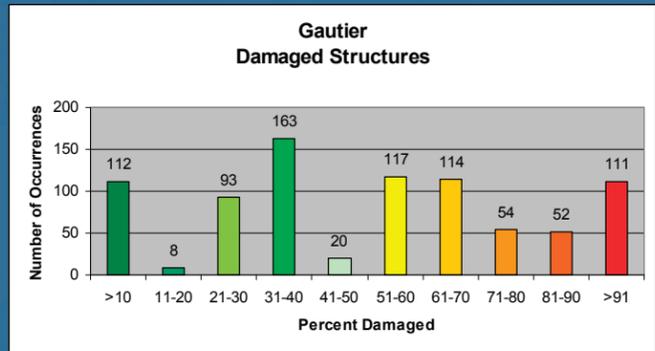
Railroads (Local)  
 Limited Access  
 Highway  
 Major Road

**Flood Advisory-Related Data**

- Inland Limit of ABFE
- Limit of Wave Action
- Katrina Surge Inundation

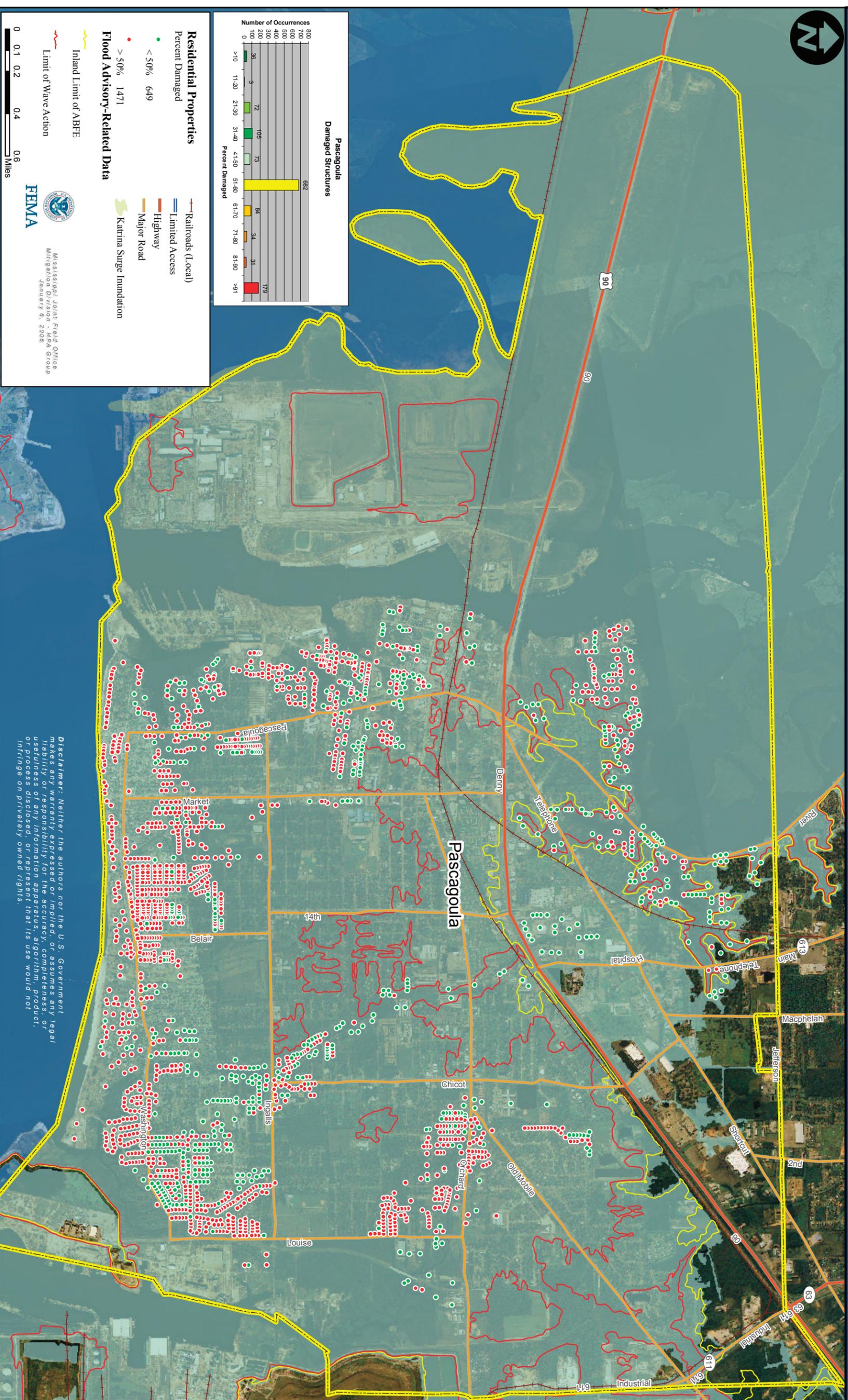
Mississippi Joint Field Office  
 Mitigation Division - HPA Group  
 January 6, 2005.

0 0.1 0.2 0.4 0.6 0.8 1 Miles



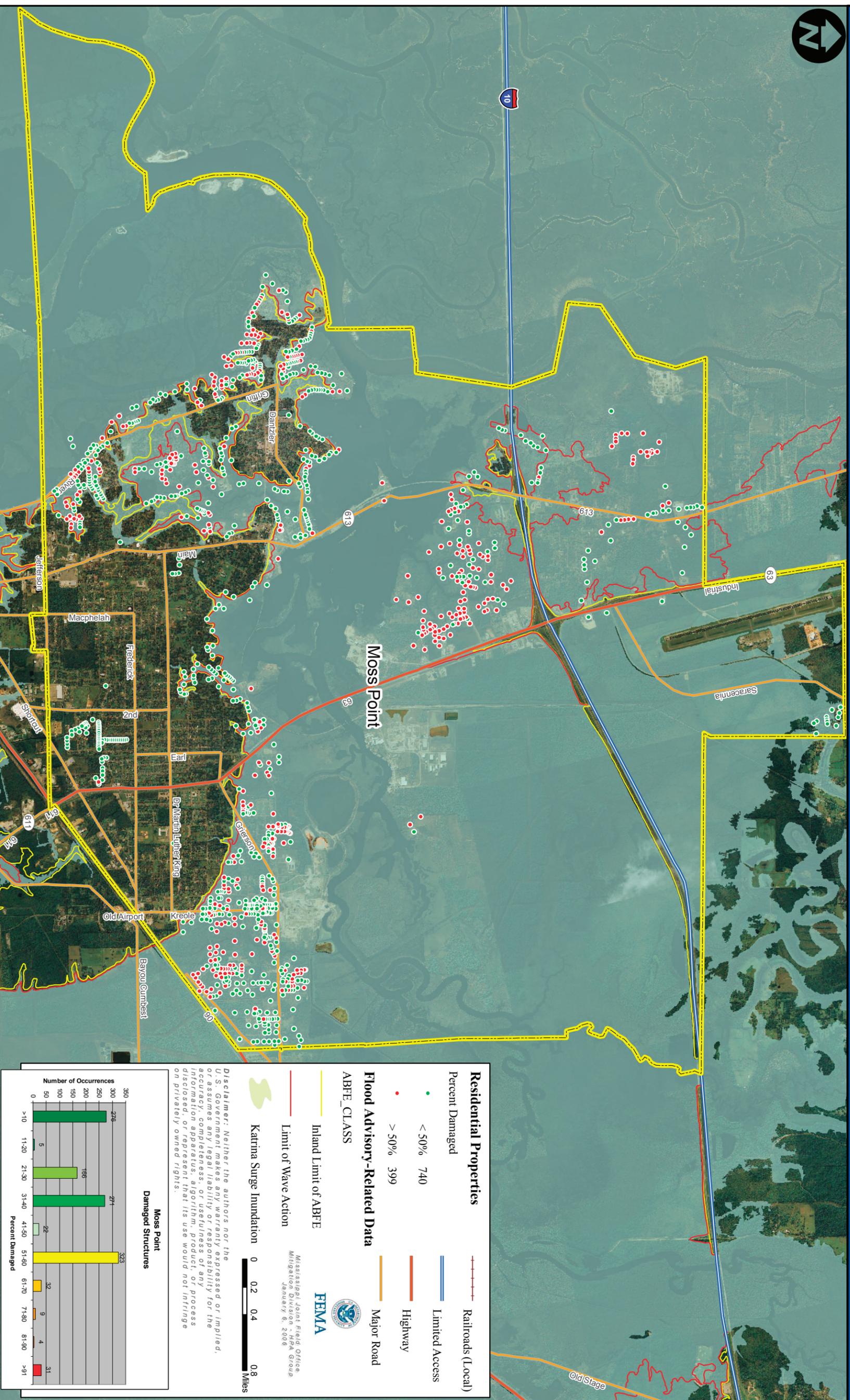
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**RSDES IN RELATION TO THE KATRINA SURGE INUNDATION AND ABFES**



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**RSDES IN RELATION TO THE KATRINA SURGE INUNDATION AND ABFES**



**Residential Properties**

Percent Damaged

- < 50% 740
- > 50% 399

- Railroads (Local)
- Limited Access
- Highway
- Major Road

**Flood Advisory-Related Data**

ABFE\_CLASS

- Inland Limit of ABFE
- Limit of Wave Action
- Katrina Surge Inundation

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January 8, 2006

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**Moss Point Damaged Structures**

Percent Damaged	Number of Occurrences
>10	276
11-20	166
21-30	271
31-40	22
41-50	323
51-60	32
61-70	9
71-80	4
81-90	4
>91	31

Scale: 0 0.2 0.4 0.8 Miles

# HURRICANE KATRINA FLOOD: GIS SPATIAL ANALYSIS OF FLOOD IMPACTS IN MISSISSIPPI

## SECTION 6

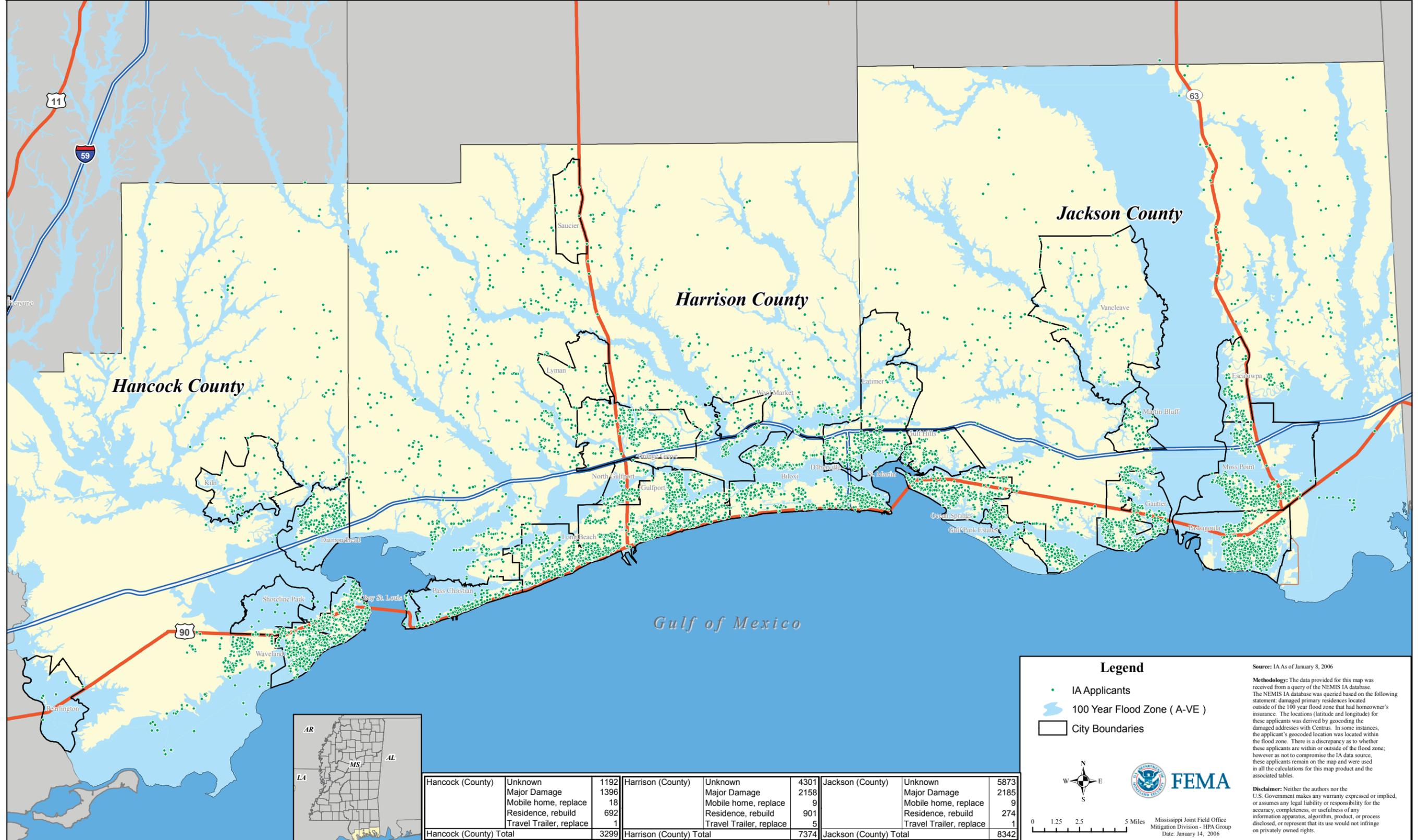
### DAMAGED PRIMARY RESIDENCES WITH INSURANCE OUTSIDE 100 YEAR FLOOD ZONE

# DAMAGED PRIMARY RESIDENCES WITH INSURANCE OUTSIDE 100 YEAR FLOOD ZONE

COASTAL COUNTIES

DR-1604-MS

HANCOCK, HARRISON, JACKSON



Hancock (County)	Unknown	1192	Harrison (County)	Unknown	4301	Jackson (County)	Unknown	5873
	Major Damage	1396		Major Damage	2158		Major Damage	2185
	Mobile home, replace	18		Mobile home, replace	9		Mobile home, replace	9
	Residence, rebuild	692		Residence, rebuild	901		Residence, rebuild	274
	Travel Trailer, replace	1		Travel Trailer, replace	5		Travel Trailer, replace	1
<b>Hancock (County) Total</b>		<b>3299</b>	<b>Harrison (County) Total</b>		<b>7374</b>	<b>Jackson (County) Total</b>		<b>8342</b>

### Legend

- IA Applicants
- 100 Year Flood Zone ( A-VE )
- City Boundaries

Source: IA As of January 8, 2006

**Methodology:** The data provided for this map was received from a query of the NEMIS IA database. The NEMIS IA database was queried based on the following statement: damaged primary residences located outside of the 100 year flood zone that had homeowner's insurance. The locations (latitude and longitude) for these applicants was derived by geocoding the damaged addresses with Centrus. In some instances, the applicant's geocoded location was located within the flood zone. There is a discrepancy as to whether these applicants are within or outside of the flood zone; however as not to compromise the IA data source, these applicants remain on the map and were used in all the calculations for this map product and the associated tables.

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Mississippi Joint Field Office  
Mitigation Division - HPA Group  
Date: January 14, 2006

# DAMAGED PRIMARY RESIDENCES WITH INSURANCE OUTSIDE 100 YEAR FLOOD ZONE

HANCOCK COUNTY

MS

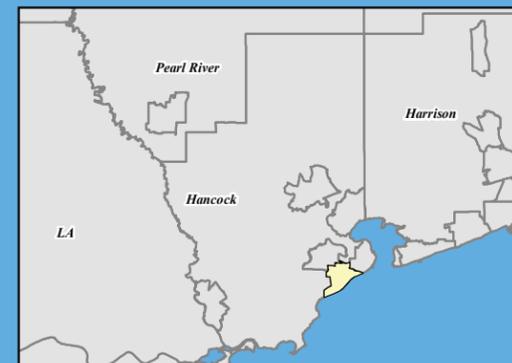
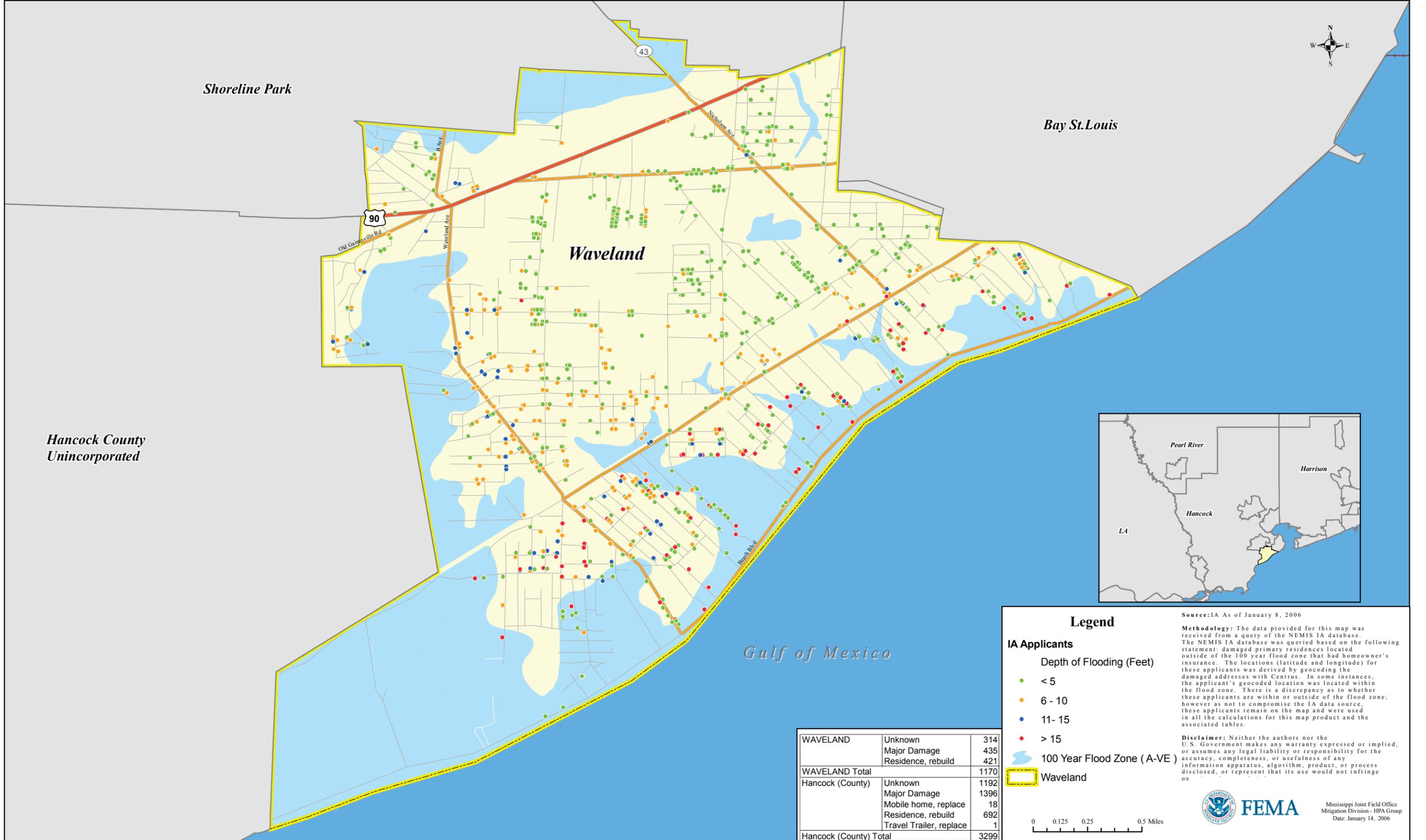


# DAMAGED PRIMARY RESIDENCES WITH INSURANCE OUTSIDE 100 YEAR FLOOD ZONE

HANCOCK COUNTY

DR-1604-MS

WAVELAND, MS



WAVELAND	Unknown	314
	Major Damage	435
	Residence, rebuild	421
WAVELAND Total		1170
Hancock (County)	Unknown	1192
	Major Damage	1396
	Mobile home, replace	18
	Residence, rebuild	692
	Travel Trailer, replace	1
Hancock (County) Total		3299

**Legend**

**IA Applicants**

Depth of Flooding (Feet)

- < 5
- 6 - 10
- 11 - 15
- > 15

■ 100 Year Flood Zone (A-VE)

■ Waveland

Source: IA As of January 8, 2006

**Methodology:** The data provided for this map was received from a query of the NEMIS IA database. The NEMIS IA database was queried based on the following statement: damaged primary residences located outside of the 100 year flood zone that had homeowner's insurance. The locations (latitude and longitude) for these applicants was derived by geocoding the damaged addresses with Centrus. In some instances, the applicant's geocoded location was located within the flood zone. There is a discrepancy as to whether these applicants are within or outside of the flood zone; however as not to compromise the IA data source, these applicants remain on the map and were used in all the calculations for this map product and the associated tables.

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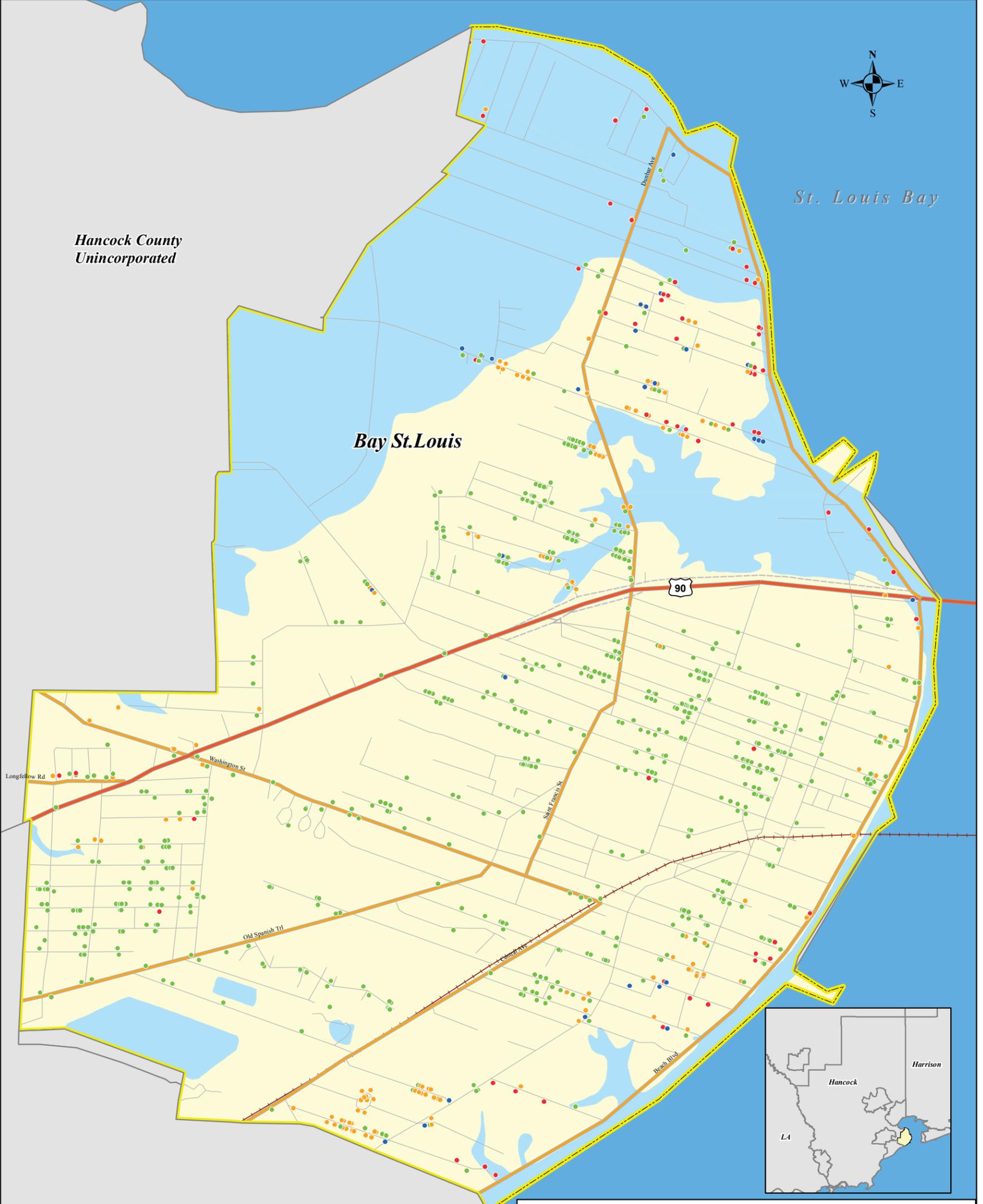
0 0.125 0.25 0.5 Miles

**FEMA** Mississippi Joint Field Office Mitigation Division - HPA Group Date: January 14, 2006

# DAMAGED PRIMARY RESIDENCES WITH INSURANCE OUTSIDE 100 YEAR FLOOD ZONE

HANCOCK COUNTY

BAY ST. LOUIS, MS



Bay St. Louis	Unknown	368
	Major Damage	739
	Mobile home, replace	14
	Residence, rebuild	223
	Travel Trailer, replace	1
Bay St. Louis	<b>Total</b>	<b>1345</b>
Hancock (County)	Unknown	1192
	Major Damage	1396
	Mobile home, replace	18
	Residence, rebuild	692
	Travel Trailer, replace	1
Hancock (County) Total		<b>3299</b>

**Legend**

**IA Applicants**

Depth of Flooding (Feet)

- < 5
- 6 - 10
- 11- 15
- > 15

100 Year Flood Zone ( A-VE )

Bay St. Louis

0 0.1 0.2 0.4 Miles

Source: IA As of January 8, 2006

**Methodology:** The data provided for this map was received from a query of the NEMIS IA database. The NEMIS IA database was queried based on the following statement: damaged primary residences located outside of the 100 year flood zone that had homeowner's insurance. The locations (latitude and longitude) for these applicants was derived by geocoding the damaged addresses with Centrus. In some instances, the applicant's geocoded location was located within the flood zone. There is a discrepancy as to whether these applicants are within or outside of the flood zone; however as not to compromise the IA data source, these applicants remain on the map and were used in all the calculations for this map product and the associated tables.

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# DAMAGED PRIMARY RESIDENCES WITH INSURANCE OUTSIDE 100 YEAR FLOOD ZONE

HARRISON COUNTY

MS

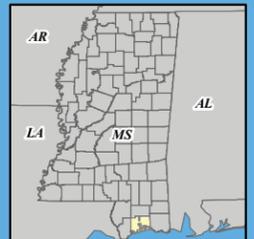


George  
County

Stone County

Jackson  
County

Harrison County



Gulf of Mexico

### Legend

- Limited Access
- Highway
- Major Road
- Individual Applicants
- 100 Year Flood Zone ( A-VE )
- City Boundary

Source: IA As of January 8, 2006

**Methodology:** The data provided for this map was received from a query of the NEMIS IA database. The NEMIS IA database was queried based on the following statement: damaged primary residences located outside of the 100 year flood zone that had homeowner's insurance. The locations (latitude and longitude) for these applicants was derived by geocoding the damaged addresses with Centrus. In some instances, the applicant's geocoded location was located within the flood zone. There is a discrepancy as to whether these applicants are within or outside of the flood zone; however as not to compromise the IA data source, these applicants remain on the map and were used in all the calculations for this map product and the associated tables.

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0 1 2 4 Miles

Harrison (County)	Unknown	4301
	Major Damage	2158
	Mobile home, replace	9
	Residence, rebuild	901
	Travel Trailer, replace	5
<b>Harrison (County) Total</b>		<b>7374</b>



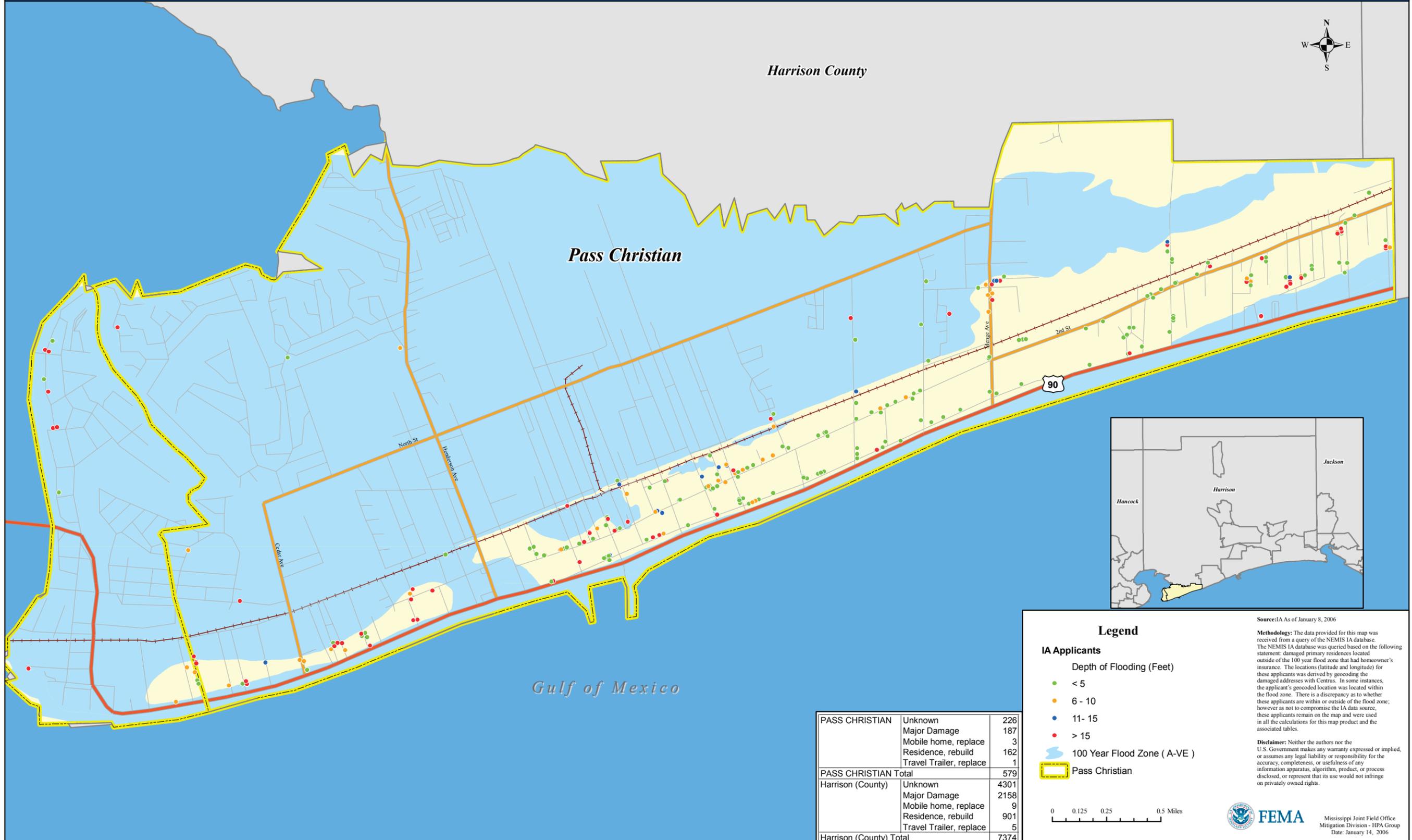
Mississippi Joint Field Office  
Mitigation Division - HPA Group  
Date: January 14, 2006

# DAMAGED PRIMARY RESIDENCES WITH INSURANCE OUTSIDE 100 YEAR FLOOD ZONE

HARRISON COUNTY

DR-1604-MS

PASS CHRISTIAN, MS



Harrison County

Pass Christian

Gulf of Mexico



**Legend**

**IA Applicants**

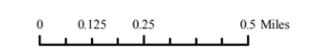
Depth of Flooding (Feet)

- < 5
- 6 - 10
- 11 - 15
- > 15

100 Year Flood Zone ( A-VE )

Pass Christian

PASS CHRISTIAN	Unknown	226
	Major Damage	187
	Mobile home, replace	3
	Residence, rebuild	162
	Travel Trailer, replace	1
<b>PASS CHRISTIAN Total</b>		<b>579</b>
Harrison (County)	Unknown	4301
	Major Damage	2158
	Mobile home, replace	9
	Residence, rebuild	901
	Travel Trailer, replace	5
<b>Harrison (County) Total</b>		<b>7374</b>



Source: IA As of January 8, 2006

**Methodology:** The data provided for this map was received from a query of the NEMIS IA database. The NEMIS IA database was queried based on the following statement: damaged primary residences located outside of the 100 year flood zone that had homeowner's insurance. The locations (latitude and longitude) for these applicants was derived by geocoding the damaged addresses with Centrus. In some instances, the applicant's geocoded location was located within the flood zone. There is a discrepancy as to whether these applicants are within or outside of the flood zone; however as not to compromise the IA data source, these applicants remain on the map and were used in all the calculations for this map product and the associated tables.

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# DAMAGED PRIMARY RESIDENCES WITH INSURANCE OUTSIDE 100 YEAR FLOOD ZONE

HARRISON COUNTY

DR-1604-MS

LONG BEACH, MS



Gulfport

Long Beach

Harrison County  
Unincorporated

Pass Christian

Gulf of Mexico

**Legend**

**IA Applicants**

Depth of Flooding (Feet)

- < 5
- 6 - 10
- 11 - 15
- > 15

100 Year Flood Zone (A-VE)

Long Beach

0 0.125 0.25 0.5 Miles

**Source:** IA As of January 8, 2006

**Methodology:** The data provided for this map was received from a query of the NEMIS IA database. The NEMIS IA database was queried based on the following statement: damaged primary residences located outside of the 100 year flood zone that had homeowner's insurance. The locations (latitude and longitude) for these applicants was derived by geocoding the damaged addresses with Centrus. In some instances, the applicant's geocoded location was located within the flood zone. There is a discrepancy as to whether these applicants are within or outside of the flood zone; however as not to compromise the IA data source, these applicants remain on the map and were used in all the calculations for this map product and the associated tables.

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Date: January 14, 2006

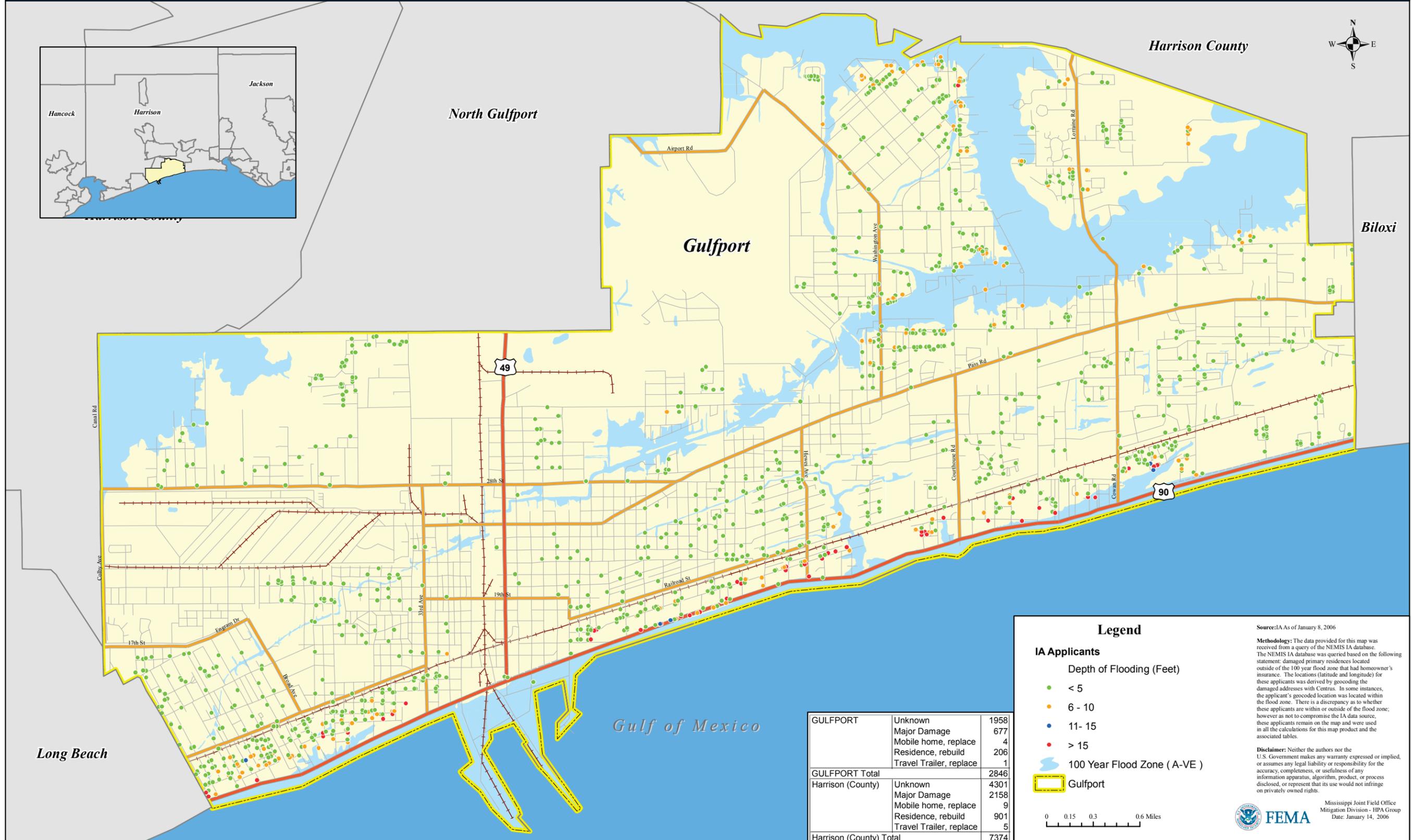
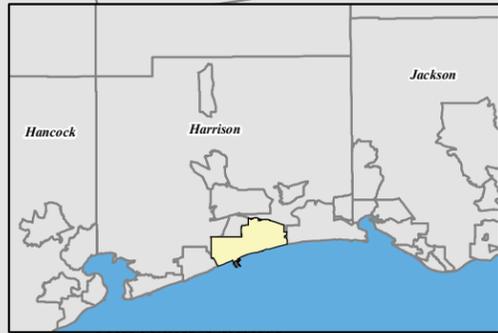
LONG BEACH	Unknown	427
	Major Damage	188
	Mobile home, replace	1
	Residence, rebuild	183
Harrison (County)	Unknown	4301
	Major Damage	2158
	Mobile home, replace	9
	Residence, rebuild	901
	Travel Trailer, replace	5
Harrison (County) Total		7374

# DAMAGED PRIMARY RESIDENCES WITH INSURANCE OUTSIDE 100 YEAR FLOOD ZONE

HARRISON COUNTY

DR-1604-MS

GULFPORT, MS



**Legend**

**IA Applicants**

Depth of Flooding (Feet)

- < 5
- 6 - 10
- 11- 15
- > 15

100 Year Flood Zone ( A-VE )

Gulfport

0 0.15 0.3 0.6 Miles

**Source:** IA As of January 8, 2006

**Methodology:** The data provided for this map was received from a query of the NEMIS IA database. The NEMIS IA database was queried based on the following statement: damaged primary residences located outside of the 100 year flood zone that had homeowner's insurance. The locations (latitude and longitude) for these applicants was derived by geocoding the damaged addresses with Centrus. In some instances, the applicant's geocoded location was located within the flood zone. There is a discrepancy as to whether these applicants are within or outside of the flood zone; however as not to compromise the IA data source, these applicants remain on the map and were used in all the calculations for this map product and the associated tables.

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Mitigation Division - HPA Group  
Date: January 14, 2006

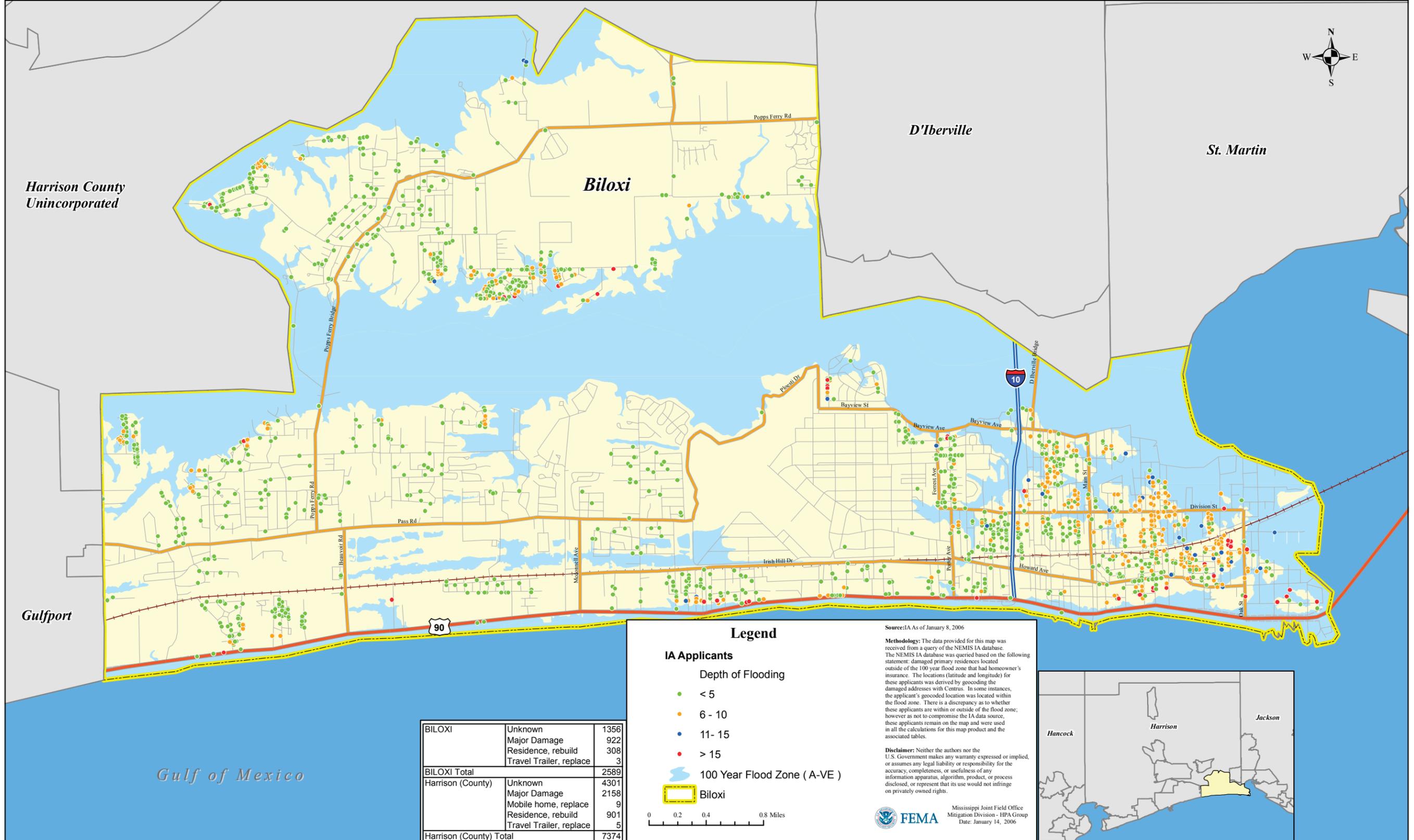
GULFPORT	Unknown	1958
	Major Damage	677
	Mobile home, replace	4
	Residence, rebuild	206
	Travel Trailer, replace	1
<b>GULFPORT Total</b>		<b>2846</b>
Harrison (County)	Unknown	4301
	Major Damage	2158
	Mobile home, replace	9
	Residence, rebuild	901
	Travel Trailer, replace	5
<b>Harrison (County) Total</b>		<b>7374</b>

# DAMAGED PRIMARY RESIDENCES WITH INSURANCE OUTSIDE 100 YEAR FLOOD ZONE

HARRISON COUNTY

DR-1604-MS

BILOXI, MS



**Legend**

**IA Applicants**

Depth of Flooding

- < 5
- 6 - 10
- 11- 15
- > 15

100 Year Flood Zone ( A-VE )

Biloxi

BILOXI	Unknown	1356
	Major Damage	922
	Residence, rebuild	308
	Travel Trailer, replace	3
<b>BILOXI Total</b>		<b>2589</b>
Harrison (County)	Unknown	4301
	Major Damage	2158
	Mobile home, replace	9
	Residence, rebuild	901
	Travel Trailer, replace	5
<b>Harrison (County) Total</b>		<b>7374</b>

Source: IA As of January 8, 2006

**Methodology:** The data provided for this map was received from a query of the NEMIS IA database. The NEMIS IA database was queried based on the following statement: damaged primary residences located outside of the 100 year flood zone that had homeowner's insurance. The locations (latitude and longitude) for these applicants was derived by geocoding the damaged addresses with Centrus. In some instances, the applicant's geocoded location was located within the flood zone. There is a discrepancy as to whether these applicants are within or outside of the flood zone; however as not to compromise the IA data source, these applicants remain on the map and were used in all the calculations for this map product and the associated tables.

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**FEMA** Mississippi Joint Field Office  
Mitigation Division - HPA Group  
Date: January 14, 2006



# DAMAGED PRIMARY RESIDENCES WITH INSURANCE OUTSIDE 100 YEAR FLOOD ZONE

HARRISON COUNTY

D'IBERVILLE, MS

*Harrison County  
Unincorporated*



*Biloxi*

*Latimer*

*St. Martin*



D'IBERVILLE	Unknown	262
	Major Damage	226
	Mobile home, replace	1
	Residence, rebuild	70
<b>D'IBERVILLE Total</b>		<b>559</b>
Harrison (County)	Unknown	4301
	Major Damage	2158
	Mobile home, replace	9
	Residence, rebuild	901
	Travel Trailer, replace	5
<b>Harrison (County) Total</b>		<b>7374</b>

## Legend

### IA Applicants

#### Depth of Flooding (Feet)

- < 5
- 6 - 10
- 11 - 15
- > 15
- 100 Year Flood Zone (A-VE)
- D'Iberville

0 0.1 0.2 0.4 Miles

Source: IA As of January 8, 2006

**Methodology:** The data provided for this map was received from a query of the NEMIS IA database. The NEMIS IA database was queried based on the following statement: damaged primary residences located outside of the 100 year flood zone that had homeowner's insurance. The locations (latitude and longitude) for these applicants was derived by geocoding the damaged addresses with Centrus. In some instances, the applicant's geocoded location was located within the flood zone. There is a discrepancy as to whether these applicants are within or outside of the flood zone; however as not to compromise the IA data source, these applicants remain on the map and were used in all the calculations for this map product and the associated tables.

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Mississippi Joint Field Office  
Mitigation Division - HPA Group  
Date: January 14, 2006

# DAMAGED PRIMARY RESIDENCES WITH INSURANCE OUTSIDE 100 YEAR FLOOD ZONE

JACKSON COUNTY

MS



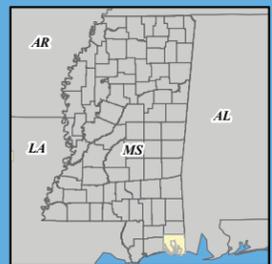
George County

AL

Jackson County



Gulf of Mexico



### Legend

- Limited Access
- Highway
- Major Road
- Individual Applicants
- 100 Year Flood Zone (A-VE)
- City Boundary



0 1 2 4 Miles

Source: IA As of January 8, 2006

**Methodology:** The data provided for this map was received from a query of the NEMIS IA database. The NEMIS IA database was queried based on the following statement: damaged primary residences located outside of the 100 year flood zone that had homeowner's insurance. The locations (latitude and longitude) for these applicants was derived by geocoding the damaged addresses with Centrus. In some instances, the applicant's geocoded location was located within the flood zone. There is a discrepancy as to whether these applicants are within or outside of the flood zone; however as not to compromise the IA data source, these applicants remain on the map and were used in all the calculations for this map product and the associated tables.

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Mitigation Division - HPA Group  
Date: January 14, 2006

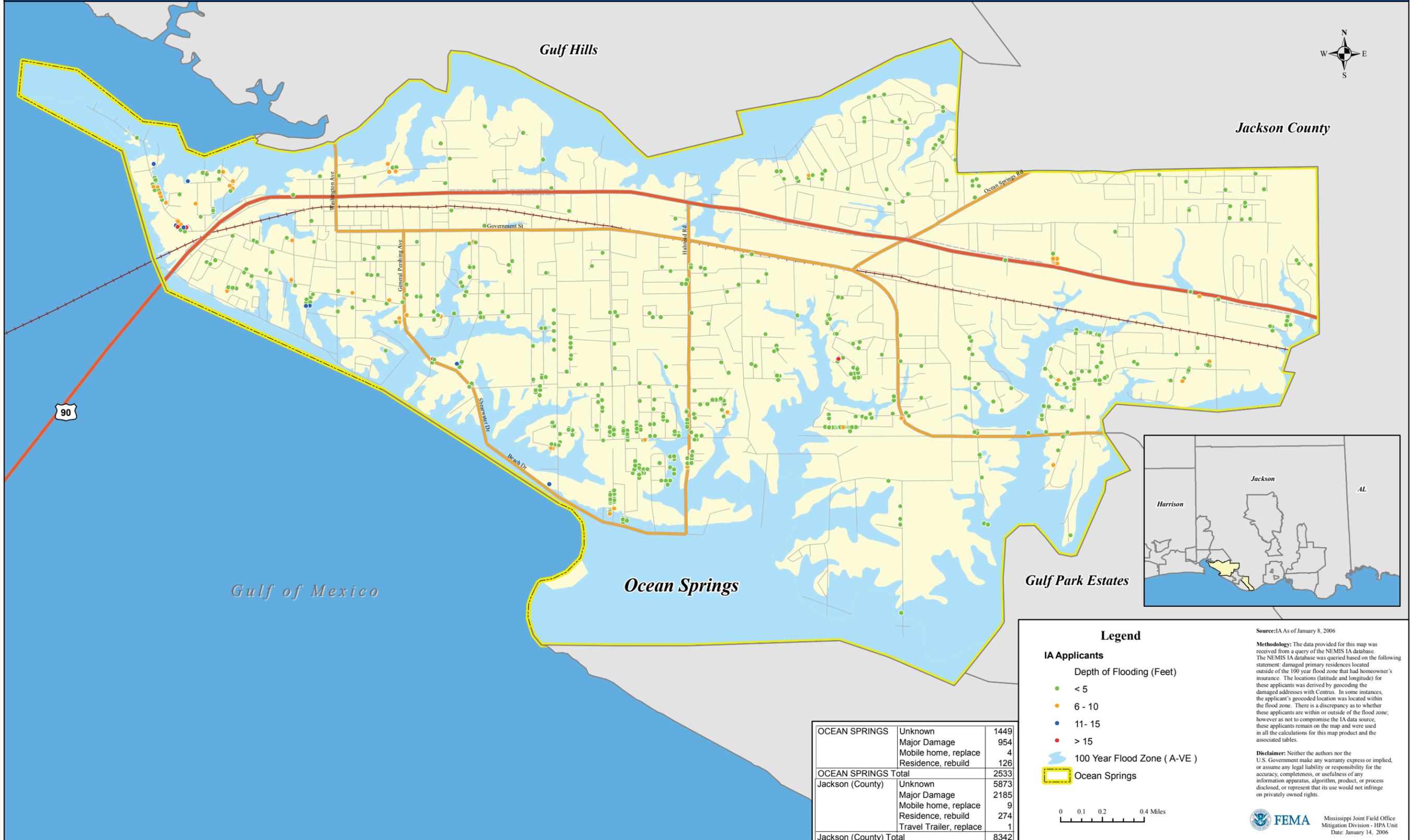
Jackson (County)	Unknown	5873
	Major Damage	2185
	Mobile home, replace	9
	Residence, rebuild	274
	Travel Trailer, replace	1
<b>Jackson (County) Total</b>		<b>8342</b>

# DAMAGED PRIMARY RESIDENCES WITH INSURANCE OUTSIDE 100 YEAR FLOOD ZONE

JACKSON COUNTY

DR-1604-MS

OCEAN SPRINGS, MS



OCEAN SPRINGS	Unknown	1449
	Major Damage	954
	Mobile home, replace	4
	Residence, rebuild	126
OCEAN SPRINGS Total		2533
Jackson (County)	Unknown	5873
	Major Damage	2185
	Mobile home, replace	9
	Residence, rebuild	274
	Travel Trailer, replace	1
Jackson (County) Total		8342

**Legend**

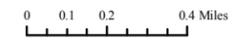
**IA Applicants**

Depth of Flooding (Feet)

- < 5
- 6 - 10
- 11 - 15
- > 15

100 Year Flood Zone ( A-VE )

Ocean Springs



Source: IA As of January 8, 2006

**Methodology:** The data provided for this map was received from a query of the NEMIS IA database. The NEMIS IA database was queried based on the following statement: damaged primary residences located outside of the 100 year flood zone that had homeowner's insurance. The locations (latitude and longitude) for these applicants was derived by geocoding the damaged addresses with Centrus. In some instances, the applicant's geocoded location was located within the flood zone. There is a discrepancy as to whether these applicants are within or outside of the flood zone; however as not to compromise the IA data source, these applicants remain on the map and were used in all the calculations for this map product and the associated tables.

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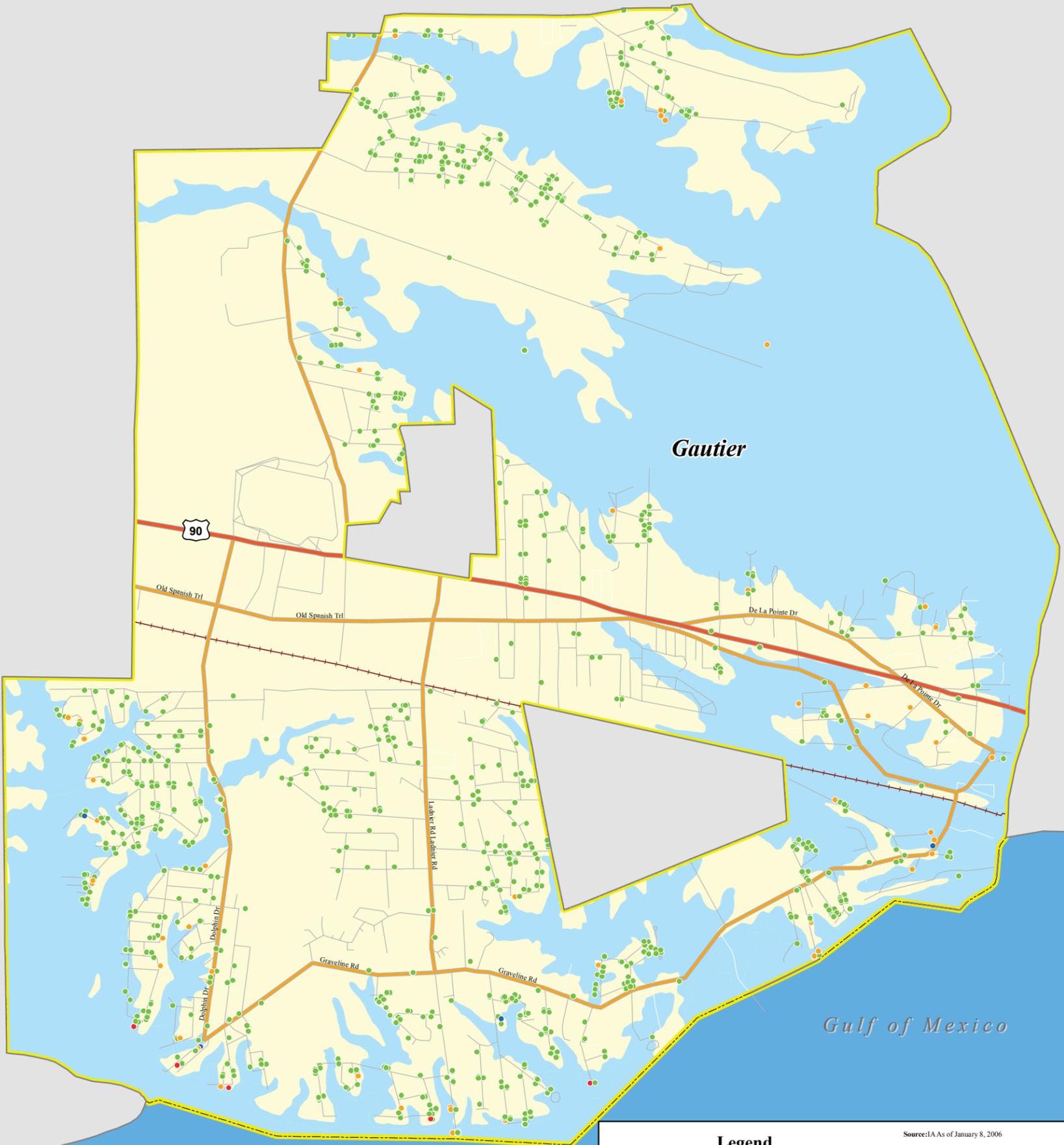
**FEMA** Mississippi Joint Field Office  
Mitigation Division - HPA Unit  
Date: January 14, 2006

# DAMAGED PRIMARY RESIDENCES WITH INSURANCE OUTSIDE 100 YEAR FLOOD ZONE

JACKSON COUNTY

GAUTIER, MS

*Jackson County  
Unincorporated*



GAUTIER	Unknown	1023
	Major Damage	342
	Mobile home, replace	3
	Residence, rebuild	56
	Travel Trailer, replace	1
<b>GAUTIER Total</b>		<b>1425</b>
Jackson (County)	Unknown	5873
	Major Damage	2185
	Mobile home, replace	9
	Residence, rebuild	274
	Travel Trailer, replace	1
<b>Jackson (County) Total</b>		<b>8342</b>

- Legend**
- IA Applicants**
- Depth of Flooding (Feet)
- < 5
  - 6 - 10
  - 11- 15
  - > 15
  - 100 Year Flood Zone ( A-VE )
  - Gautier



Source: IA As of January 8, 2006

**Methodology:** The data provided for this map was received from a query of the NEMIS IA database. The NEMIS IA database was queried based on the following statement: damaged primary residences located outside of the 100 year flood zone that had homeowner's insurance. The locations (latitude and longitude) for these applicants was derived by geocoding the damaged addresses with Centrus. In some instances, the applicant's geocoded location was located within the flood zone. There is a discrepancy as to whether these applicants are within or outside of the flood zone; however as not to compromise the IA data source, these applicants remain on the map and were used in all the calculations for this map product and the associated tables.

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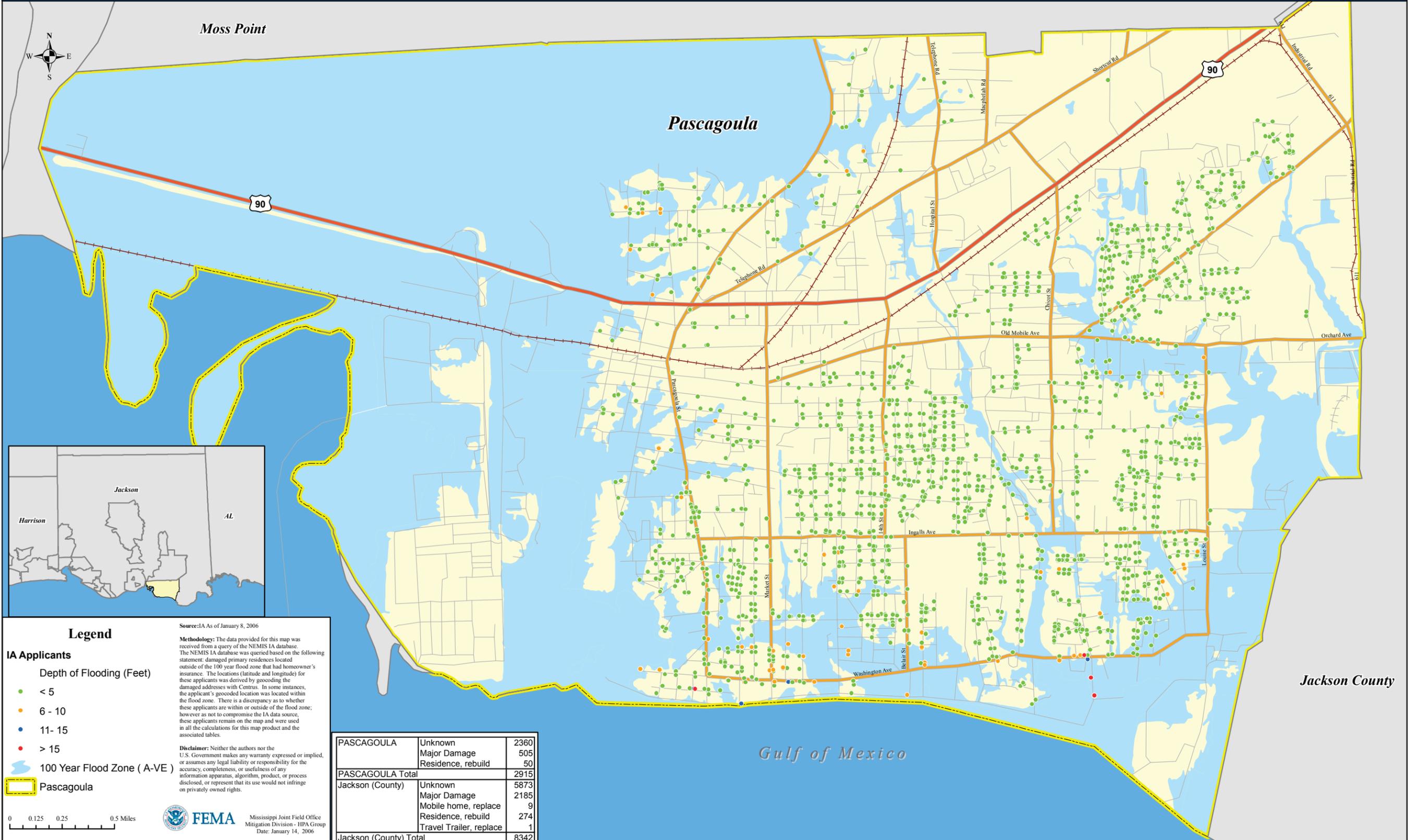
Mississippi Joint Field Office  
Mitigation Division - HPA Group  
Date: January 14, 2006

# DAMAGED PRIMARY RESIDENCES WITH INSURANCE OUTSIDE 100 YEAR FLOOD ZONE

JACKSON COUNTY

DR-1604-MS

PASCAGOULA, MS



Moss Point

Pascagoula

Jackson County

Gulf of Mexico

## Legend

### IA Applicants

#### Depth of Flooding (Feet)

- < 5
- 6 - 10
- 11- 15
- > 15

  100 Year Flood Zone ( A-VE )

  Pascagoula

Source: IA As of January 8, 2006

**Methodology:** The data provided for this map was received from a query of the NEMIS IA database. The NEMIS IA database was queried based on the following statement: damaged primary residences located outside of the 100 year flood zone that had homeowner's insurance. The locations (latitude and longitude) for these applicants was derived by geocoding the damaged addresses with Centrus. In some instances, the applicant's geocoded location was located within the flood zone. There is a discrepancy as to whether these applicants are within or outside of the flood zone; however as not to compromise the IA data source, these applicants remain on the map and were used in all the calculations for this map product and the associated tables.

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PASCAGOULA	Unknown	2360
	Major Damage	505
	Residence, rebuild	50
<b>PASCAGOULA Total</b>		<b>2915</b>
Jackson (County)	Unknown	5873
	Major Damage	2185
	Mobile home, replace	9
	Residence, rebuild	274
	Travel Trailer, replace	1
<b>Jackson (County) Total</b>		<b>8342</b>

0 0.125 0.25 0.5 Miles



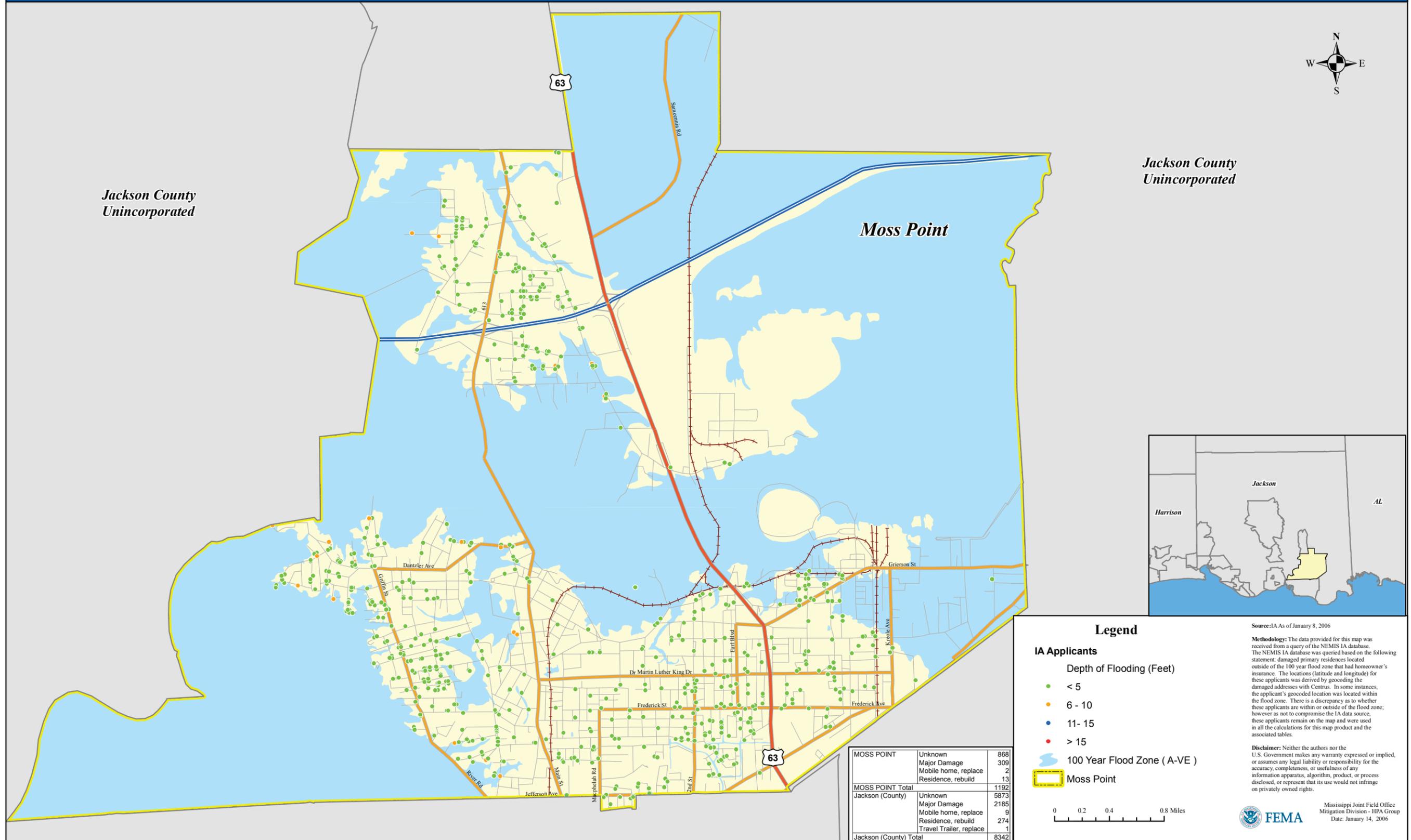
Mississippi Joint Field Office  
Mitigation Division - HPA Group  
Date: January 14, 2006

# DAMAGED PRIMARY RESIDENCES WITH INSURANCE OUTSIDE 100 YEAR FLOOD ZONE

JACKSON COUNTY

DR-1604-MS

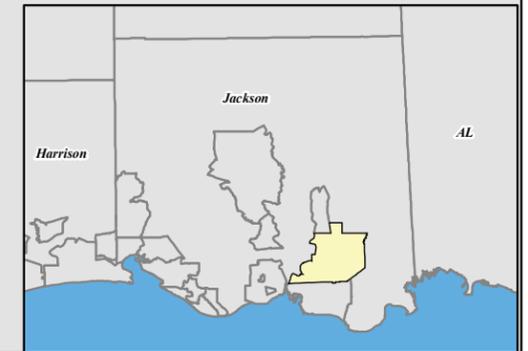
MOSS POINT, MS



Jackson County  
Unincorporated

Jackson County  
Unincorporated

*Moss Point*



### Legend

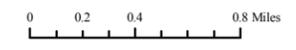
#### IA Applicants

##### Depth of Flooding (Feet)

- < 5
- 6 - 10
- 11 - 15
- > 15

   100 Year Flood Zone (A-VE)

   Moss Point



Source: IA As of January 8, 2006

**Methodology:** The data provided for this map was received from a query of the NEMIS IA database. The NEMIS IA database was queried based on the following statement: damaged primary residences located outside of the 100 year flood zone that had homeowner's insurance. The locations (latitude and longitude) for these applicants was derived by geocoding the damaged addresses with Centrus. In some instances, the applicant's geocoded location was located within the flood zone. There is a discrepancy as to whether these applicants are within or outside of the flood zone; however as not to compromise the IA data source, these applicants remain on the map and were used in all the calculations for this map product and the associated tables.

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Date: January 14, 2006

MOSS POINT	Unknown	868
	Major Damage	309
	Mobile home, replace	2
	Residence, rebuild	13
MOSS POINT Total		1192
Jackson (County)	Unknown	5873
	Major Damage	2185
	Mobile home, replace	9
	Residence, rebuild	274
	Travel Trailer, replace	1
Jackson (County) Total		8342

# **HURRICANE KATRINA FLOOD: GIS SPATIAL ANALYSIS OF FLOOD IMPACTS IN MISSISSIPPI**

## **SECTION 7**

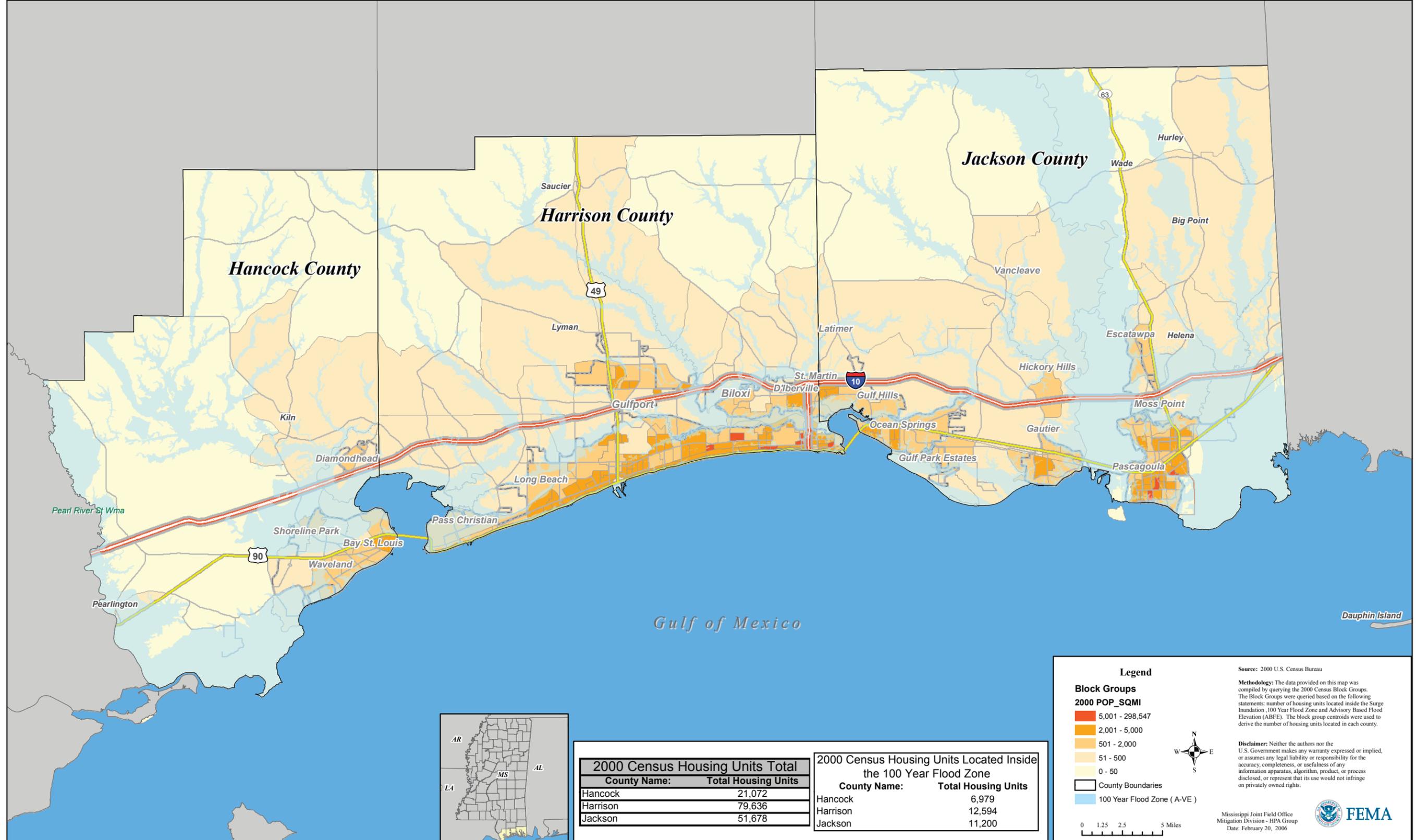
### **COASTAL COUNTY STRUCTURE DATA IN RELATION TO THE 100 YEAR FLOOD ZONE**

# COASTAL COUNTY STRUCTURE DATA IN RELATION TO THE 100 YEAR FLOOD ZONE

COASTAL COUNTIES

DR-1604-MS

HANCOCK, HARRISON, JACKSON



2000 Census Housing Units Total		2000 Census Housing Units Located Inside the 100 Year Flood Zone	
County Name:	Total Housing Units	County Name:	Total Housing Units
Hancock	21,072	Hancock	6,979
Harrison	79,636	Harrison	12,594
Jackson	51,678	Jackson	11,200

**Legend**

**Block Groups**  
**2000 POP\_SQMI**

- 5,001 - 298,547
- 2,001 - 5,000
- 501 - 2,000
- 51 - 500
- 0 - 50

County Boundaries  
 100 Year Flood Zone (A-VE)

Source: 2000 U.S. Census Bureau

**Methodology:** The data provided on this map was compiled by querying the 2000 Census Block Groups. The Block Groups were queried based on the following statements: number of housing units located inside the Surge Inundation, 100 Year Flood Zone and Advisory Based Flood Elevation (ABFE). The block group centroids were used to derive the number of housing units located in each county.

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Mississippi Joint Field Office  
 Mitigation Division - HPA Group  
 Date: February 20, 2006

**FEMA**

# HURRICANE KATRINA FLOOD: GIS SPATIAL ANALYSIS OF FLOOD IMPACTS IN MISSISSIPPI

## SECTION 8

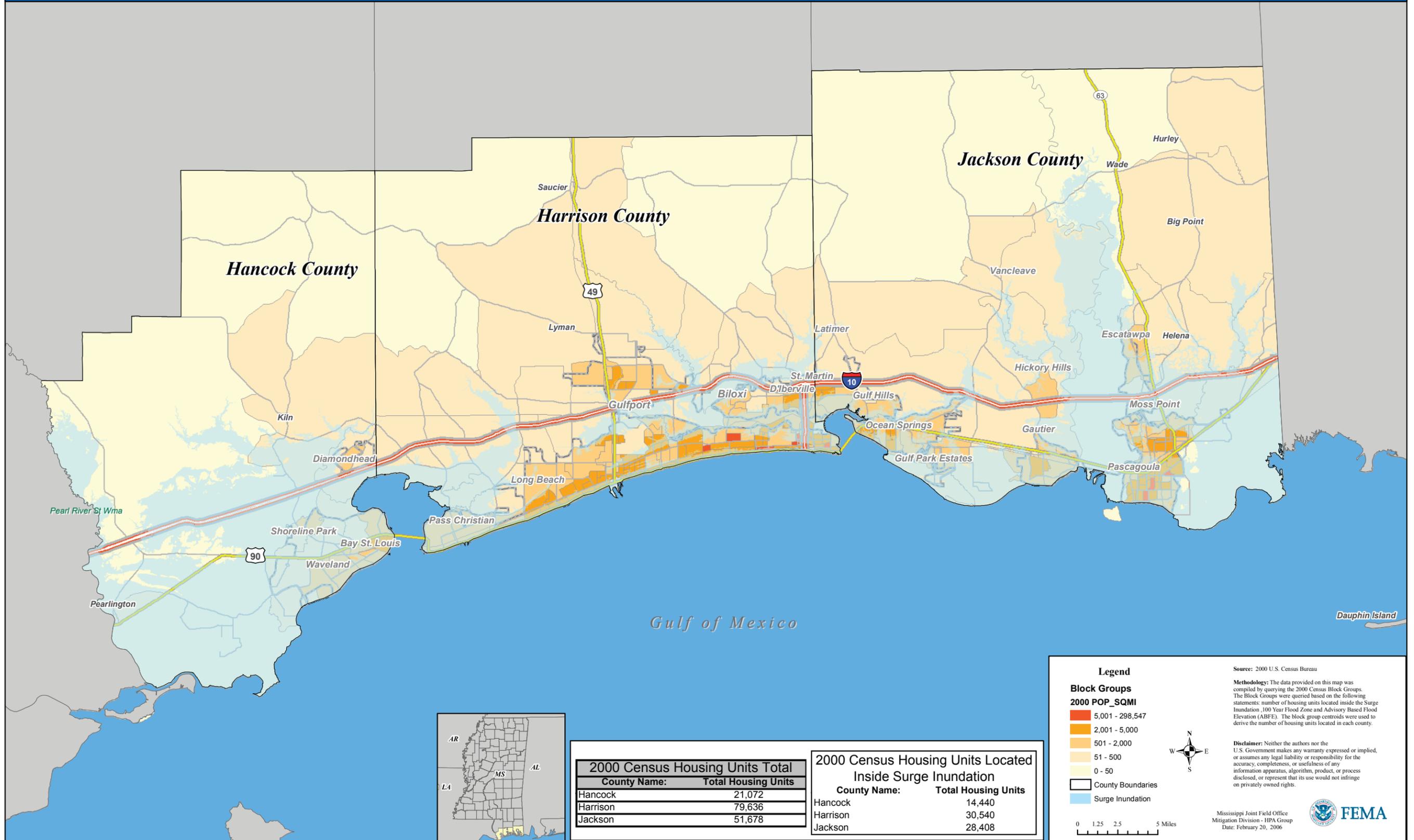
### COASTAL COUNTY STRUCTURE DATA IN RELATION TO THE SURGE INUNDATION

# COASTAL COUNTY STRUCTURE DATA IN RELATION TO THE SURGE INUNDATION

COASTAL COUNTIES

DR-1604-MS

HANCOCK, HARRISON, JACKSON



# HURRICANE KATRINA FLOOD: GIS SPATIAL ANALYSIS OF FLOOD IMPACTS IN MISSISSIPPI

## SECTION 9

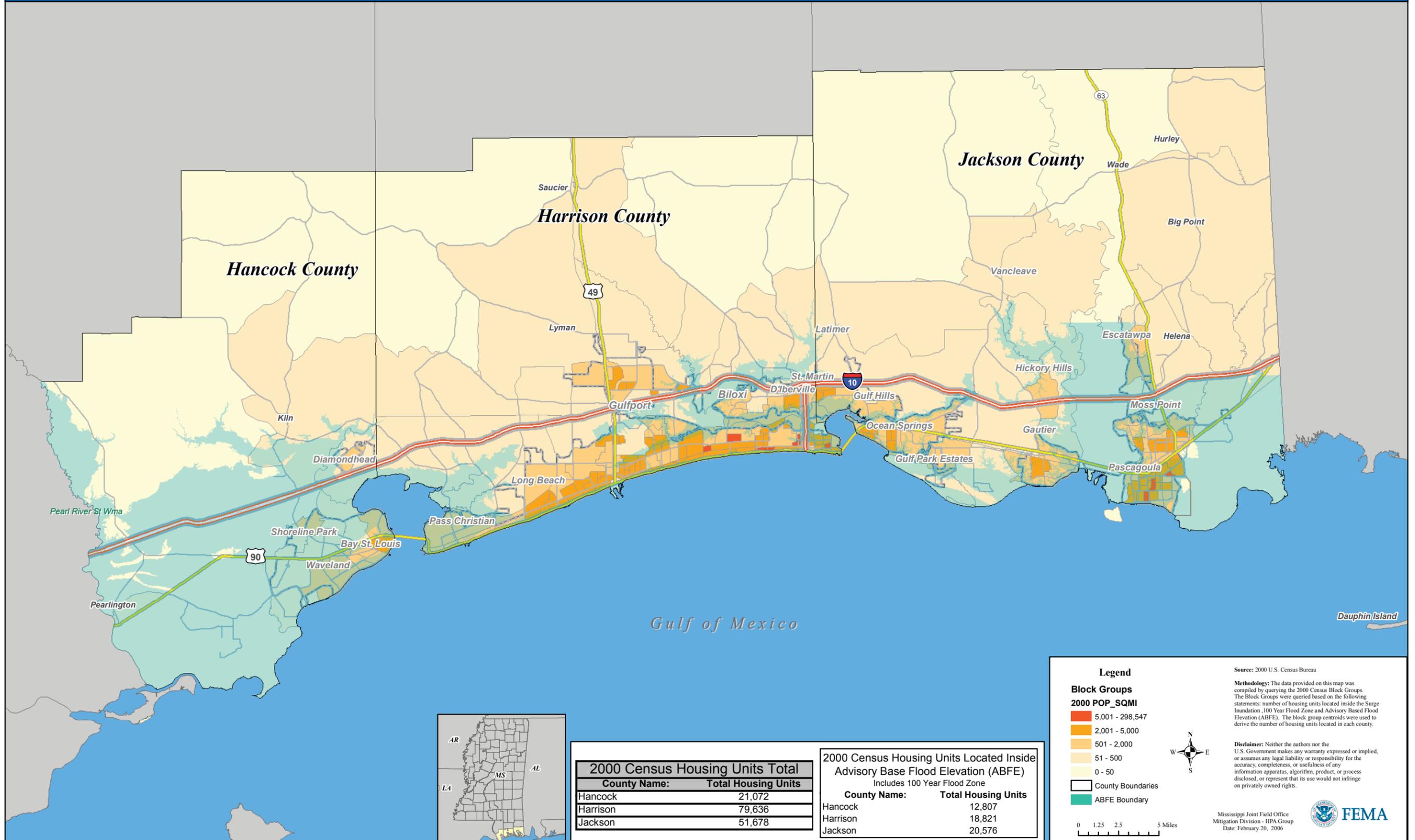
### COASTAL COUNTY STRUCTURE DATA IN RELATION TO THE ADVISORY BASE FLOOD ELEVATION (ABFE)

# COASTAL COUNTY STRUCTURE DATA IN RELATION TO THE ADVISORY BASED FLOOD ELEVATION (ABFE)

COASTAL COUNTIES

DR-1604-MS

HANCOCK, HARRISON, JACKSON



2000 Census Housing Units Total	
County Name:	Total Housing Units
Hancock	21,072
Harrison	79,636
Jackson	51,678

2000 Census Housing Units Located Inside Advisory Base Flood Elevation (ABFE) Includes 100 Year Flood Zone	
County Name:	Total Housing Units
Hancock	12,807
Harrison	18,821
Jackson	20,576

**Legend**

**Block Groups**  
2000 POP\_SQMI

- 5,001 - 298,547
- 2,001 - 5,000
- 501 - 2,000
- 51 - 500
- 0 - 50

County Boundaries  
ABFE Boundary

**Source:** 2000 U.S. Census Bureau

**Methodology:** The data provided on this map was compiled by querying the 2000 Census Block Groups. The Block Groups were queried based on the following statements: number of housing units located inside the Surge Inundation, 100 Year Flood Zone and Advisory Based Flood Elevation (ABFE). The block group centroids were used to derive the number of housing units located in each county.

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Mississippi Joint Field Office  
Mitigation Division - HPA Group  
Date: February 20, 2006

**FEMA**

# HURRICANE KATRINA FLOOD: GIS SPATIAL ANALYSIS OF FLOOD IMPACTS IN MISSISSIPPI

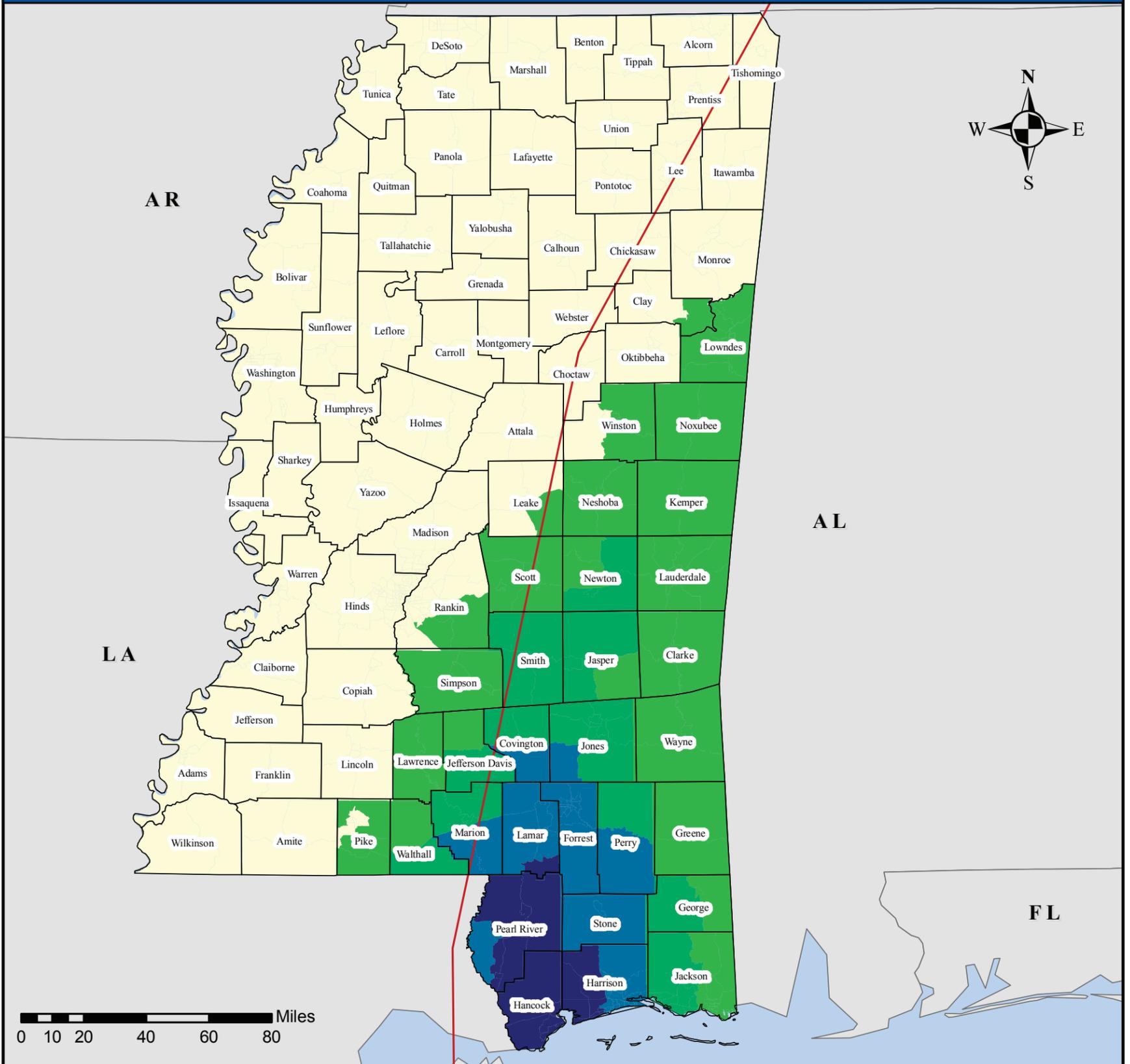
## SECTION 10

### GENERAL

# HURRICANE KATRINA PEAK WIND GUST

MISSISSIPPI

AUGUST 29, 2005



**Legend**

**PEAK GUST**

- Tropical Storm Winds (30 - 73mph)
- Category 1 Hurricane Winds (74 - 95mph)
- Category 2 Hurricane Winds (96 - 110mph)
- Category 3 Hurricane Winds (111 - 130mph)
- Category 4 Hurricane Winds (131 - 155mph)
- Katrina Storm Track

**Data Source:** The Surface Wind Analysis dataset was downloaded from [www.noaa.gov](http://www.noaa.gov).

**Methodology:** The peak wind velocity data was categorized into five classes according to the Saffir/Simpson Hurricane Scale. Peak gust is the highest instantaneous wind speed observed or recorded.

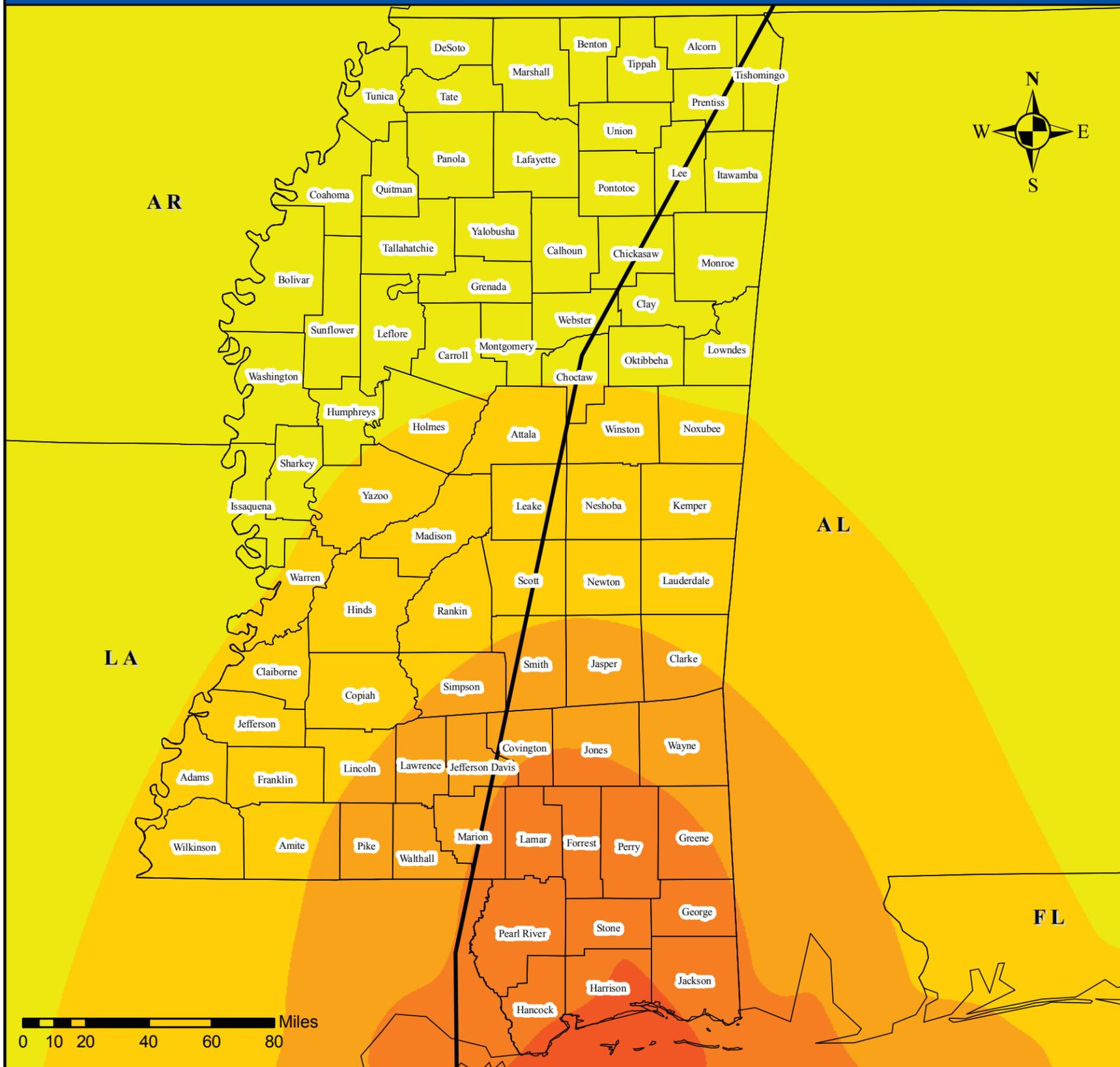
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Mississippi Joint Field Office  
Mitigation Division - HPA Group  
Date: March 07, 2006

# HURRICANE KATRINA MAXIMUM SUSTAINED WIND VELOCITY

MISSISSIPPI

AUGUST 29, 2005



**Legend**

**Maximum Sustained Wind**

- Tropical Storm Winds (30 - 73mph)
- Category 1 Hurricane Winds (74 - 95mph)
- Category 2 Hurricane Winds (96 - 110mph)
- Category 3 Hurricane Winds (111 - 130mph)
- Category 4 Hurricane Winds (131 - 155mph)
- Katrina Storm Track

**Data Source:** The Surface Wind Analysis dataset was downloaded from [www.noaa.gov](http://www.noaa.gov).

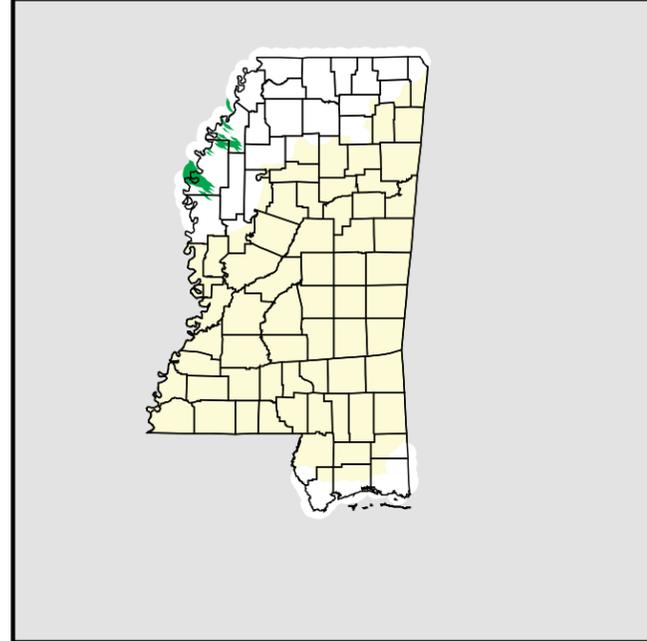
**Methodology:** The Maximum Sustained Wind data was categorized into four classes according to the Saffir/Simpson Hurricane Scale.

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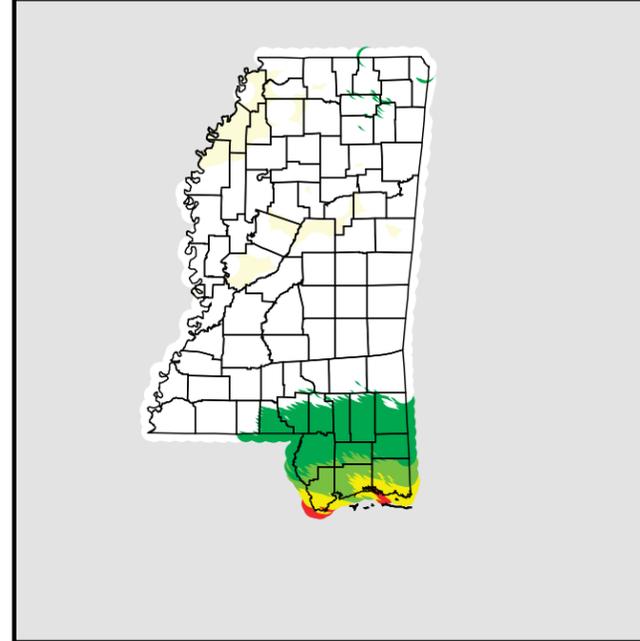
Mississippi Joint Field Office  
Mitigation Division - HPA Group  
Date: March 07, 2006

# HURRICANE KATRINA DAILY PRECIPITATION ESTIMATES

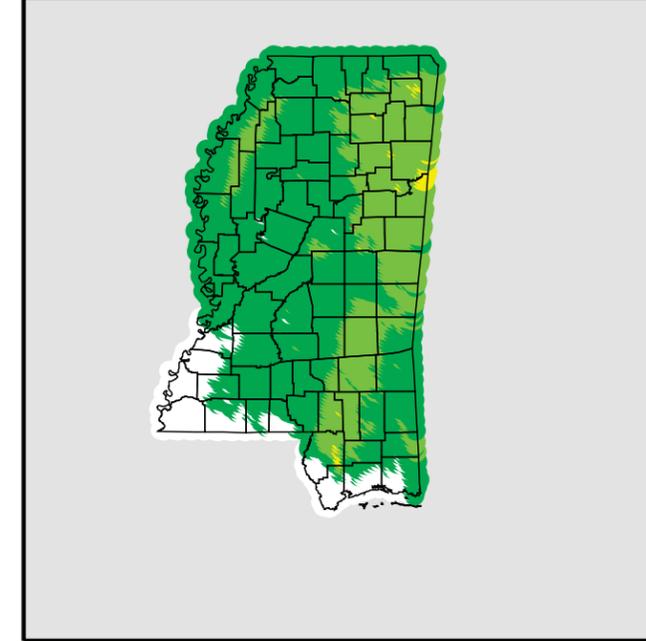
AUGUST 28, 2005



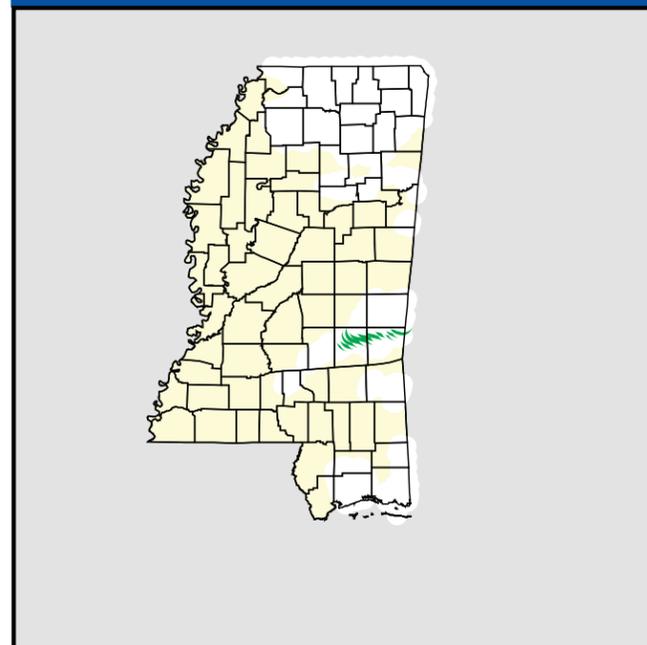
AUGUST 29, 2005



AUGUST 30, 2005



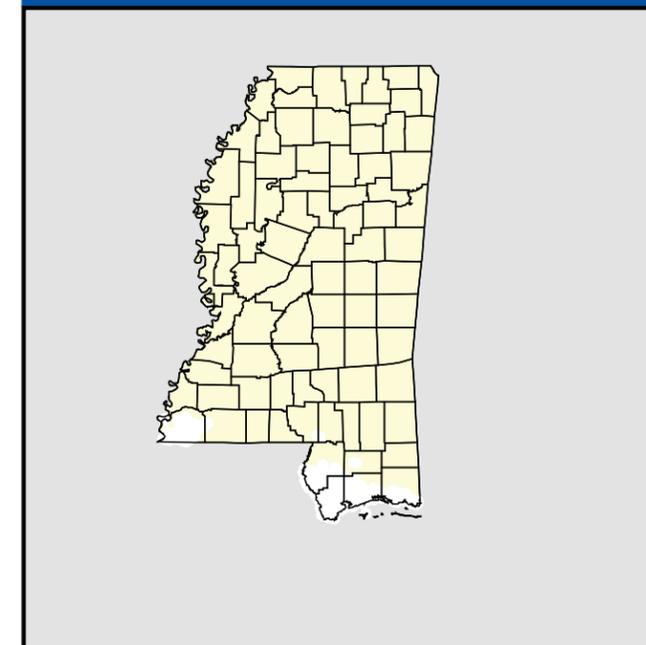
AUGUST 31, 2005



SEPTEMBER 1, 2005



SEPTEMBER 2, 2005



Data Source: The precipitation data were obtained from [www.noaa.gov](http://www.noaa.gov) National Weather Service.

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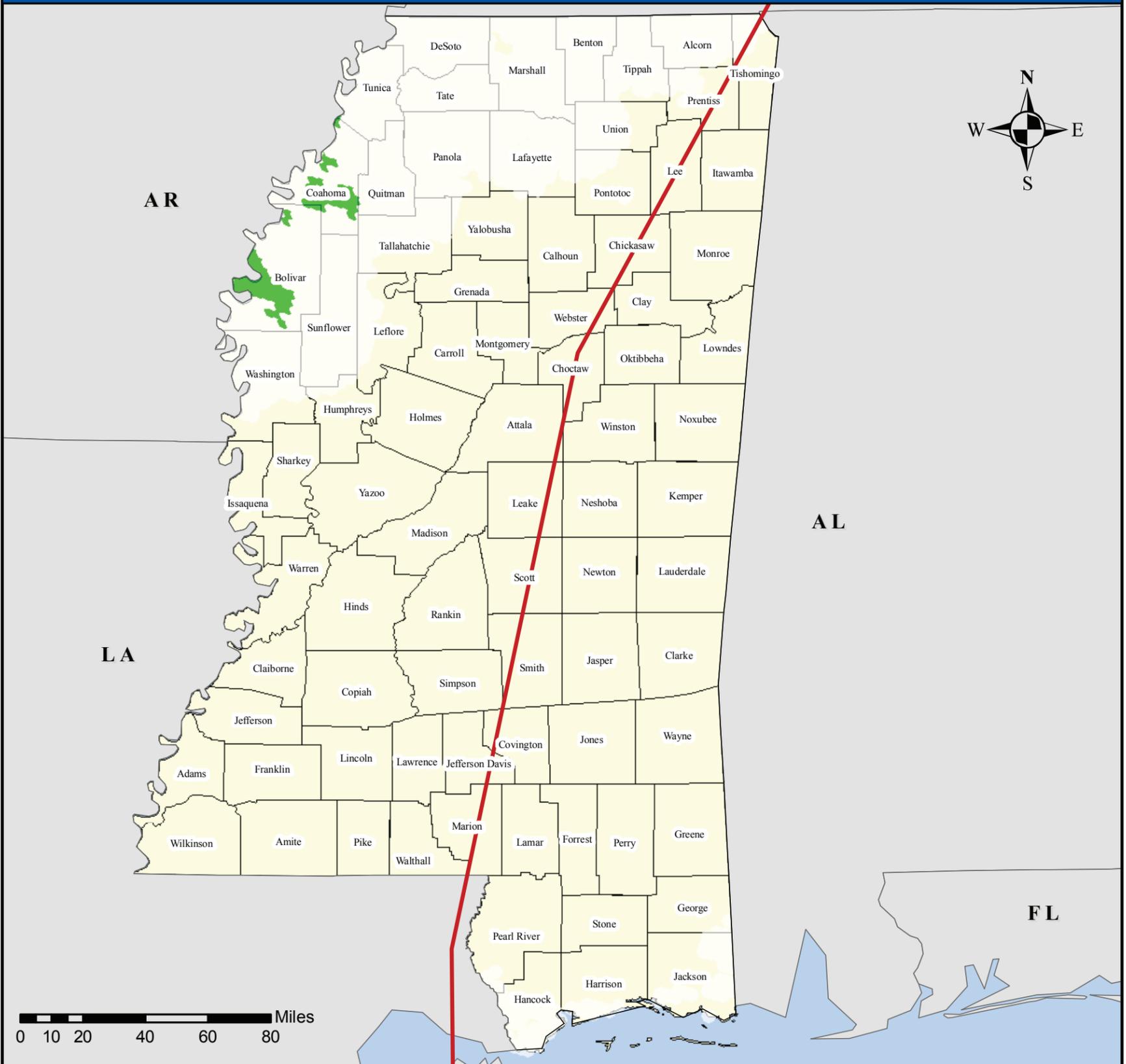


Mississippi Joint Field Office  
Mitigation Division - HPA Group  
Date: March 07, 2006

# HURRICANE KATRINA DAILY PRECIPITATION ESTIMATES

MISSISSIPPI

AUGUST 28, 2005



**Legend**

**Precipitation Estimates  
(In Inches)**

- 0.01 - 1.00
- 1.01 - 3.00
- 3.01 - 5.00
- Katrina Storm Track

**Source:** The precipitation data was obtained from [www.NOAA.gov](http://www.NOAA.gov), National Weather Service.

**Methodology:** The precipitation points was catergorized by inches of rainfall according to national weather service data.

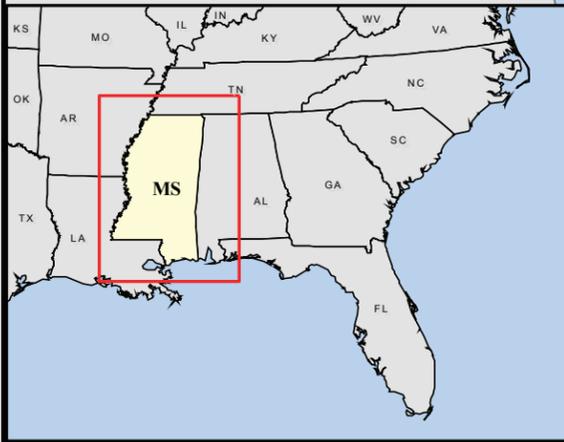
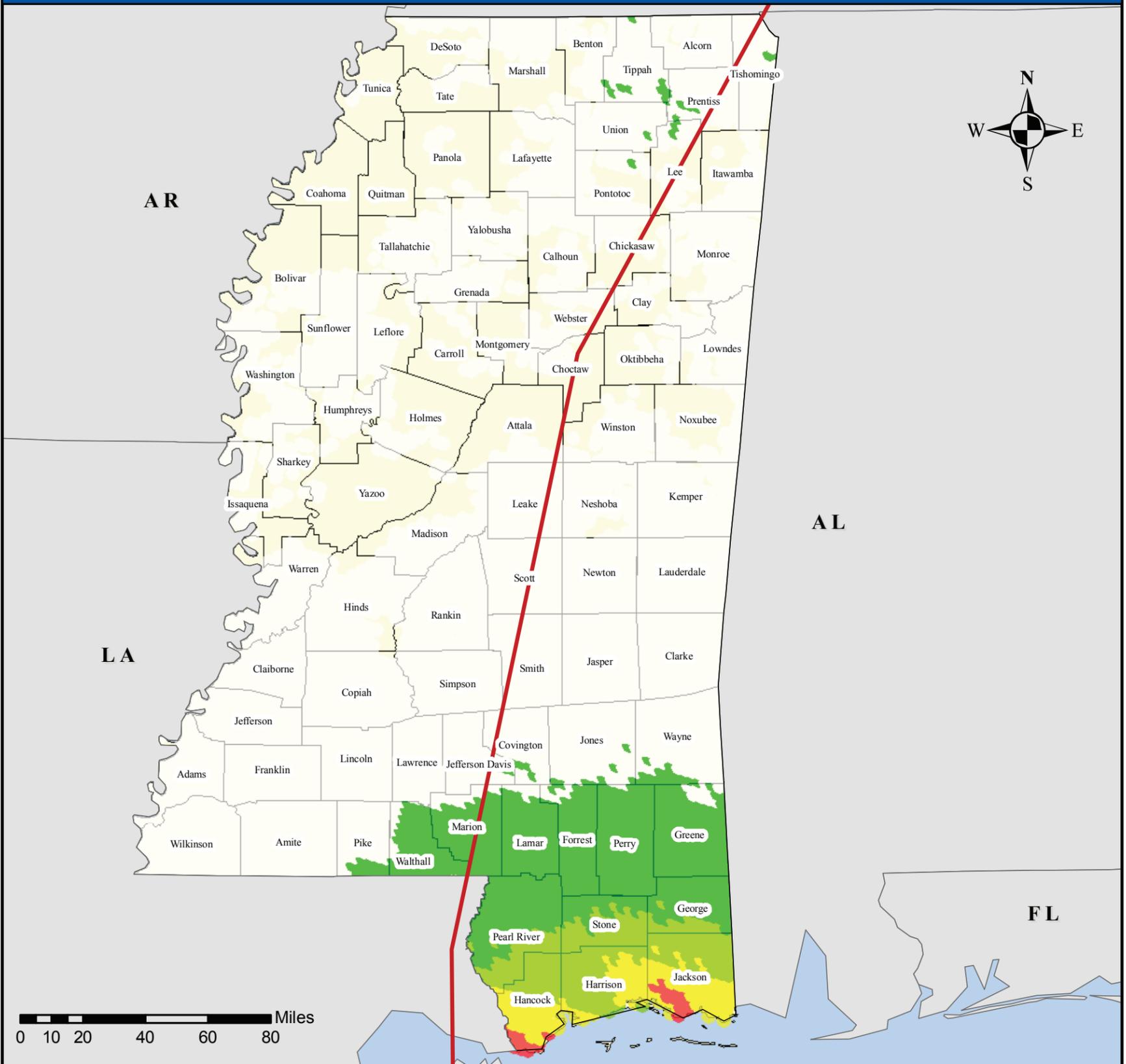
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Mitigation Division - HPA Group  
Date: March 07, 2006

# HURRICANE KATRINA DAILY PRECIPITATION ESTIMATES

MISSISSIPPI

AUGUST 29, 2005



**Legend**

**Precipitation Estimates (In Inches)**

- 0.01 - 1.00
- 1.01 - 3.00
- 3.01 - 5.00
- 5.01 - 7.00
- 7.01 - 9.00

— Katrina Storm Track

**Source:** The precipitation data was obtained from [www.NOAA.gov](http://www.NOAA.gov) National Weather Service.

**Methodology:** The precipitation points was catergorized by inches of rainfall according to national weather service data.

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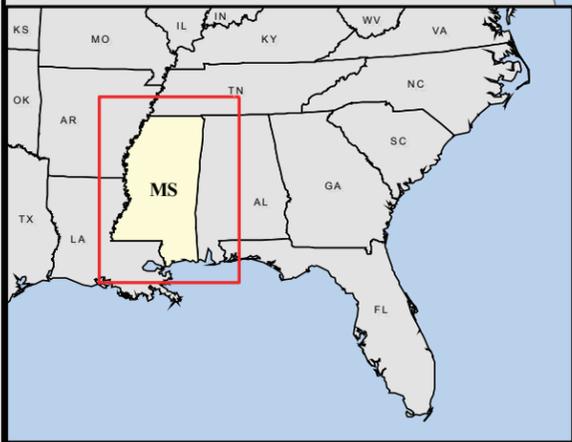
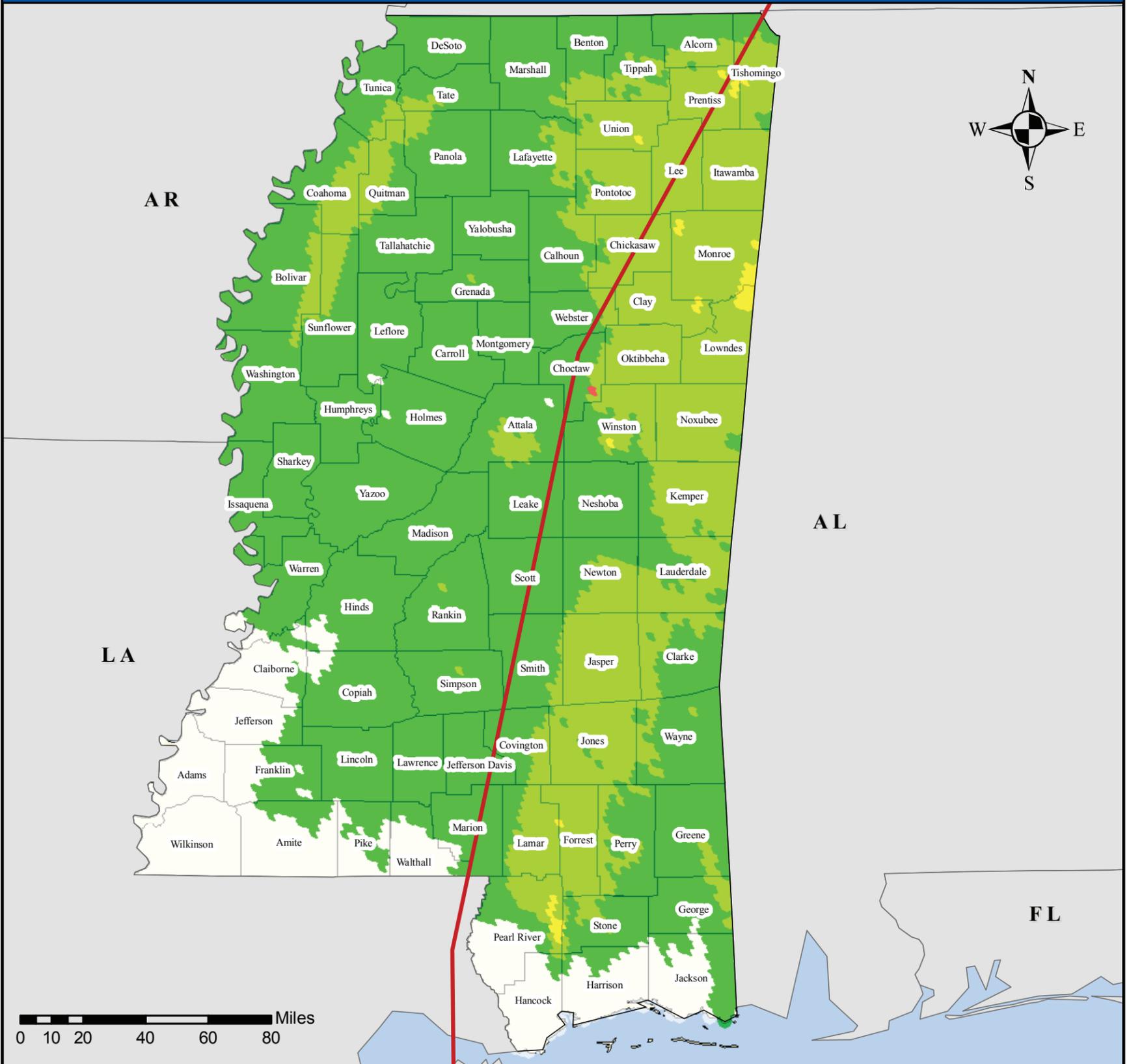
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Mitigation Division - HPA Group  
Date: March 07, 2006



# HURRICANE KATRINA DAILY PRECIPITATION ESTIMATES

MISSISSIPPI

AUGUST 30, 2005



**Legend**

**Precipitation Estimates (In Inches)**

- 0.06 - 1.00
- 1.01 - 3.00
- 3.01 - 5.00
- 5.01 - 7.00
- 7.01 - 9.00

— Katrina Storm Track

**Source:** The precipitation data was obtained from [www.NOAA.gov](http://www.NOAA.gov), National Weather Service.  
**Methodology:** The precipitation points was catergorized by inches of rainfall according to national weather service data.  
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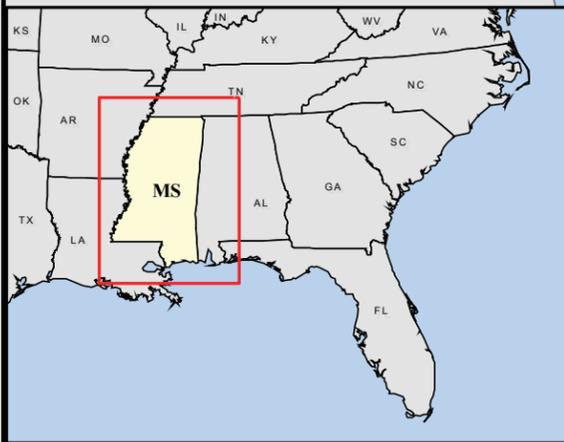
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 Date: March 07, 2006



# HURRICANE KATRINA DAILY PRECIPITATION ESTIMATES

MISSISSIPPI

AUGUST 31, 2005



**Legend**

**Precipitation Estimates  
(In Inches)**

- 0.00 - 1.00
- 1.01 - 3.00
- Katrina Storm Track

**Source:** The precipitation data was obtained from [www.NOAA.gov](http://www.NOAA.gov), National Weather Service.

**Methodology:** The precipitation points was catergorized by inches of rainfall according to national weather service data.

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# HURRICANE KATRINA DAILY PRECIPITATION ESTIMATES

MISSISSIPPI

SEPTEMBER 1, 2005



**Legend**

**Precipitation Estimates  
(In Inches)**

- 0.00 - 1.00
- 1.01 - 3.00
- 3.01 - 5.00

— Katrina Storm Track

**Source:** The precipitation data was obtained from [www.NOAA.gov](http://www.NOAA.gov), National Weather Service.

**Methodology:** The precipitation points was categorized by inches of rainfall according to national weather service data.

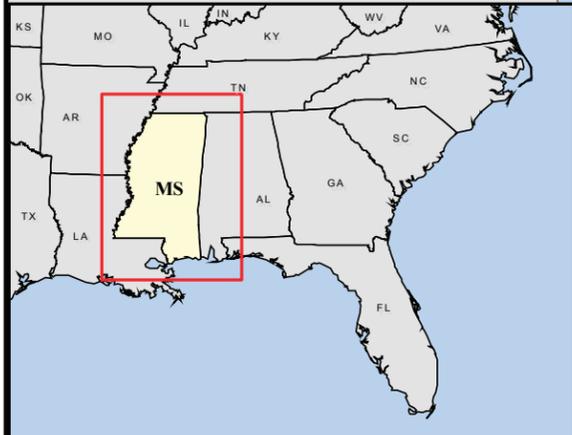
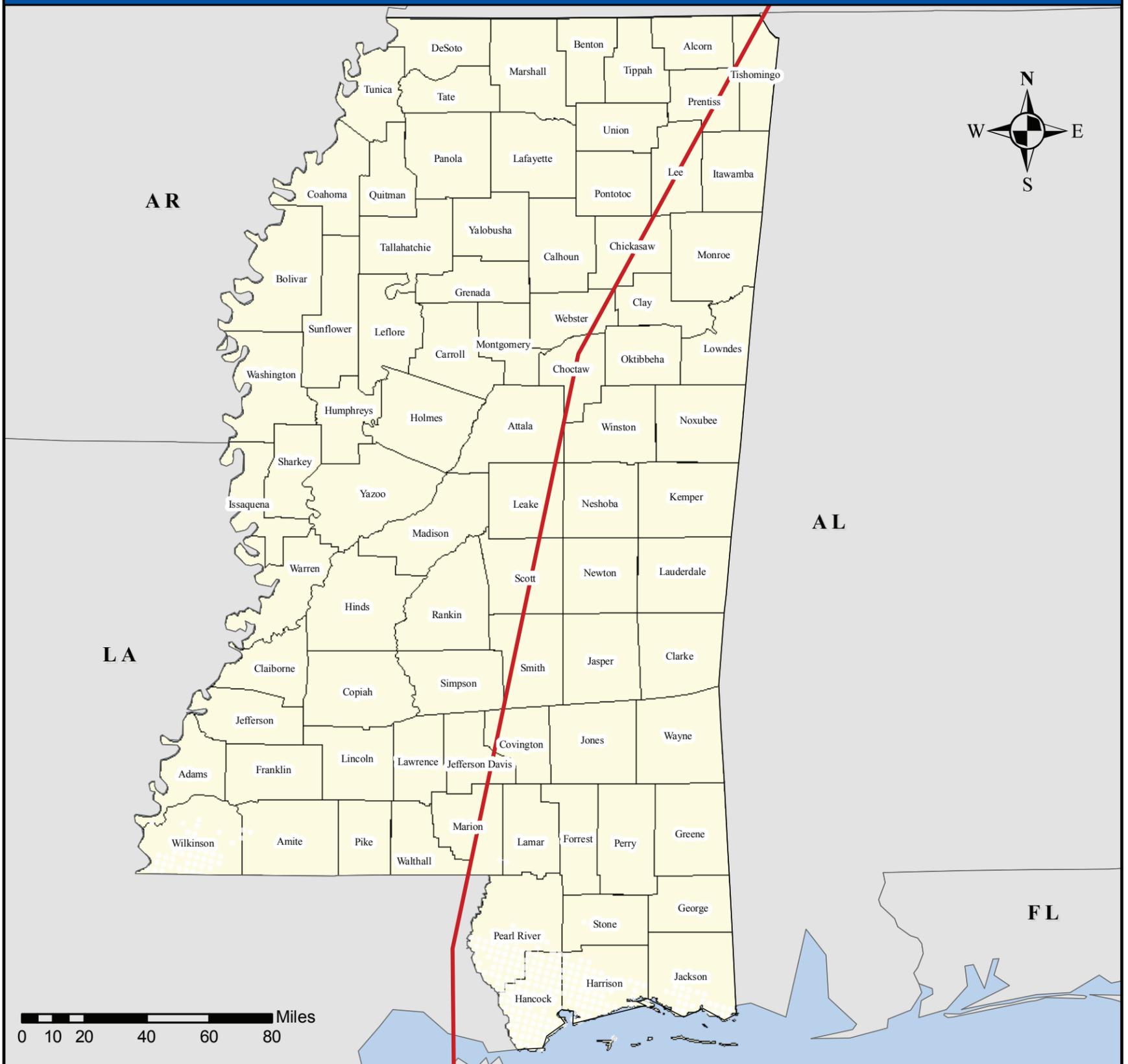
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# HURRICANE KATRINA DAILY PRECIPITATION ESTIMATES

MISSISSIPPI

SEPTEMBER 2, 2005



**Legend**

**Precipitation Estimates  
(In Inches)**

○ 0.01 - 1.00

— Katrina Storm Track

**Source:** The precipitation data was obtained from [www.NOAA.gov](http://www.NOAA.gov) National Weather Service.

**Methodology:** The precipitation points were categorized by inches of rainfall according to national weather service data.

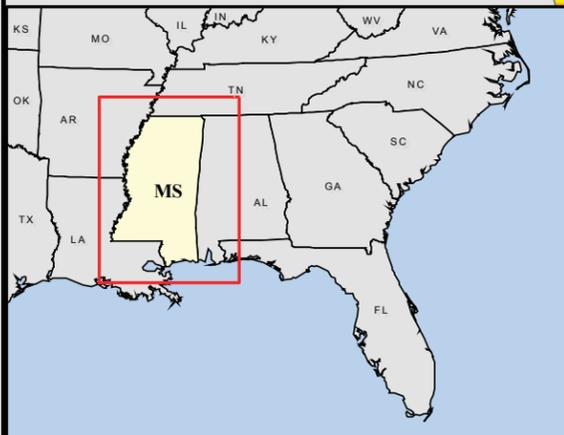
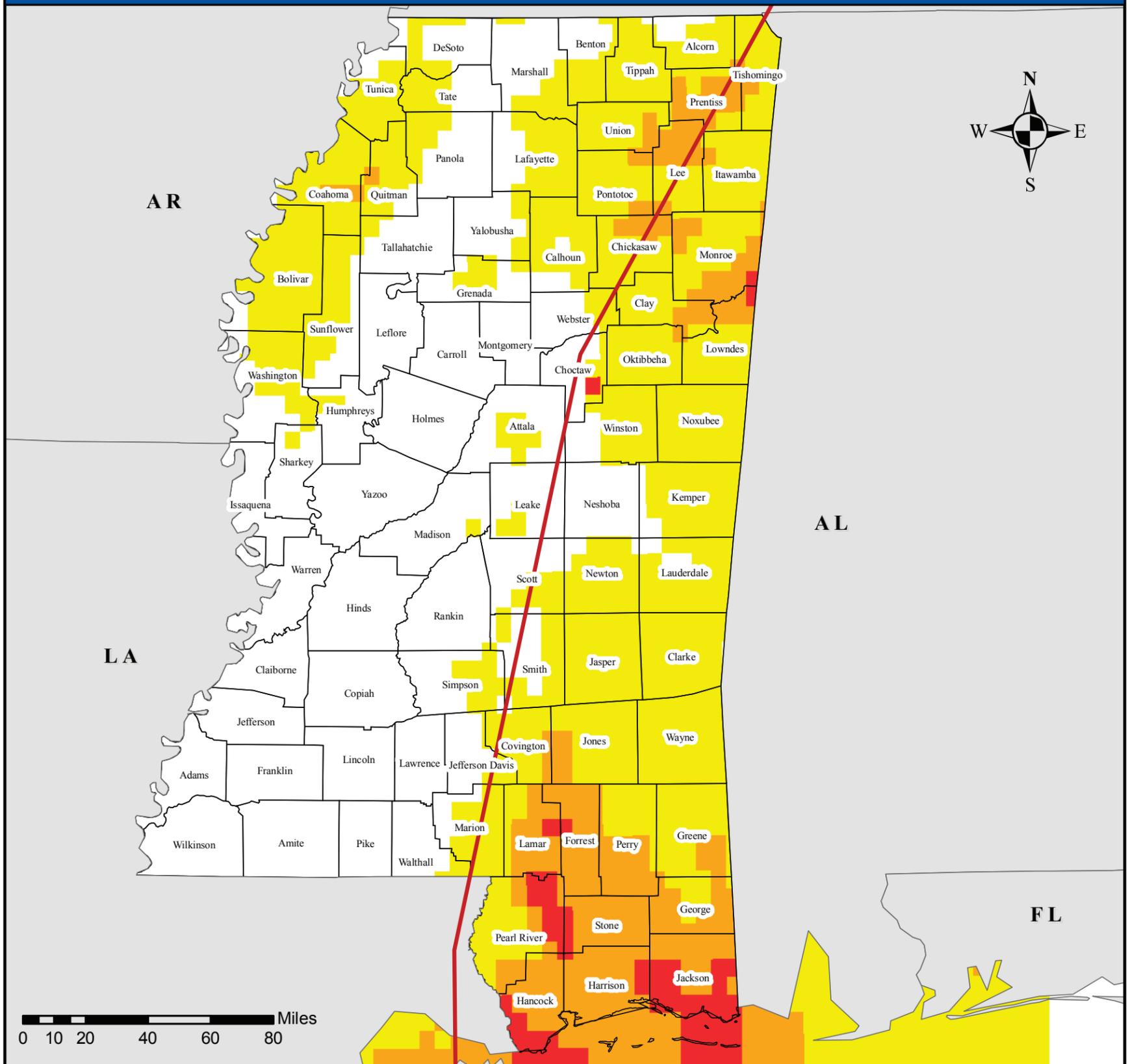
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# HURRICANE KATRINA EXTREME PRECIPITATION ESTIMATES

MISSISSIPPI

AUGUST 28, 2005 - SEPTEMBER 2, 2005



**Legend**

**Total Rainfall (In Inches)**

- 0 - 2.5
- 2.51 - 4.5
- 4.51 - 6.5
- 6.51 - 8.5

Katrina Storm Track

**Source:** The Precipitation data was downloaded from [www.NOAA.gov](http://www.NOAA.gov)

**Methodology:** The Grids created by interpolating precipitation points into a raster grid to obtain a total calculation. The daily grids were merged to create a total estimated precipitation total from 8/28/05 to 9/2/05.

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