St. Bernard Parish Hazard Mitigation Plan Update Public Meeting

March 27, 2024

Chalmette, LA

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Agenda

Introductions

Hazard Mitigation Overview

Planning Process

Risk Assessment Maps

Public Outreach Activities

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Introductions

- **St. Bernard Parish**
  - John Rahaim – St. Bernard Parish OHSEP Director
- **Stephenson Disaster Management Institute (SDMI)**
  - Chris Rippetoe – Hazard Mitigation Program Manager
  - Jason Martin – Emergency Management Analyst
- **Governor's Office of Homeland Security and Emergency Preparedness (GOHSEP)**
  - Christopher Olvey – HM Technical Services Section Chief
  - Lennie LaFleur – Preparedness Program Specialist

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Who is SDMI?

- Stephenson Disaster Management Institute (SDMI) at Louisiana State University
- Non-Academic, Applied Research Unit on campus
- Specialize in providing programmatic support and decision making tools for state and local emergency managers
  - Hazard Mitigation Plans
  - Emergency Operations Plans
  - Geographic Information Systems
  - Application Development
  - Data Visualization
  - Aerial Imagery Collection/Processing

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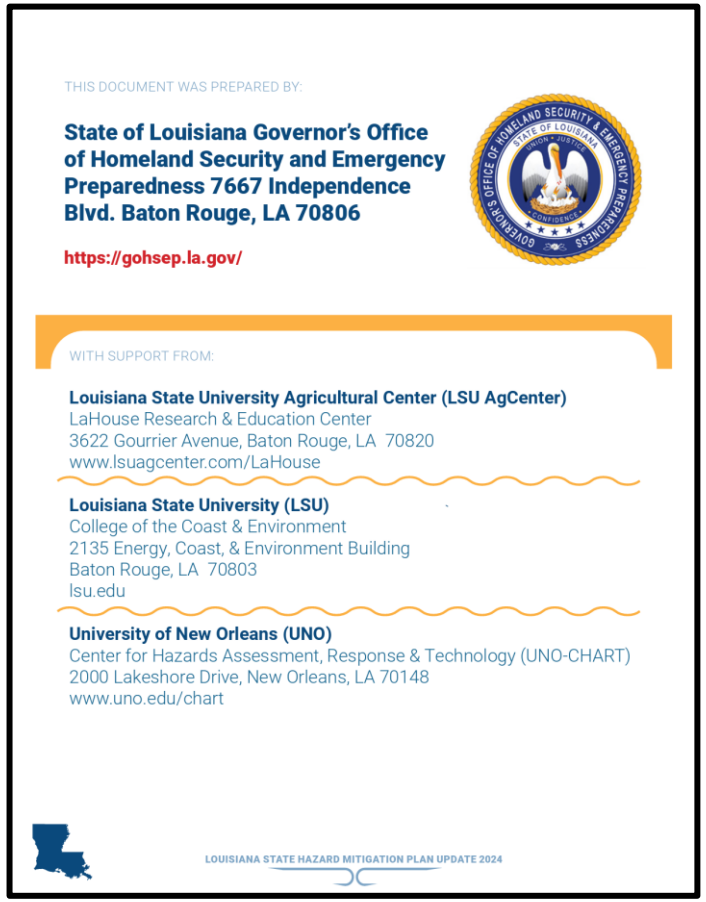
Why We're Here



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Hazard Mitigation Is…

- Any action taken to reduce long term risk to life and property;
- On-going process that occurs before, during, and after disasters;
- Mitigation actions help prevent damage to a community's infrastructure, economic, cultural and environmental assets;
- Minimize operational downtime and accelerate recovery of government and the private sector after an event;
- ***Implementation of mitigation actions leads to building stronger, safer and smarter!***

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Why the Plan is Required

- Disaster Mitigation Act of 2000 (DMA 2000)
  - Section 322 of the Act specifically addresses mitigation planning and requires state and local governments to prepare multi-hazard migration plans as a precondition for receiving FEMA mitigation project grants.
- Title 44 Code of Regulations (CFR) §201.6
  - Meet federal requirements for approval and eligibility for FEMA Hazard Mitigation Assistance grant programs.

- The approved St. Bernard Parish Hazard Mitigation Plan will allow for distribution of HM funding following future disasters.

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Planning Process to Date

Initial Planning Meeting with OHSEP

Full Planning Committee Meeting

Risk Assessment Review with Planning Committee

Public Meeting

Constant communication with Parish and Committee members!

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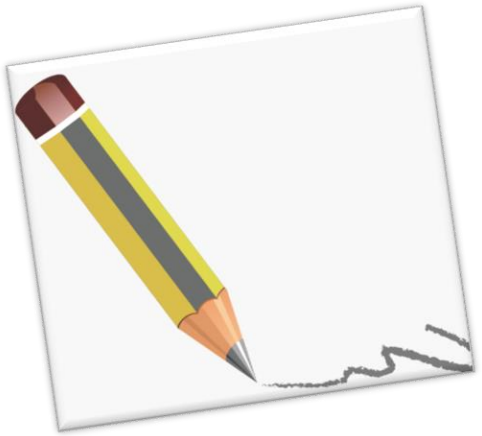
Hazard Mitigation Plan Development



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Plan Layout

- **Section 1: Introduction**
  - Updated parish description
  - Updated demographics
  - Economics
- **Section 2: Hazard Identification and Parish-wide Risk Assessment**
- **Section 3: Capability Assessment**
- **Section 4: Mitigation Strategies**
  - New actions
  - Action updates
  - Survey results

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Plan Layout

- **Appendix A**: Planning Process
- **Appendix B**: Plan Maintenance
- **Appendix C**: Parish Critical Facilities
- **Appendix D**: Plan Adoption
- **Appendix E**: State Required Worksheets

Hazard Identification and Risk Assessment

- The plan includes descriptions of the natural hazards that affect the parish planning area.

- The hazards identification includes the following:
  - *locations affected*
  - *extent or strength*
  - *previous occurrences*
  - *probability of future events*

Hazard Identification And Risk Assessment

- Based on Currently Profiled Prevalent Natural Hazards
- Identify Any New Hazards
- Previous Occurrences
- Impact from Events
- Probability of Future Events
- Critical Facilities
- Future Development Trends
- Future Hazard Impacts
- Zoning and Land Use

Hazard Identification And Risk Assessment

Coastal Hazards

- Coastal Land Loss
- Sea Level Rise
- Subsidence

Flooding

Sinkholes

Thunderstorms

Tornadoes

Tropical Cyclones

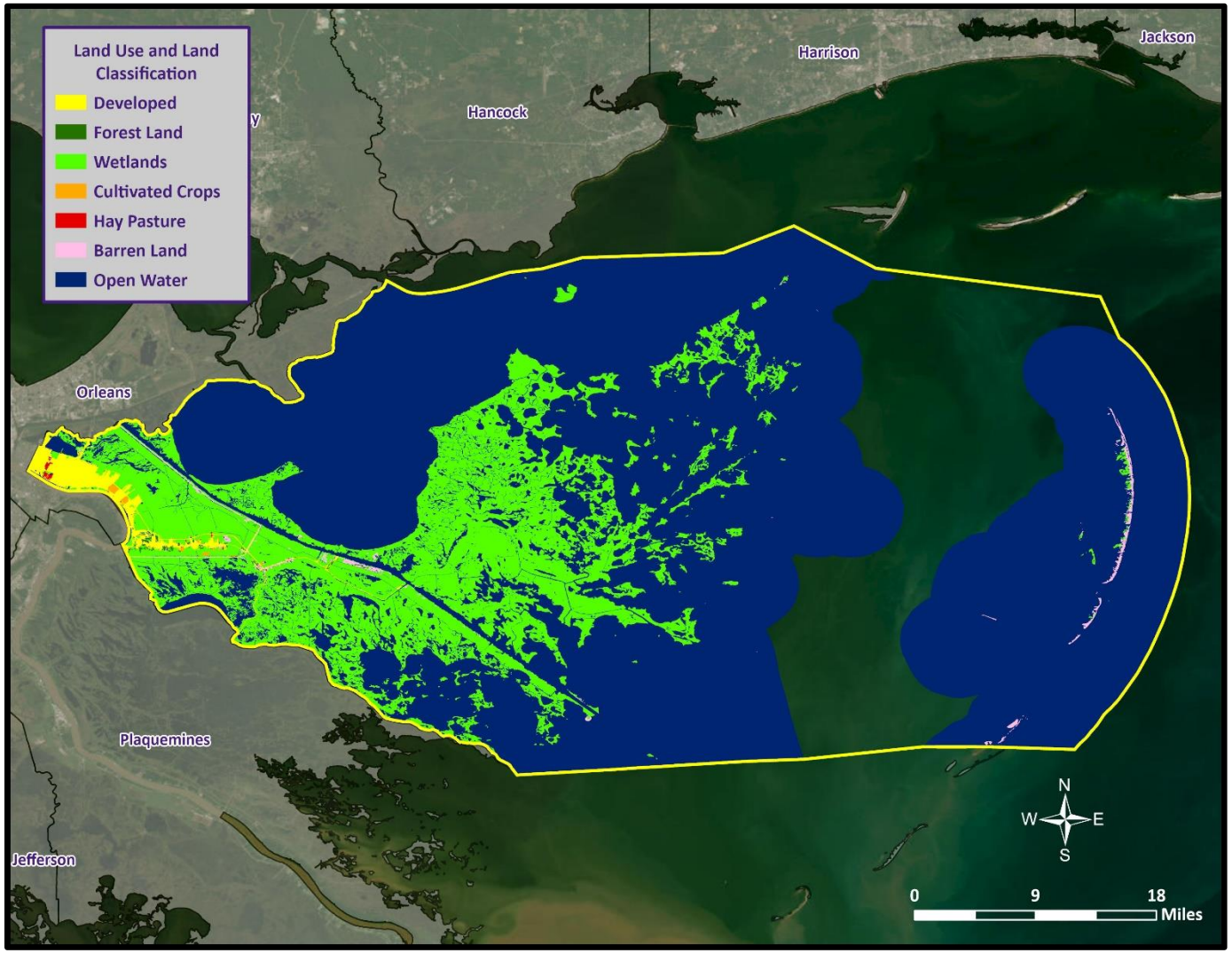
Risk Matrix for St. Bernard Parish

Hazard	Probability	Impact	Spatial Extent	Warning Time	Duration	Overall Risk
Coastal Hazards	4	2	4	1	3	**2.9**
Flooding	3	4	3	4	3	**3.4**
Sinkhole	1	2	2	1	4	**1.9**
Thunderstorm Hail	3	2	3	3	1	**2.45**
Thunderstorm Lightning	3	2	2	3	1	**2.25**
Thunderstorm Winds	3	2	3	3	1	**2.45**
Tornadoes	3	3	2	4	3	**2.95**
Tropical Cyclones	3	4	4	1	4	**3.3**

Risk Factor	PRI Range
High Risk	2.5 to 4.0
Moderate Risk	2.0 to 2.4
Low Risk	0 to 1.9

Risk Assessment Maps

St. Bernard Parish Land Use



Land Use	Acres	Percentage
Agricultural Land, Cropland, and Pasture	4,025	< 1%
Wetlands	223,651	16%
Forest Land (Not including forested wetlands)	2,666	< 1%
Urban/Development	11,151	4%
Water	1,139,840	80%

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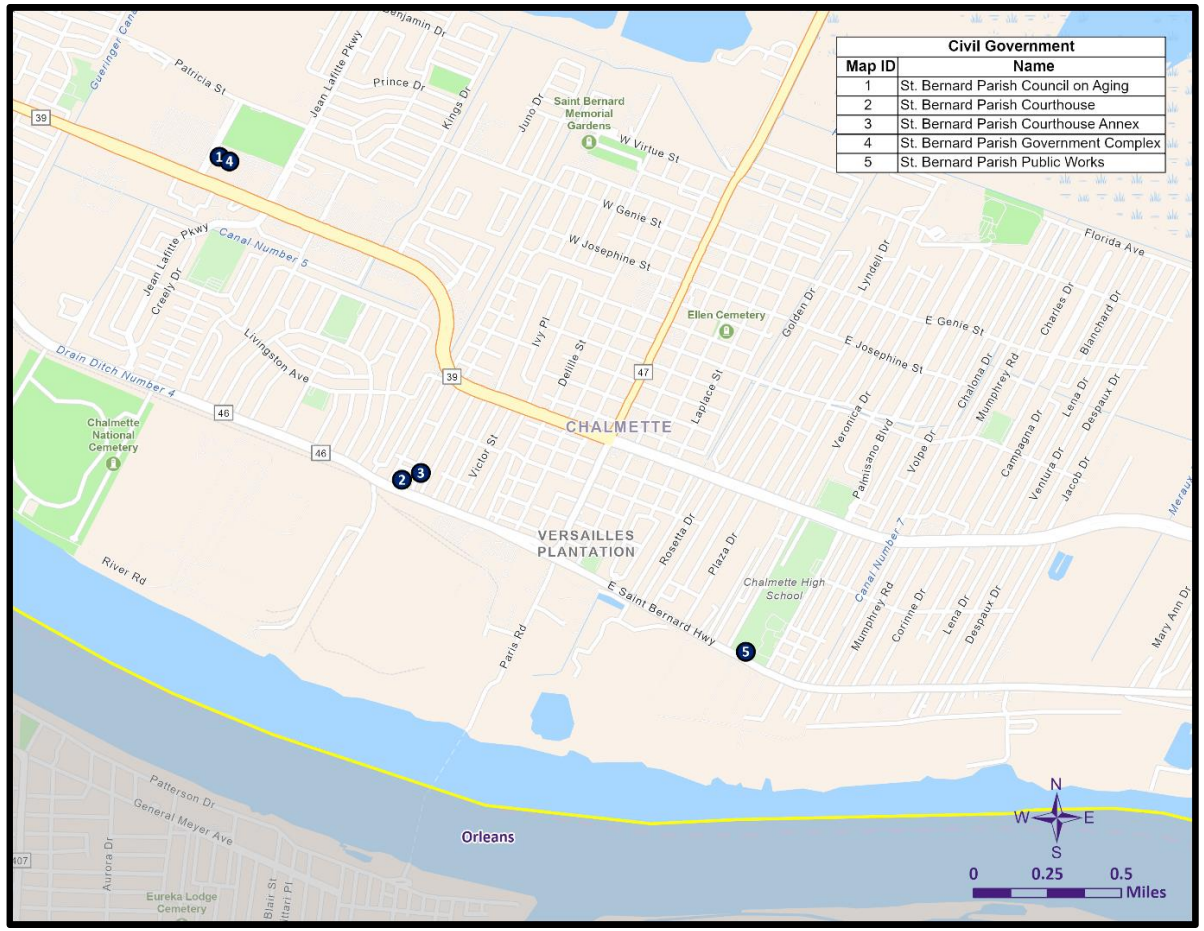
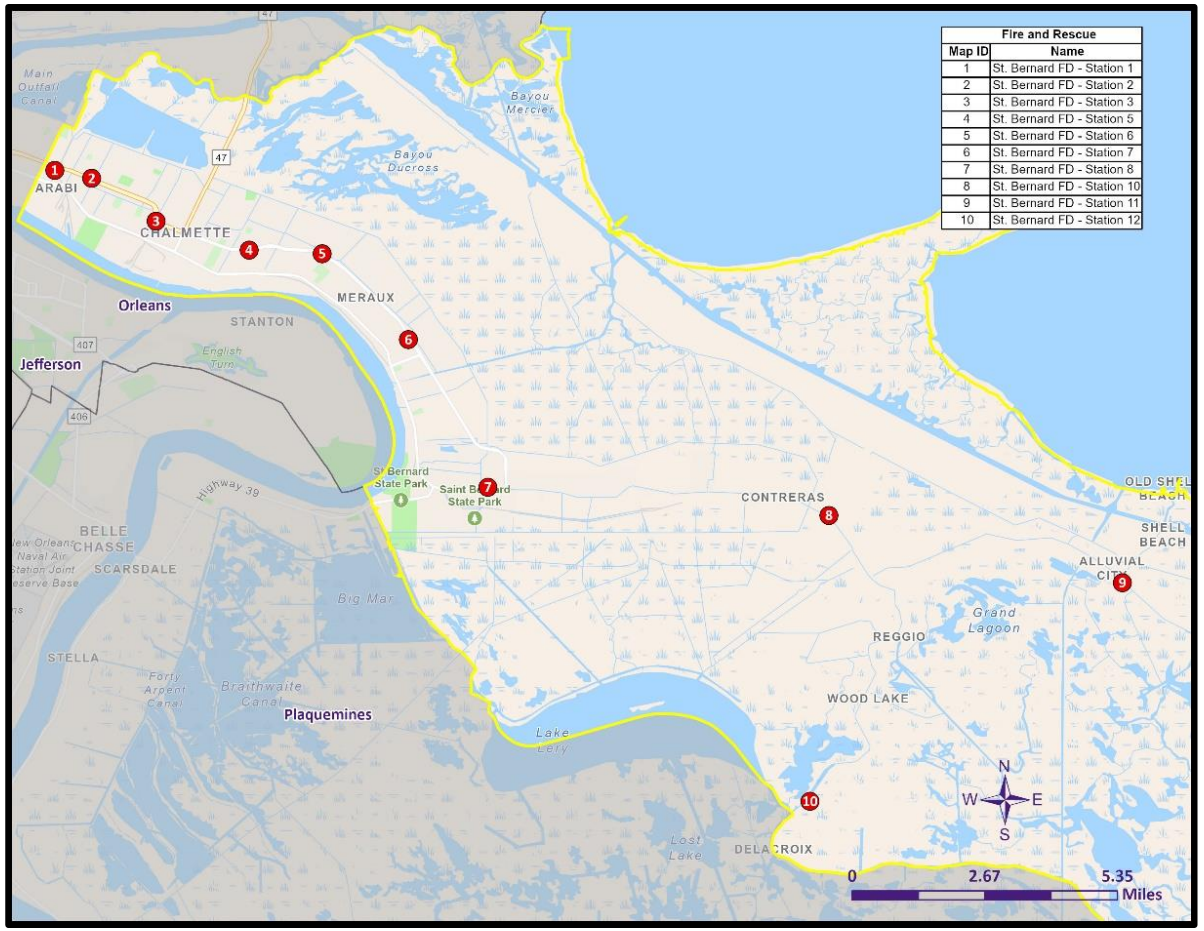
St. Bernard Parish Critical Facilities

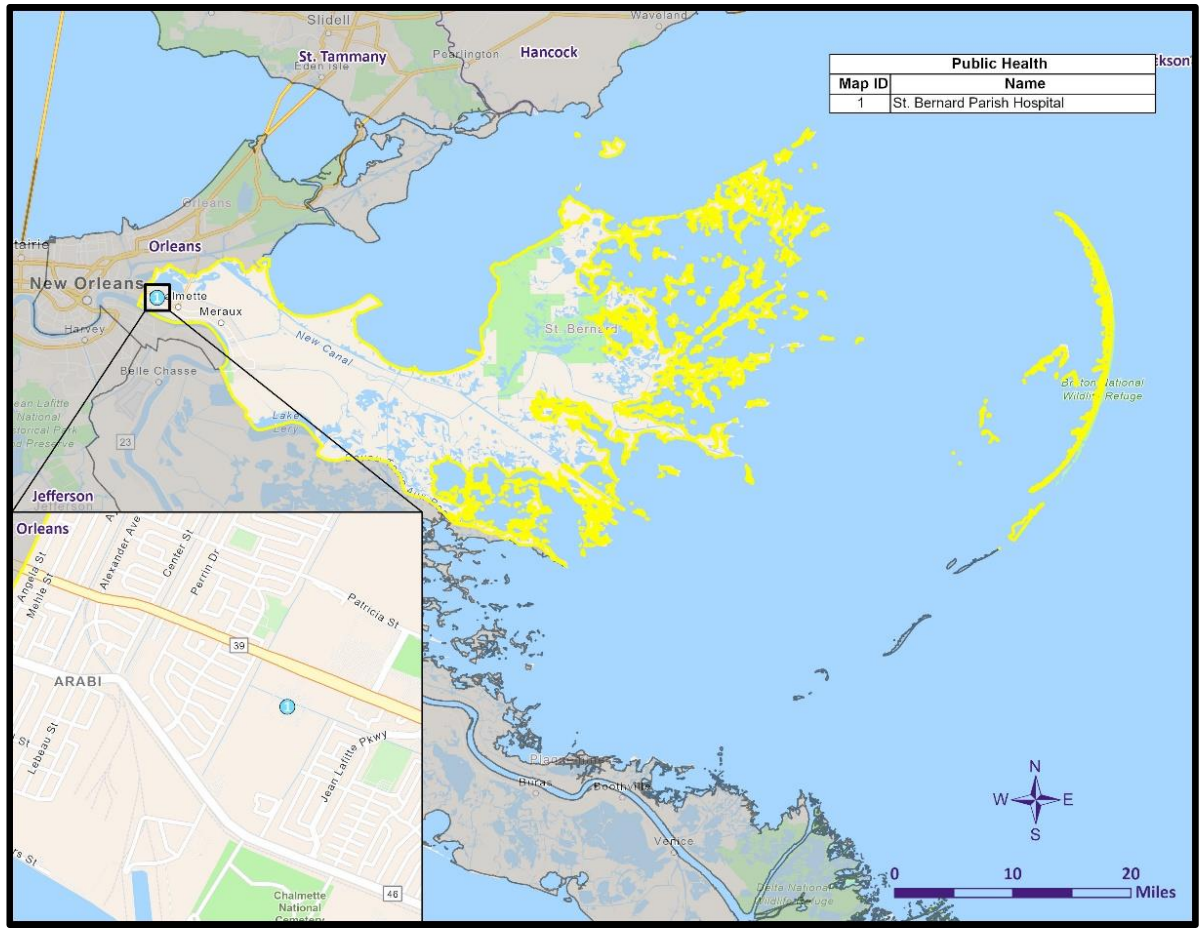




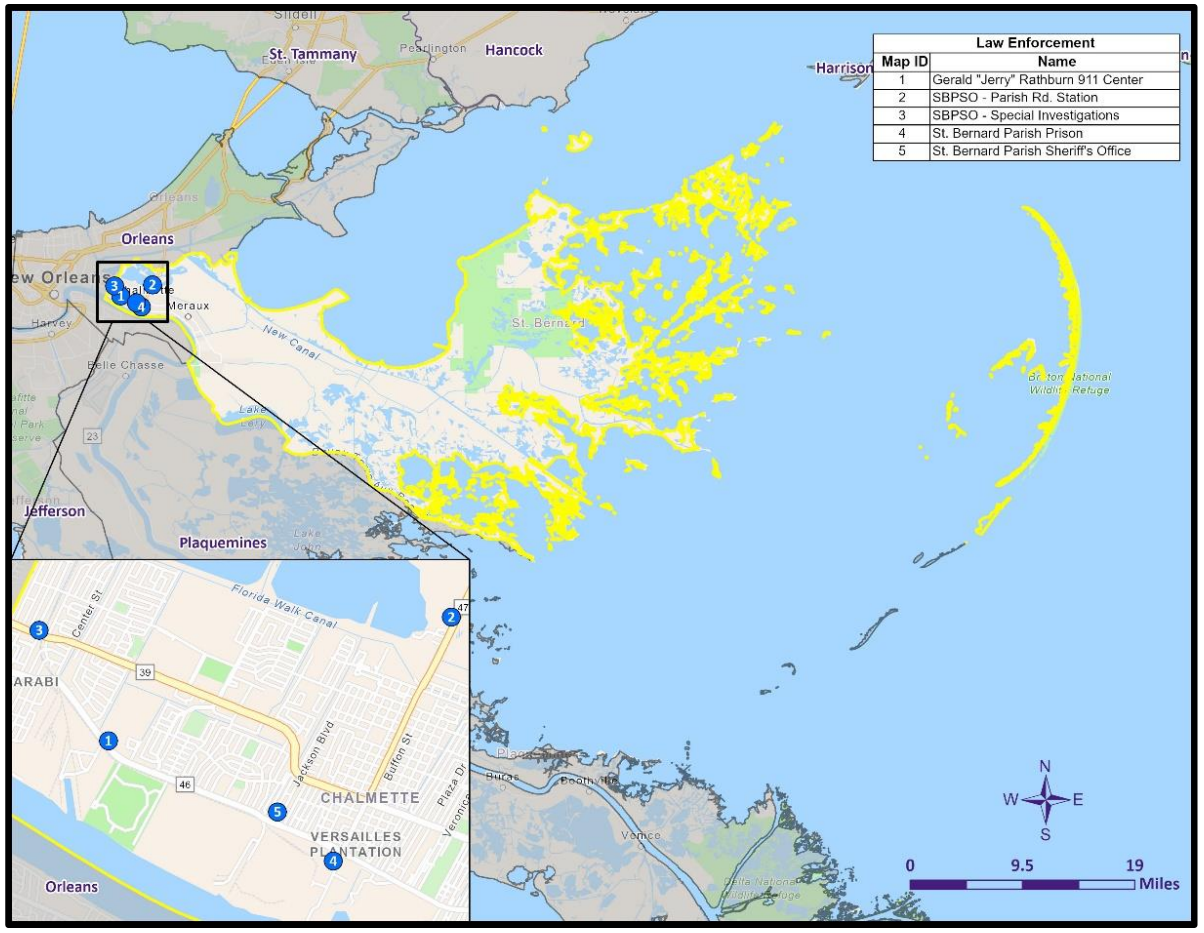
Civil Government

Fire & SAR

St. Bernard Parish Critical Facilities

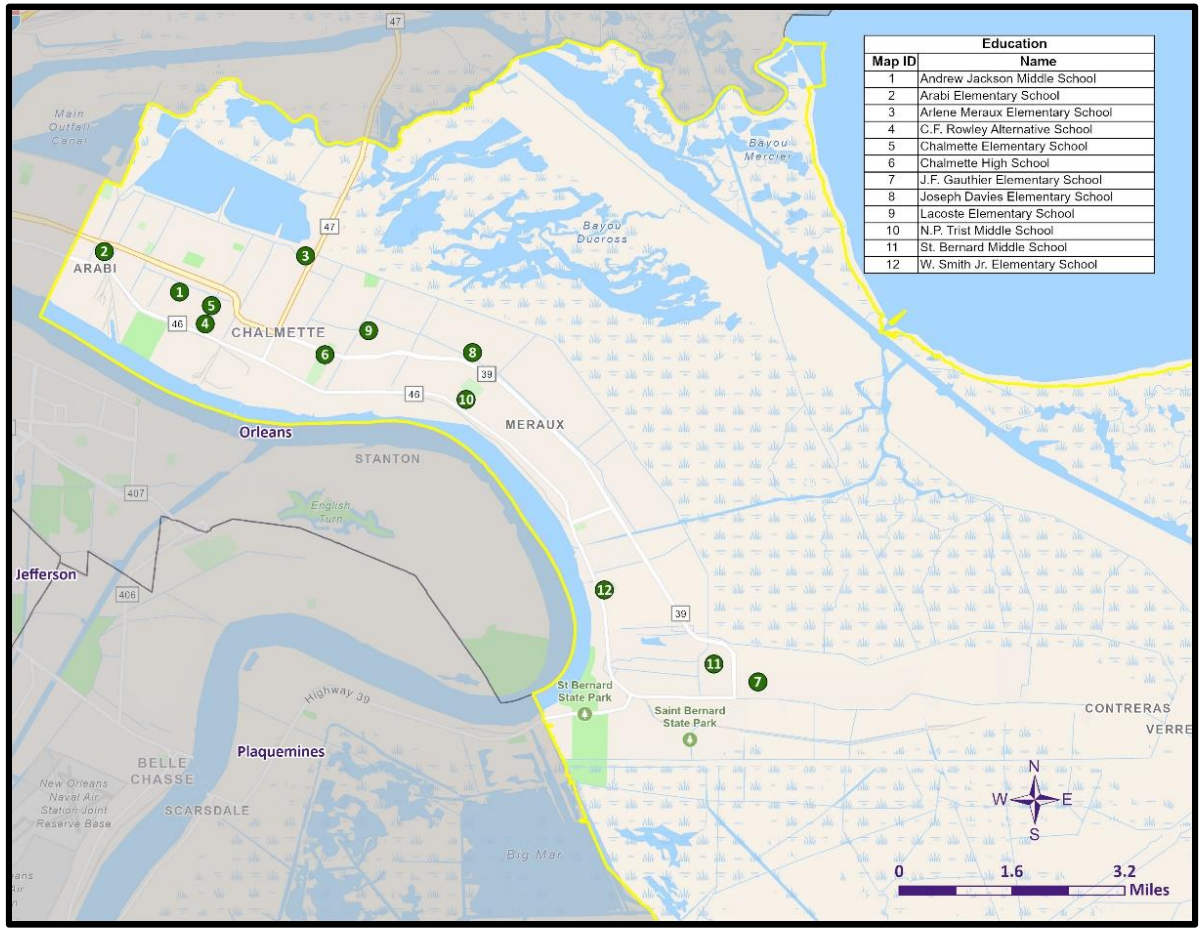


Public Health



Law Enforcement

St. Bernard Parish Critical Facilities



Public Education

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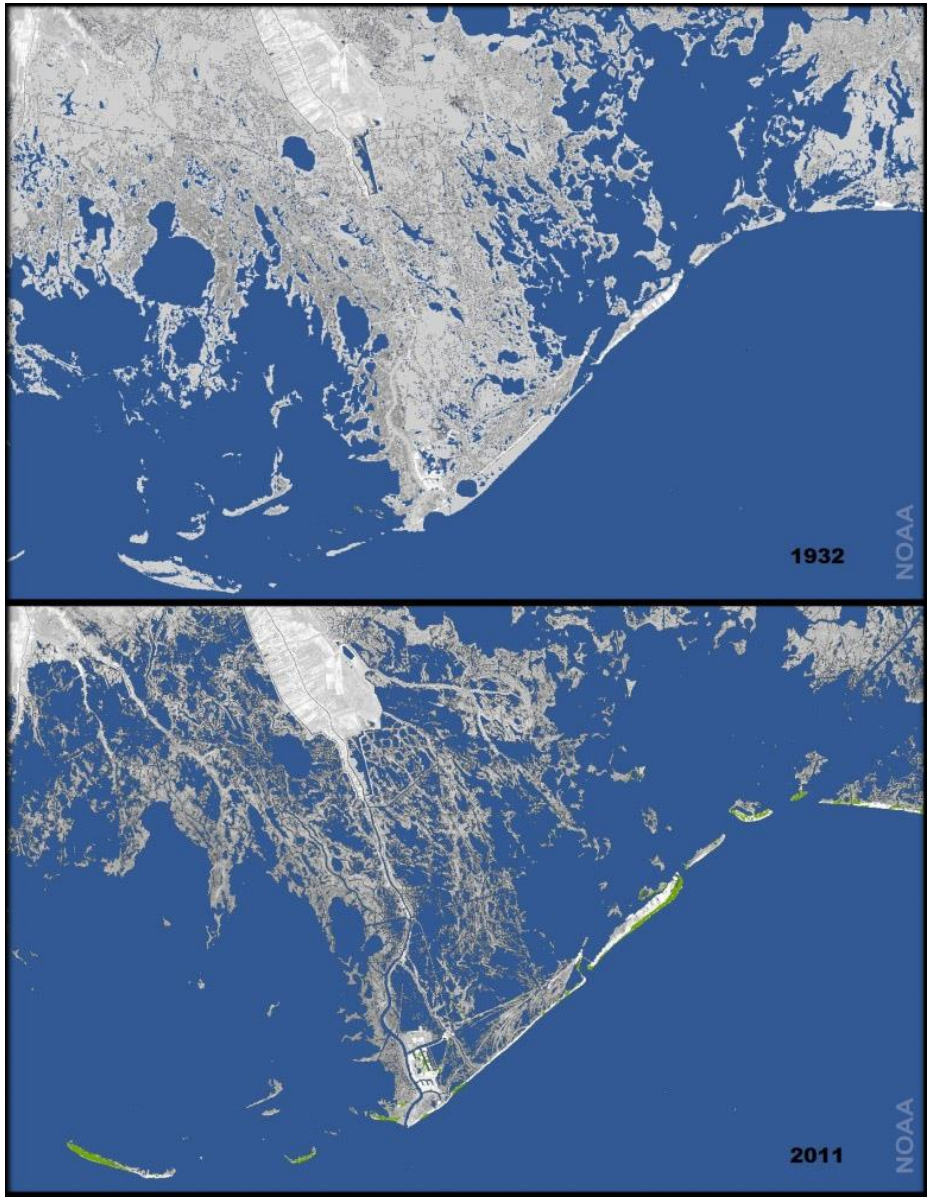
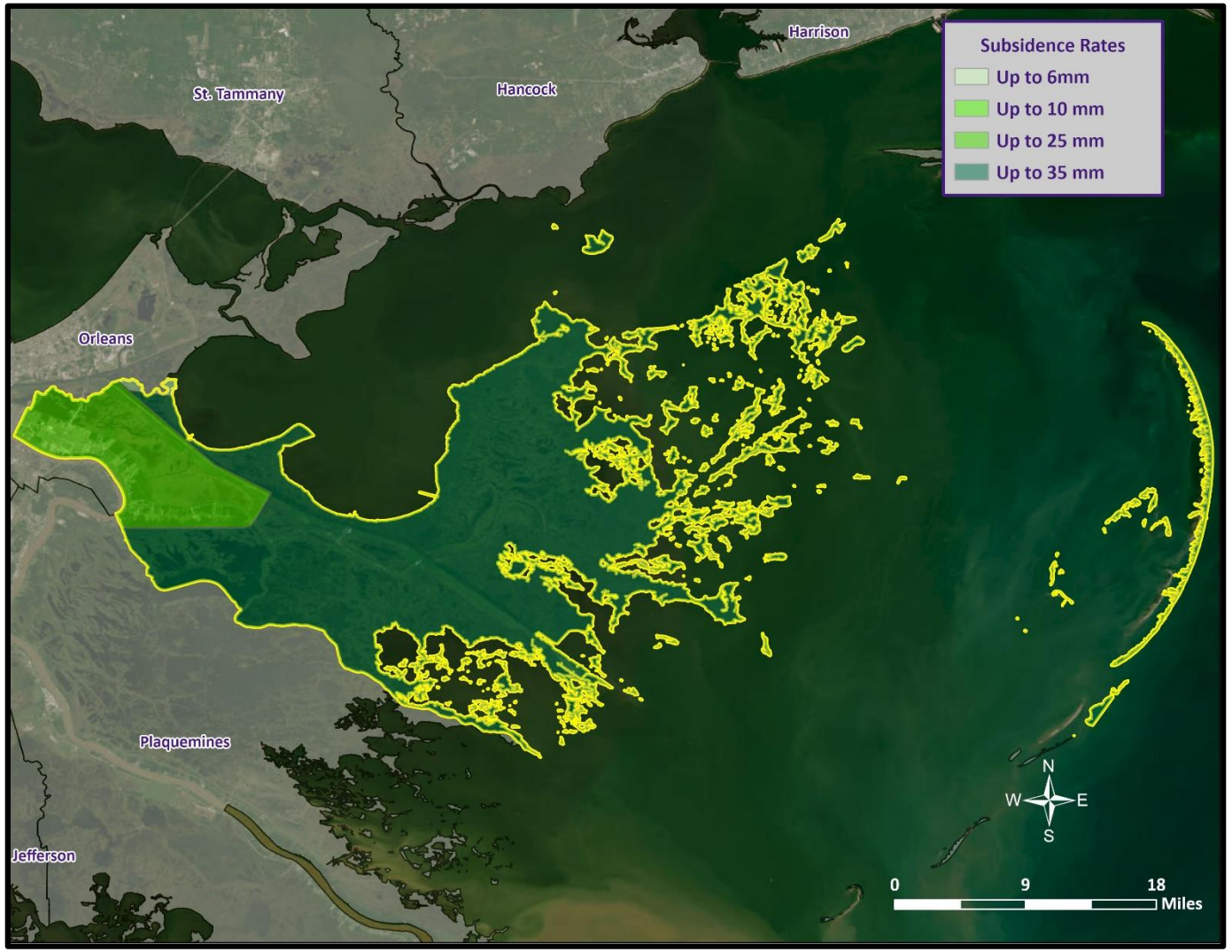
Coastal Hazards

- Since 1932, the average annual land loss in Louisiana is 35 square miles, while the average annual land gained is 3 square miles.
- Subsidence and sea level rise are the main culprits for land loss but other “discrete hazards” i.e. hurricanes, also contribute.
- Subsidence rates are high in St. Bernard Parish with the potential to lose up to 35mm of land annually near southern portions of the parish.



Subsidence Rates



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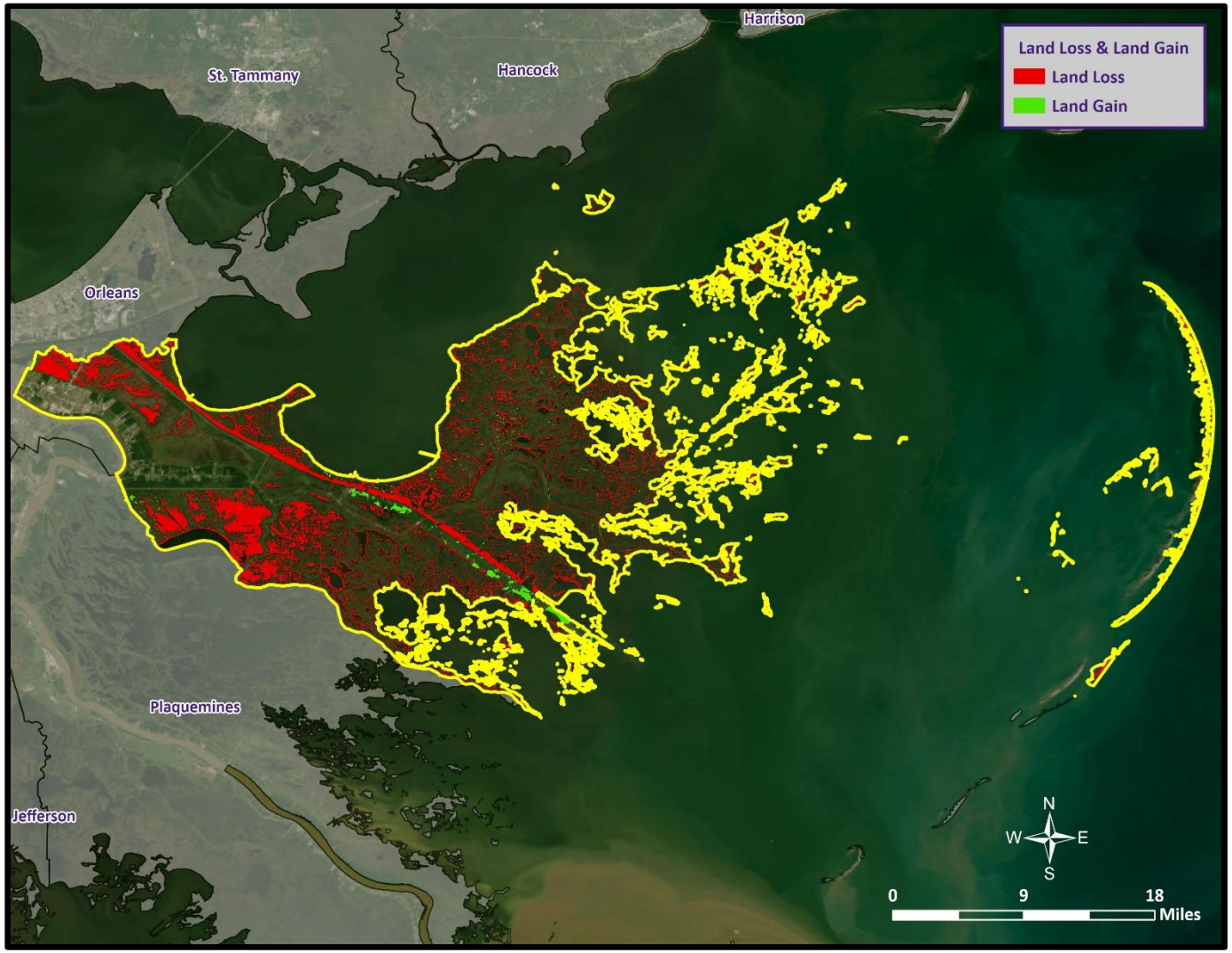
Land Gain and Land Loss



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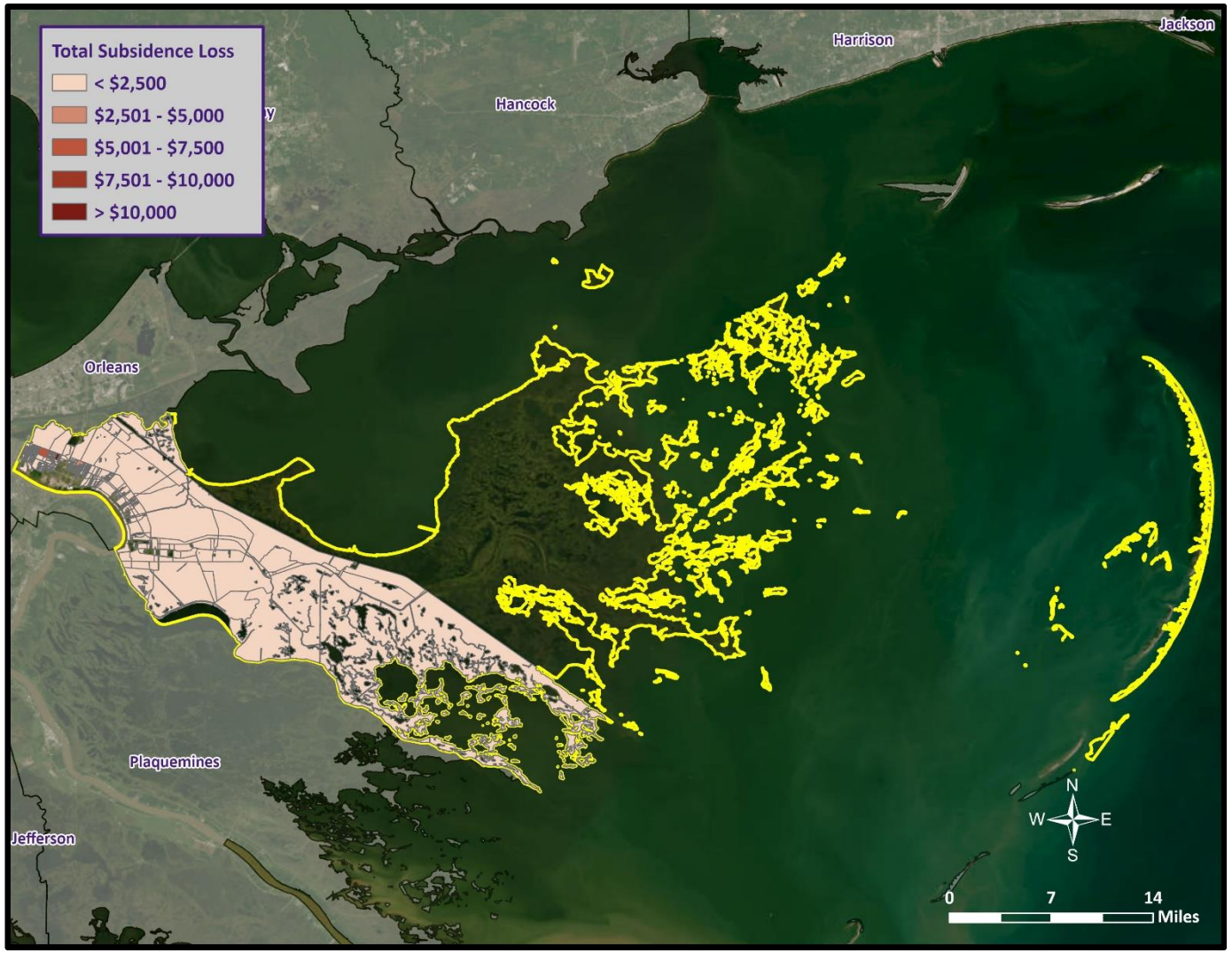
Subsidence Loss



Coastal Land Loss Estimated Annual Potential Losses
$106,400

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Flooding

- A flood is the overflow of water onto land that is usually not inundated.

- The National Flood Insurance Program defines a flood as “a general and temporary condition of partial or complete inundation of two or more acres of normally dry land area or of two or more properties from overflow of inland or tidal waves, unusual and rapid accumulation or runoff of surface waters from any source, mudflow, or collapse or subsidence of land along the shore of a lake or similar body of water as a result of erosion or undermining caused by waves or currents of water exceeding anticipated cyclical levels that result in a flood as defined above.”

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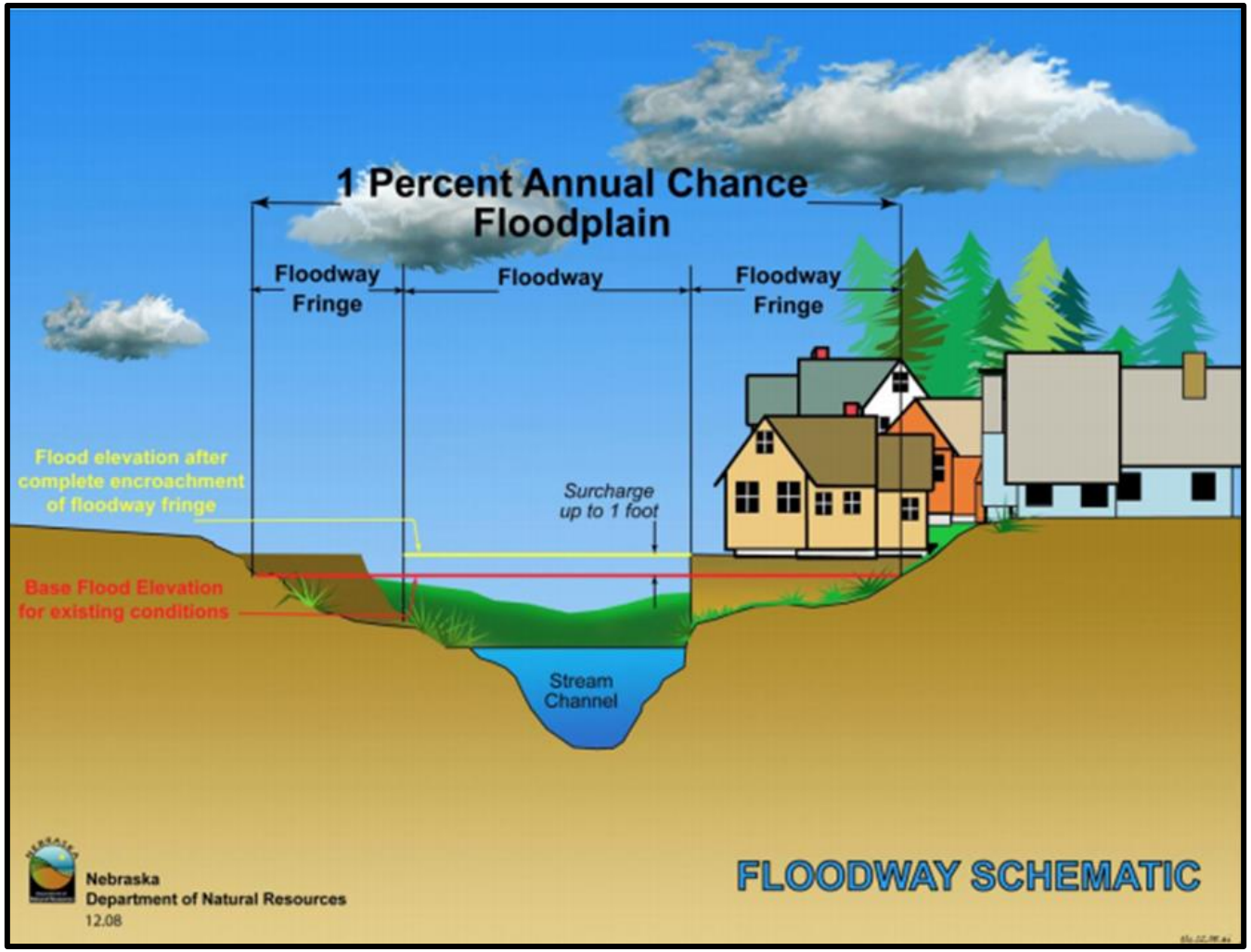
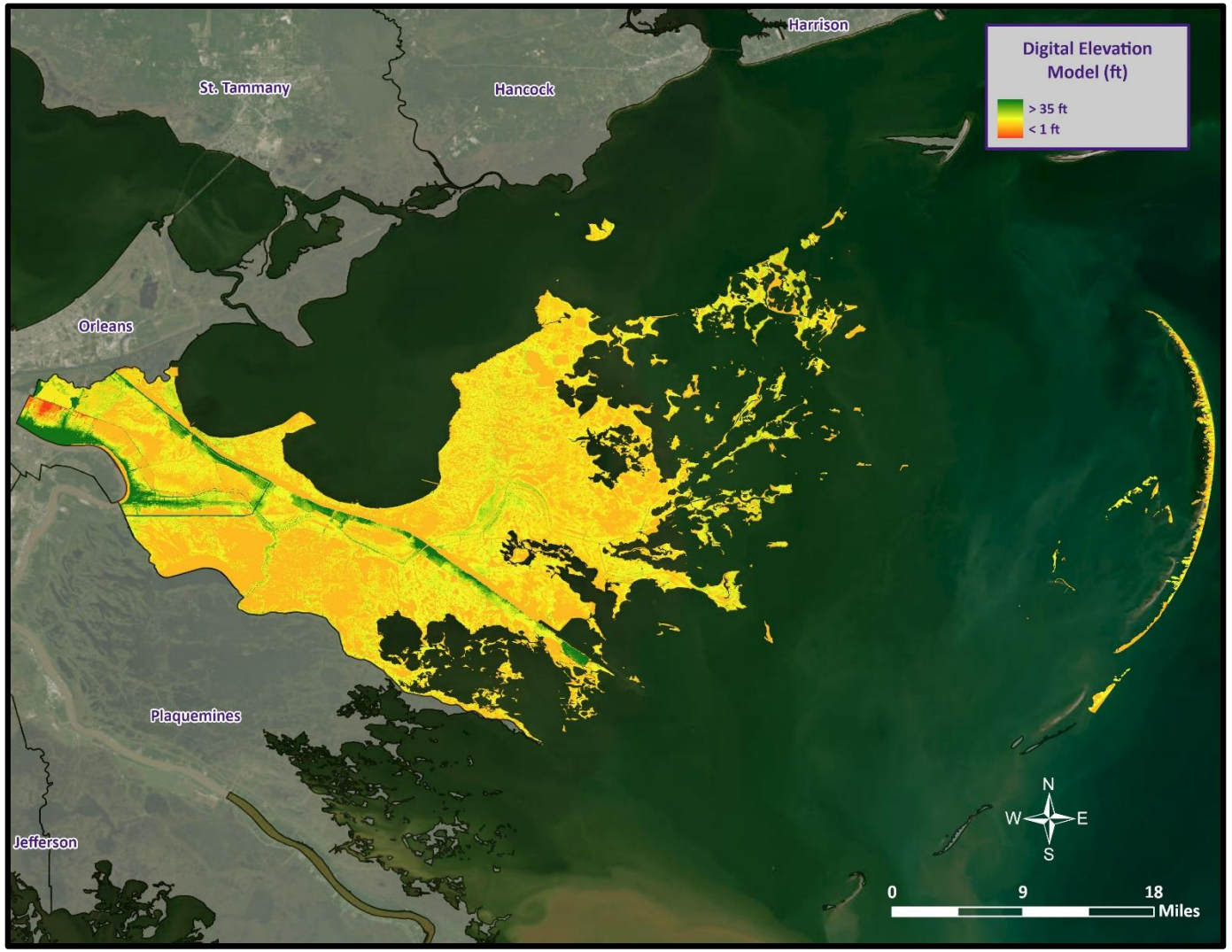
Flooding

- In Louisiana, six specific types of flooding are of main concern:
  - Riverine
  - Flash
  - Ponding
  - Backwater
  - Urban
  - Coastal

Floodway Diagram



Digital Elevation Model



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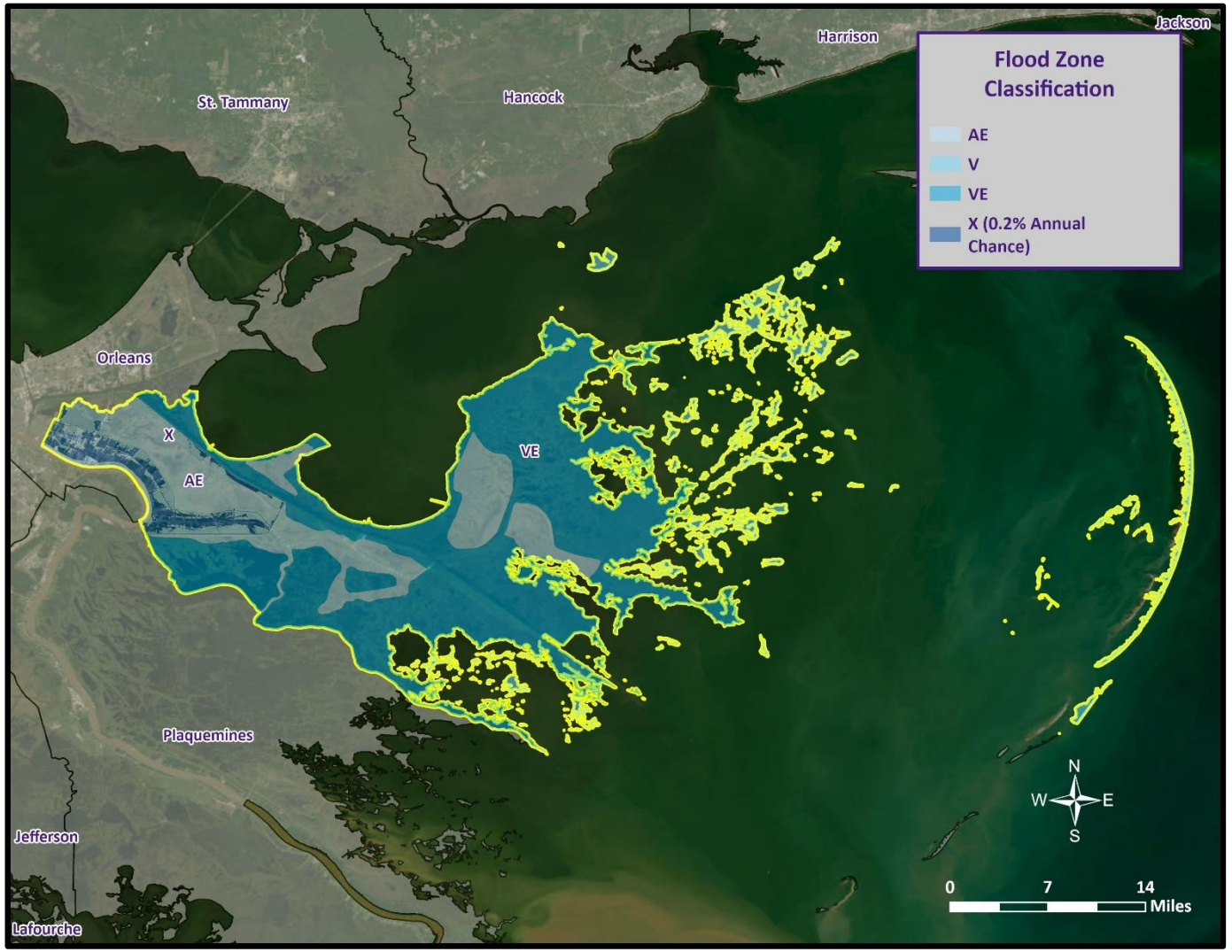
St. Bernard Parish Flood Map



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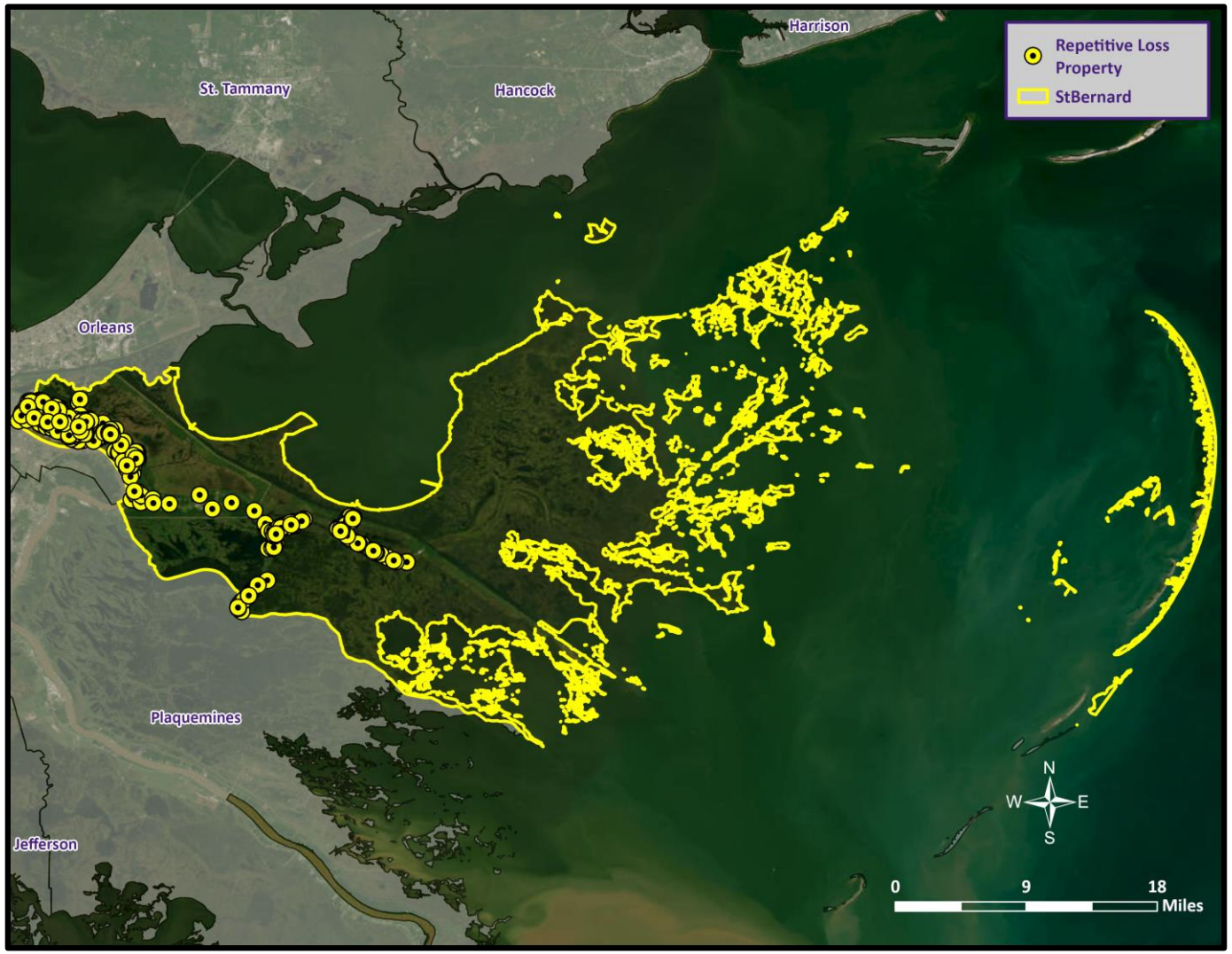
Flooding

- Some areas flood more often than other properties, even more than those in the mapped 100-year floodplain.
- FEMA defines a “repetitive loss” property as one which has received two flood insurance claim payments for at least $1,000 over any 10-year period since 1978.
- There are currently over 250,000 repetitive loss properties in the U.S.
  - ~43,000 in Louisiana alone
- These properties comprise 1.3% of the NFIP policy base, but they account for approximately 25-30% of the country’s flood insurance claim payments.

Repetitive Loss Properties

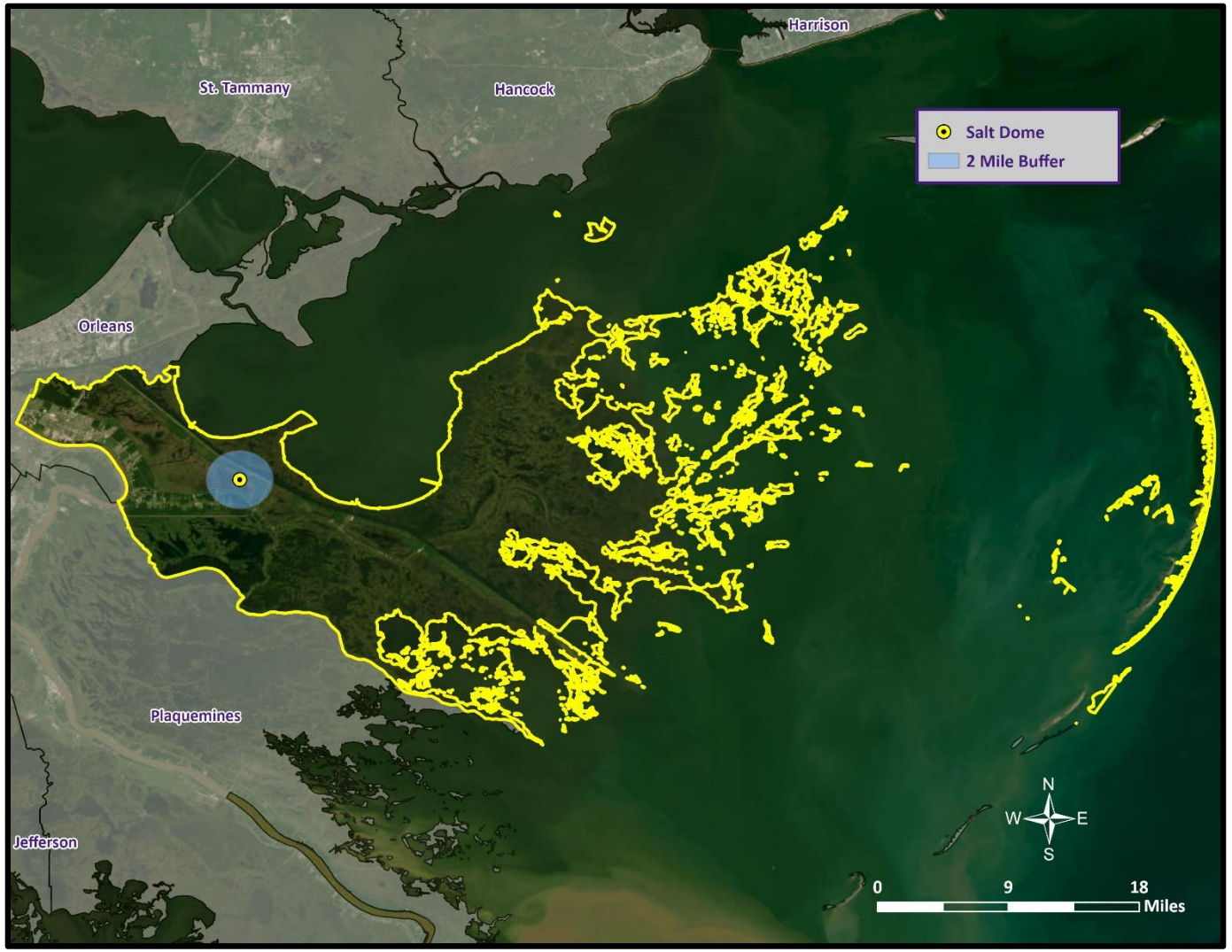


Number of Structures	Residential	Commercial	Government	Total Claims	Total Claims Paid
2,119	2,072	43	4	5,856	$290,588,337

Sinkholes

- A sinkhole is an area of ground that has no natural external surface drainage – when it rains, all of the water stays inside the sinkhole and typically drains into the subsurface.
- Sinkholes form in areas where the rock below the land surface is limestone, carbonate rock, salt beds, or rocks that can naturally be dissolved by groundwater circulating through them.
- As the rock dissolves, spaces and caverns develop underground. Once the spaces underground become too large, there is not enough support for the land above the spaces which causes a sudden collapse on the land surface.

Salt Dome Locations



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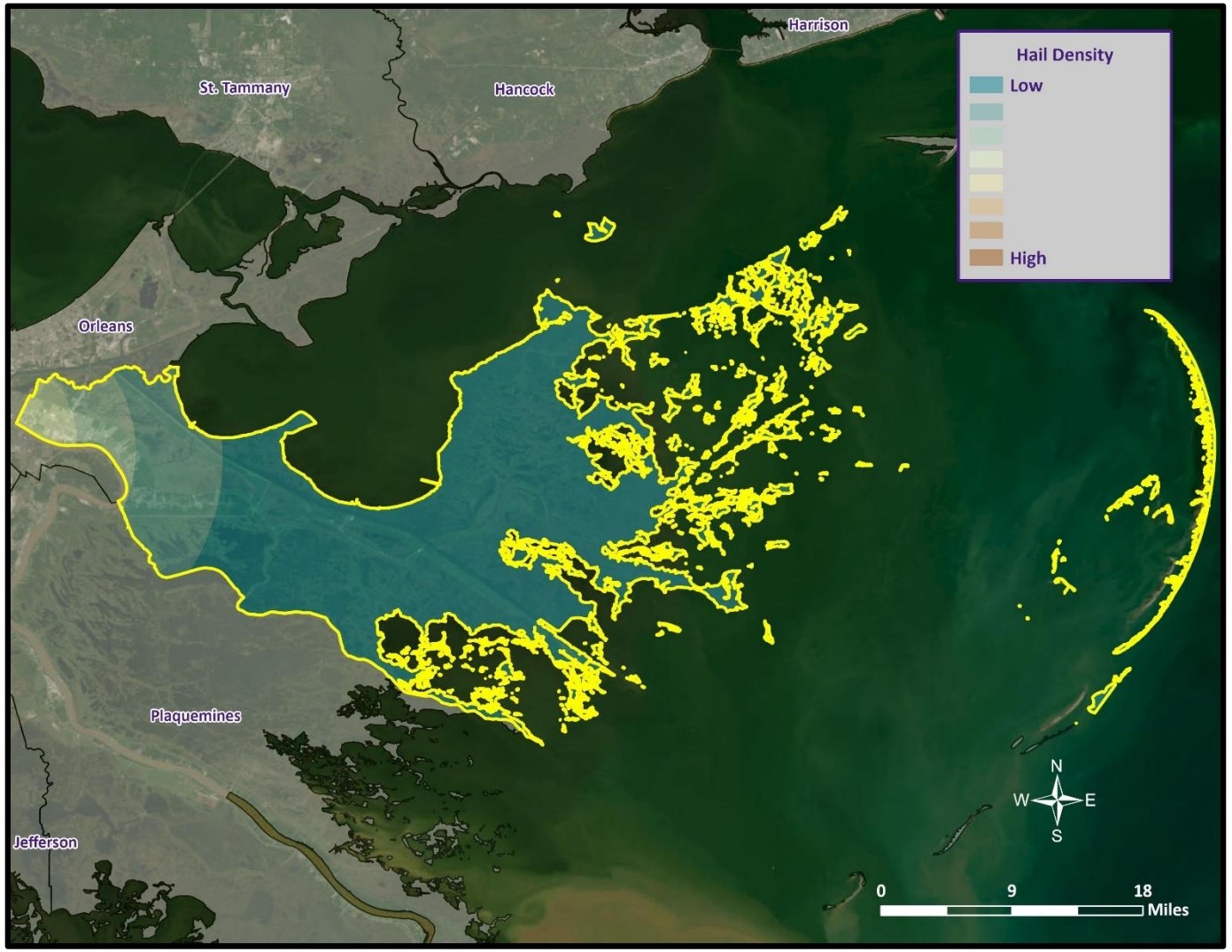
Thunderstorms

- A **thunderstorm**, also known as an **electrical storm**, a **lightning storm**, or a **thundershower**, is a type of storm characterized by the presence of lightning and its acoustic effect on the Earth's atmosphere known as thunder.
- They are usually accompanied by strong winds, heavy rain, and sometimes snow, sleet, or hail.
- Thunderstorms may line up in a series or rainband, known as a squall line. Strong or severe thunderstorms may rotate, known as supercells. While most thunderstorms move with the mean wind flow through the layer of the troposphere that they occupy, vertical wind sheer causes a deviation in their course at a right angle to the wind shear direction.

Hailstorm Density in St. Bernard Parish



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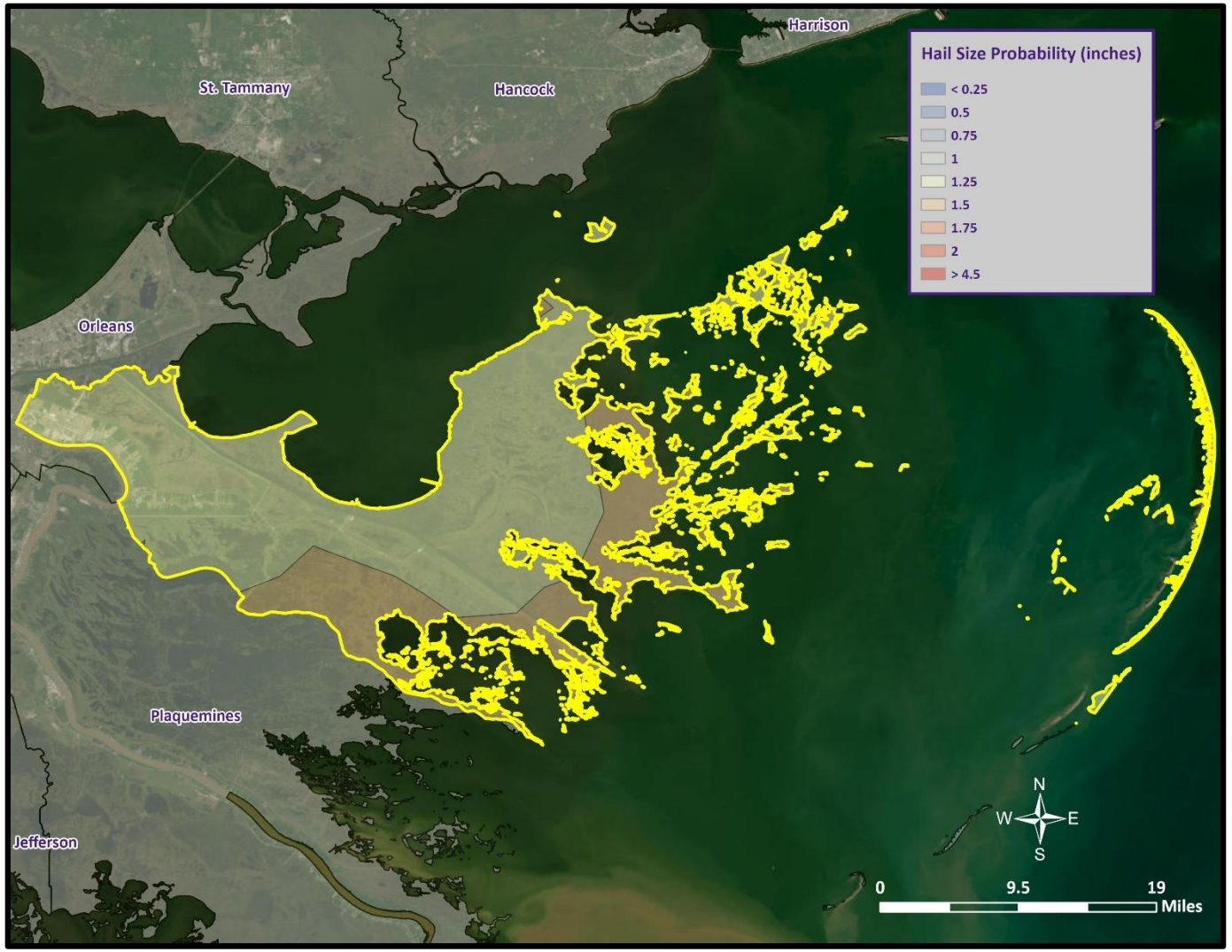
Maximum Hail Size Probability



St. Bernard Parish Government

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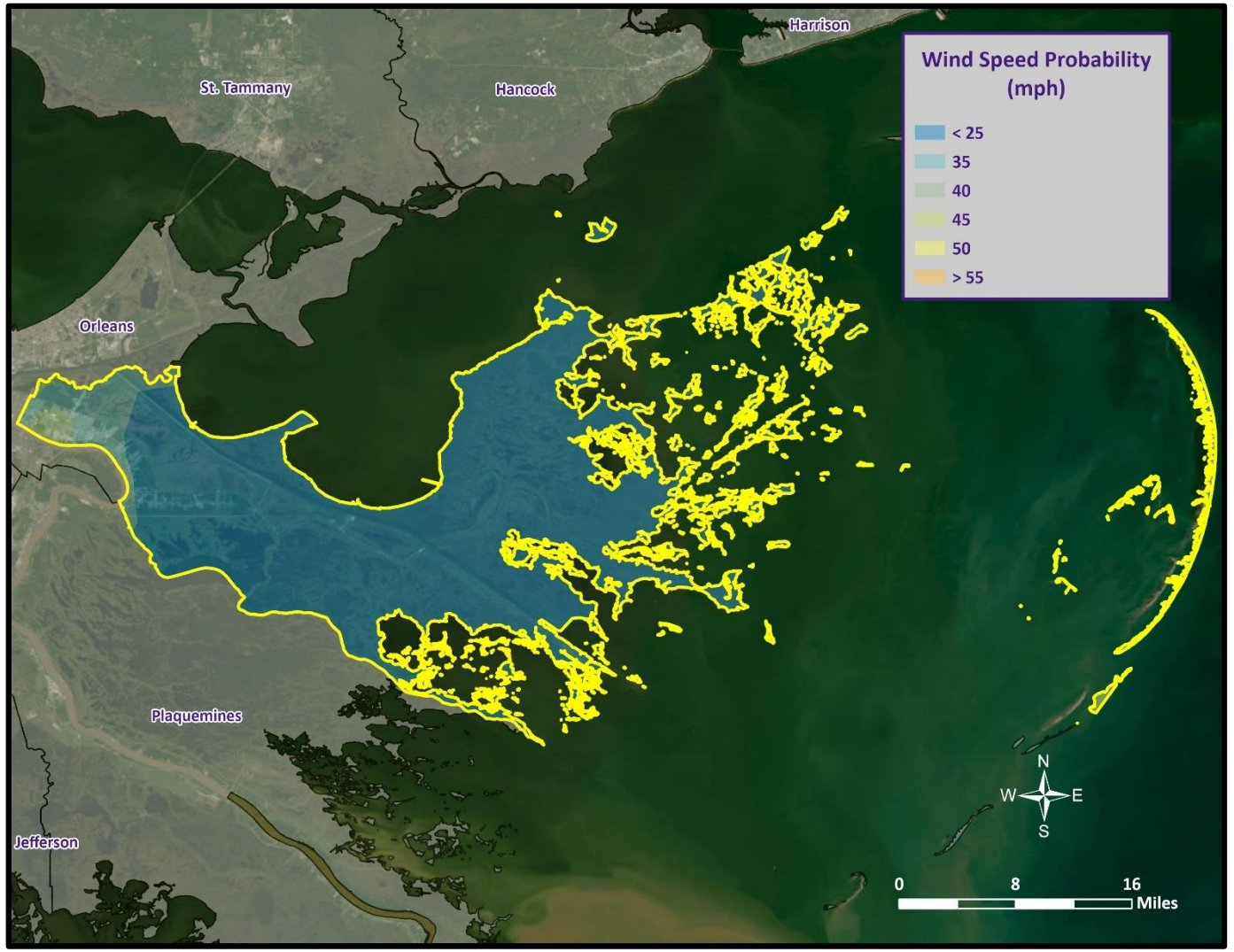
Maximum Wind Speed Probability



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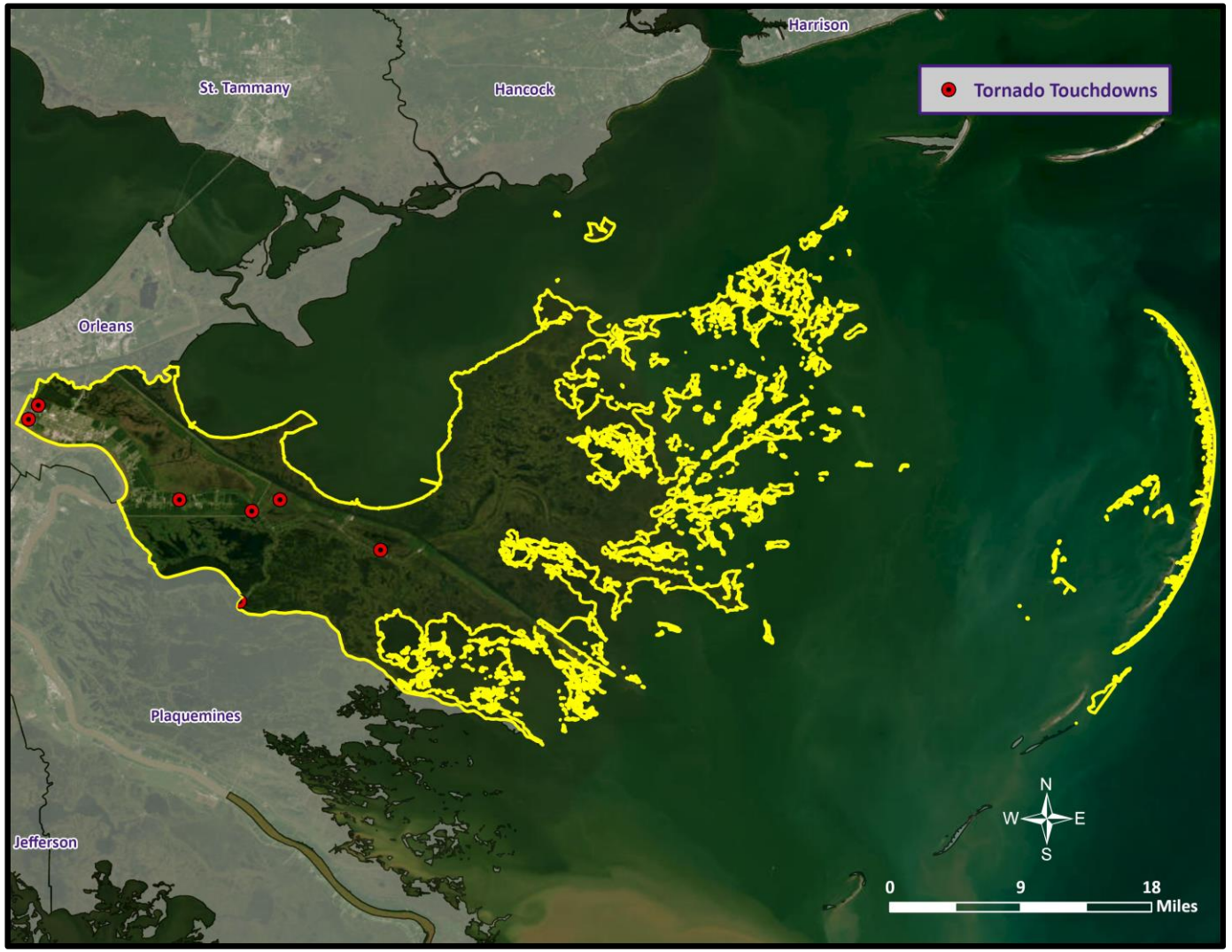
Tornadoes

- Tornadoes are rapidly rotating funnels of wind extending between storm clouds and the ground.
- Tornadoes are the most severe storms for their size, and 70% of the world's reported tornadoes occur within the continental United States.

ORIGINAL FUJITA SCALE		ENHANCED FUJITA SCALE	
F5	261-318 mph	EF5	+200 mph
F4	207-260 mph	EF4	166-200 mph
F3	158-206 mph	EF3	136-165 mph
F2	113-157 mph	EF2	111-135 mph
F1	73-112 mph	EF1	86-110 mph
F0	<73 mph	EF0	65-85 mph

Tornadoes in St. Bernard Parish



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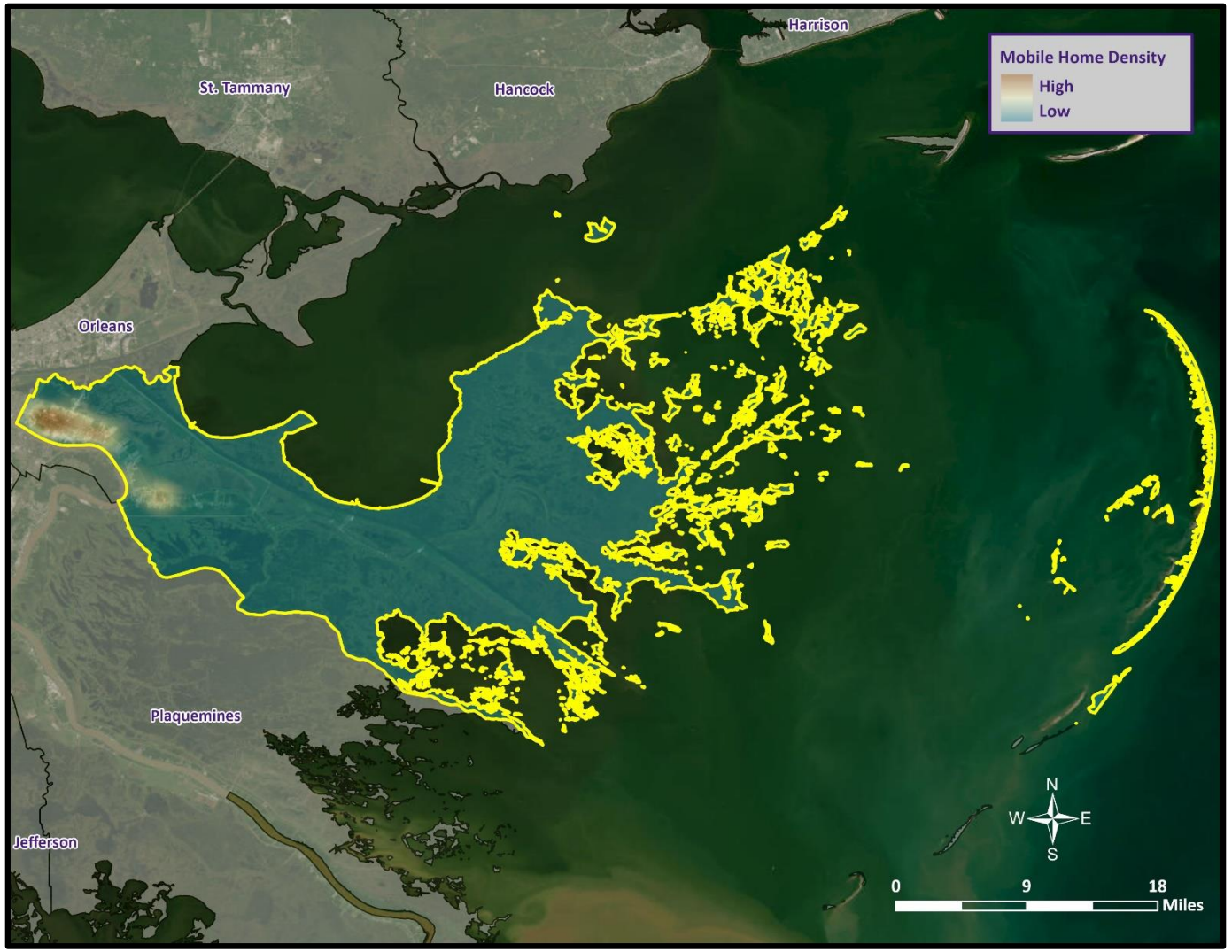
Manufactured Home Density



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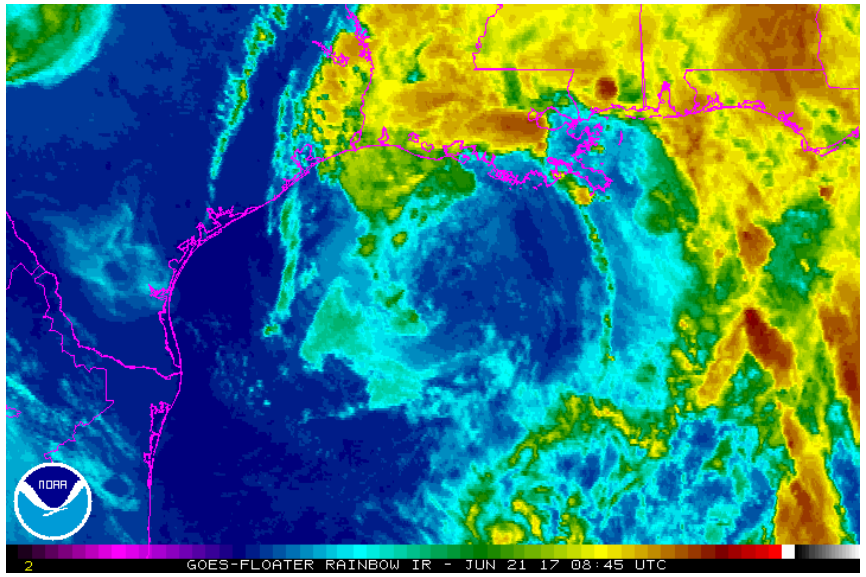
Tropical Cyclones

- Tropical cyclones are defined spinning, low-pressure air masses that draw surface air into their centers and attain strength ranging from weak tropical waves to the most intense hurricanes

Saffir-Simpson Hurricane Wind Scale		
	Sustained Wind Speed	**Effects**
Category 1	74-95 mph (119-153 km/hr)	Very dangerous winds will produce some damage. Low-lying coastal roads flooded, minor pier damage
Category 2	96-110 mph (154-177 km/hr)	Extremely dangerous winds will cause extensive damage. Major damage to exposed mobile homes, evacuation of some shoreline residents
Category 3	111-130 mph (178-209 km/hr)	Devastating damage will occur. Some structural damage to small buildings; serious flooding at coast and many smaller structures near coast destroyed
Category 4	131-155 mph (210-249 km/hr)	Catastrophic damage will occur. High risk of injury or death to people, livestock, and pets due to flying and falling debris. Long-term water shortages will increase human suffering. Most of the area will be uninhabitable for weeks or months.
Category 5	> 155 mph (249 km/hr)	Catastrophic damage will occur. People, livestock, and pets are at very high risk of injury or death from flying or falling debris. A high percentage of frame homes will be destroyed. Long-term power outages and water shortages will render area uninhabitable for weeks or months.



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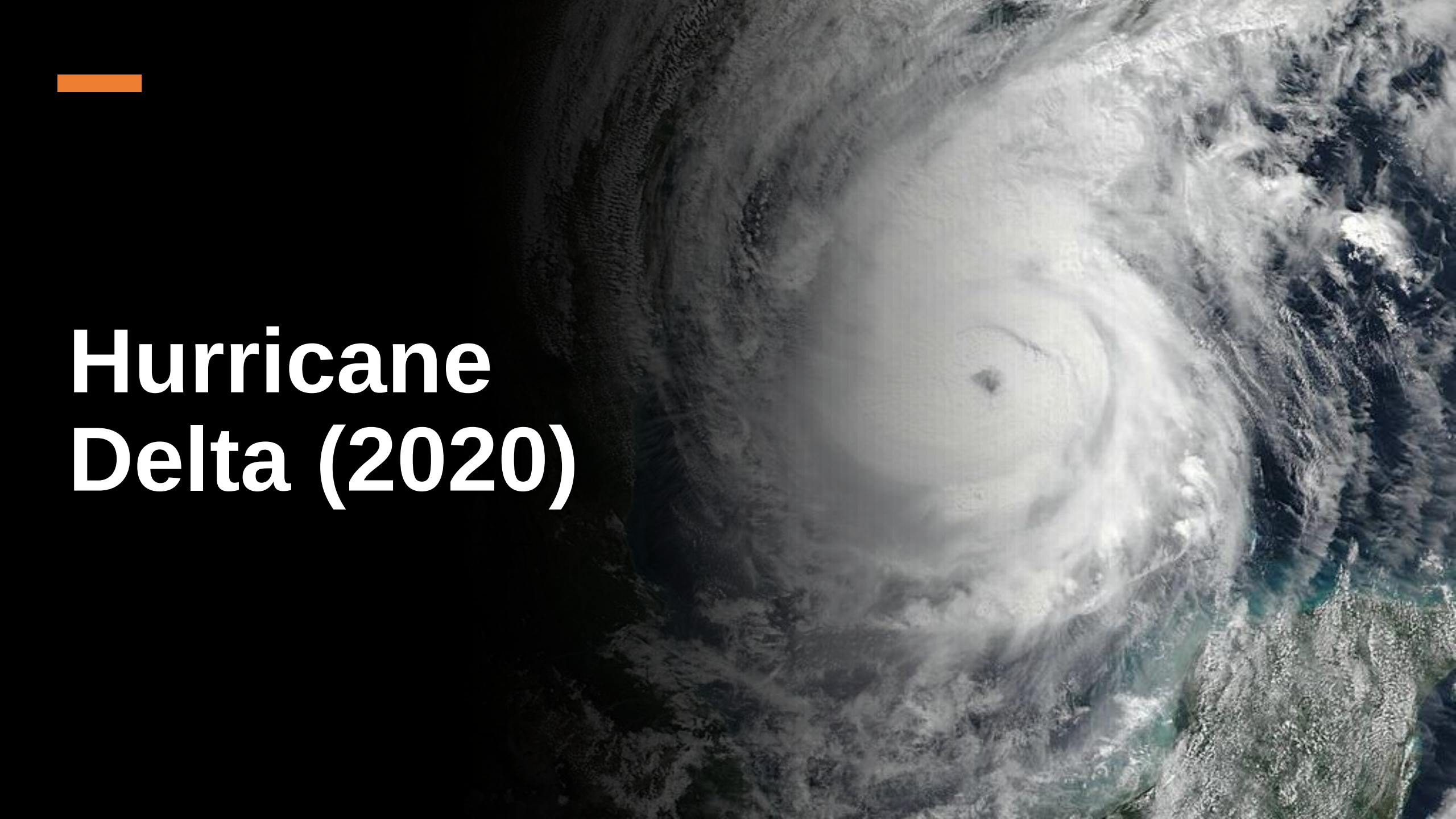
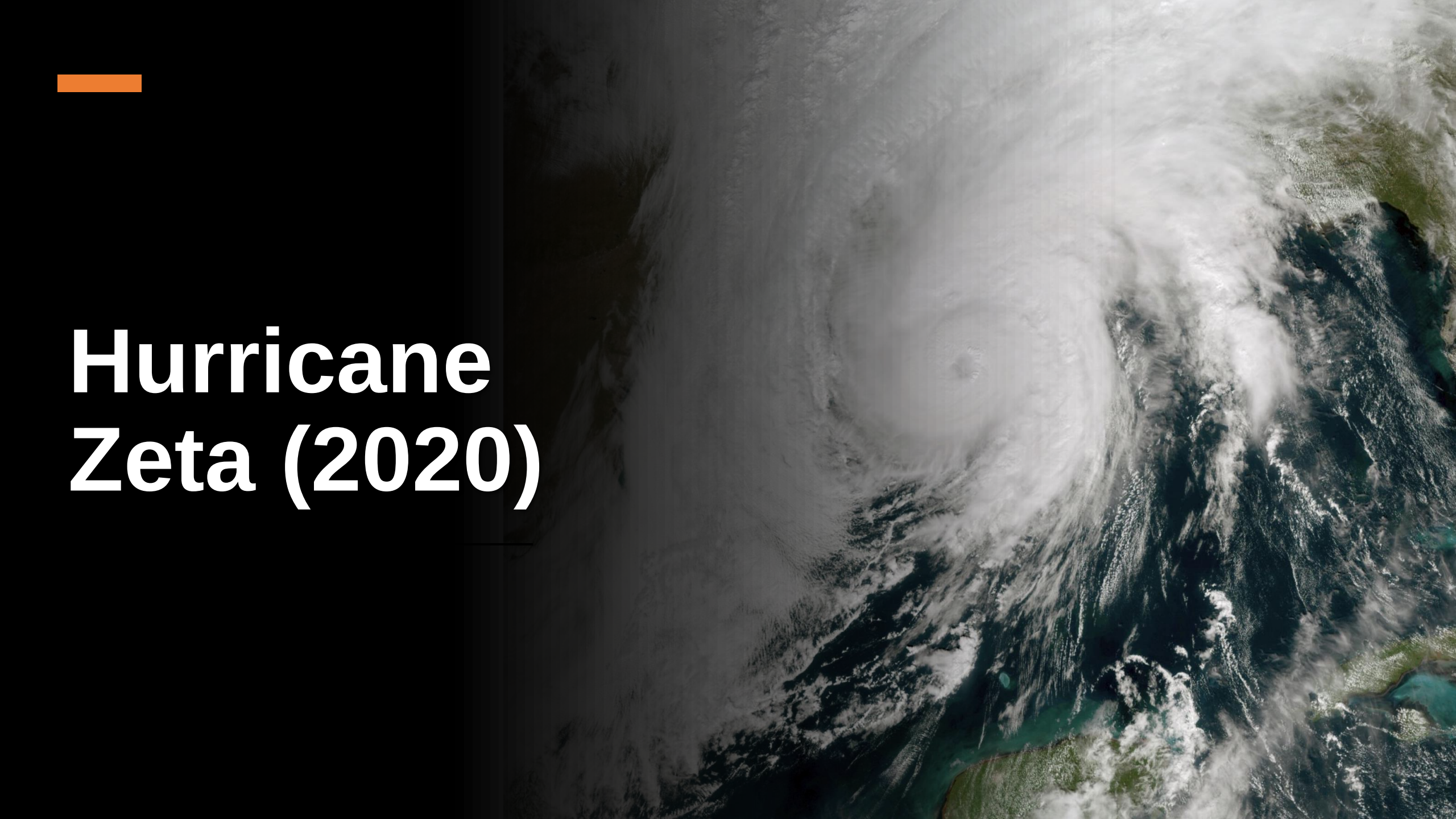
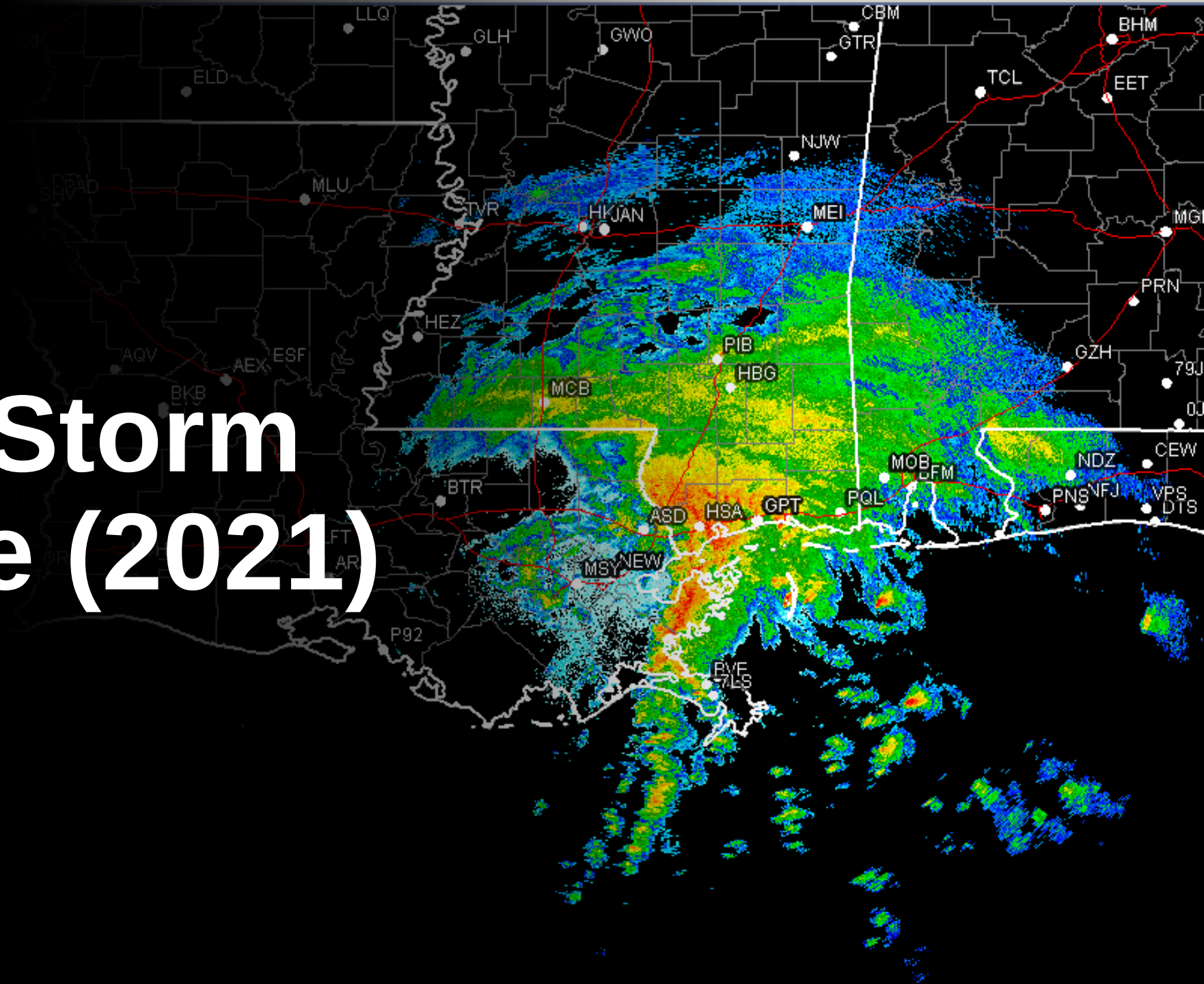
Hurricane Delta (2020)



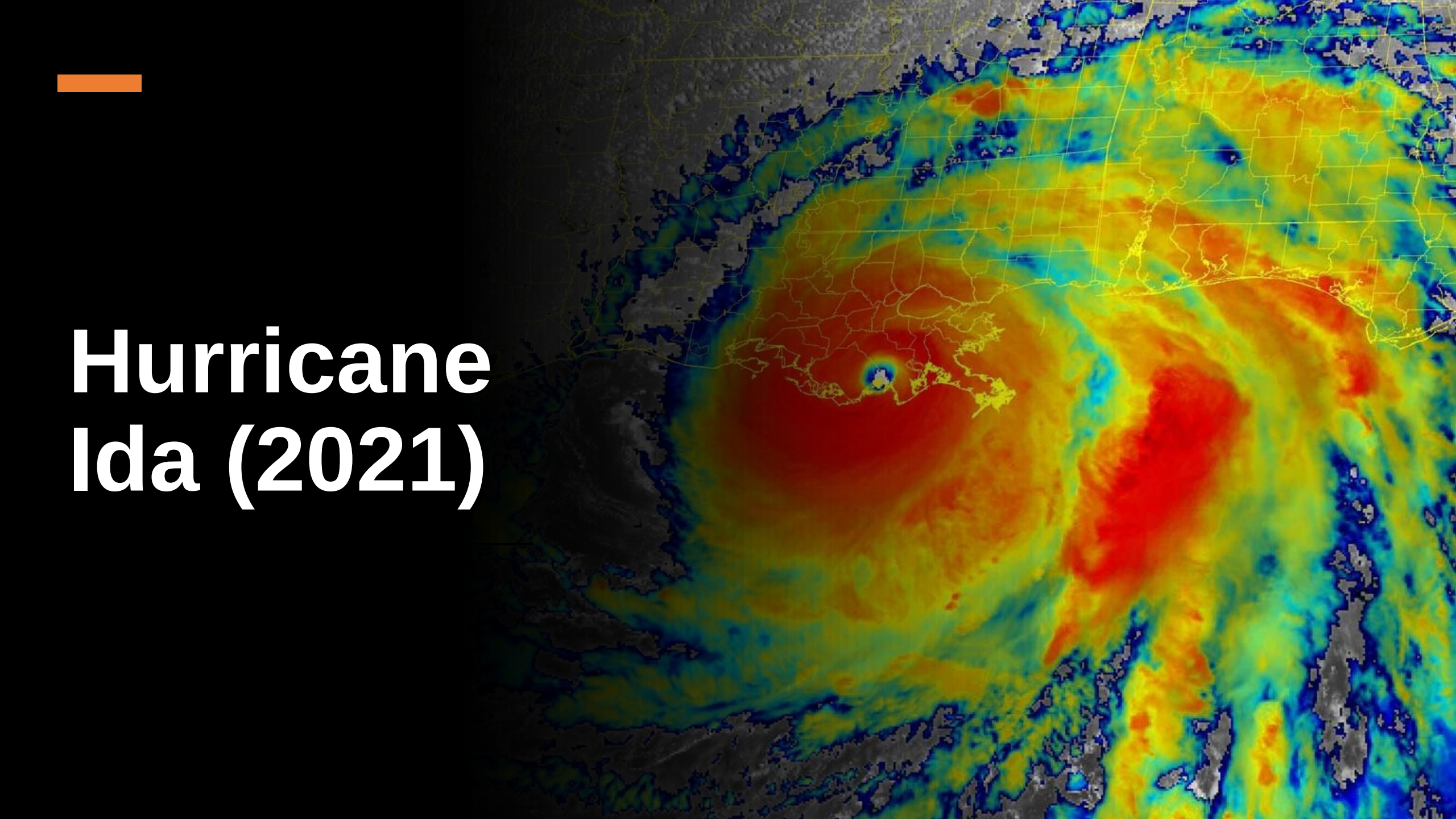
Hurricane Zeta (2020)



Tropical Storm Claudette (2021)

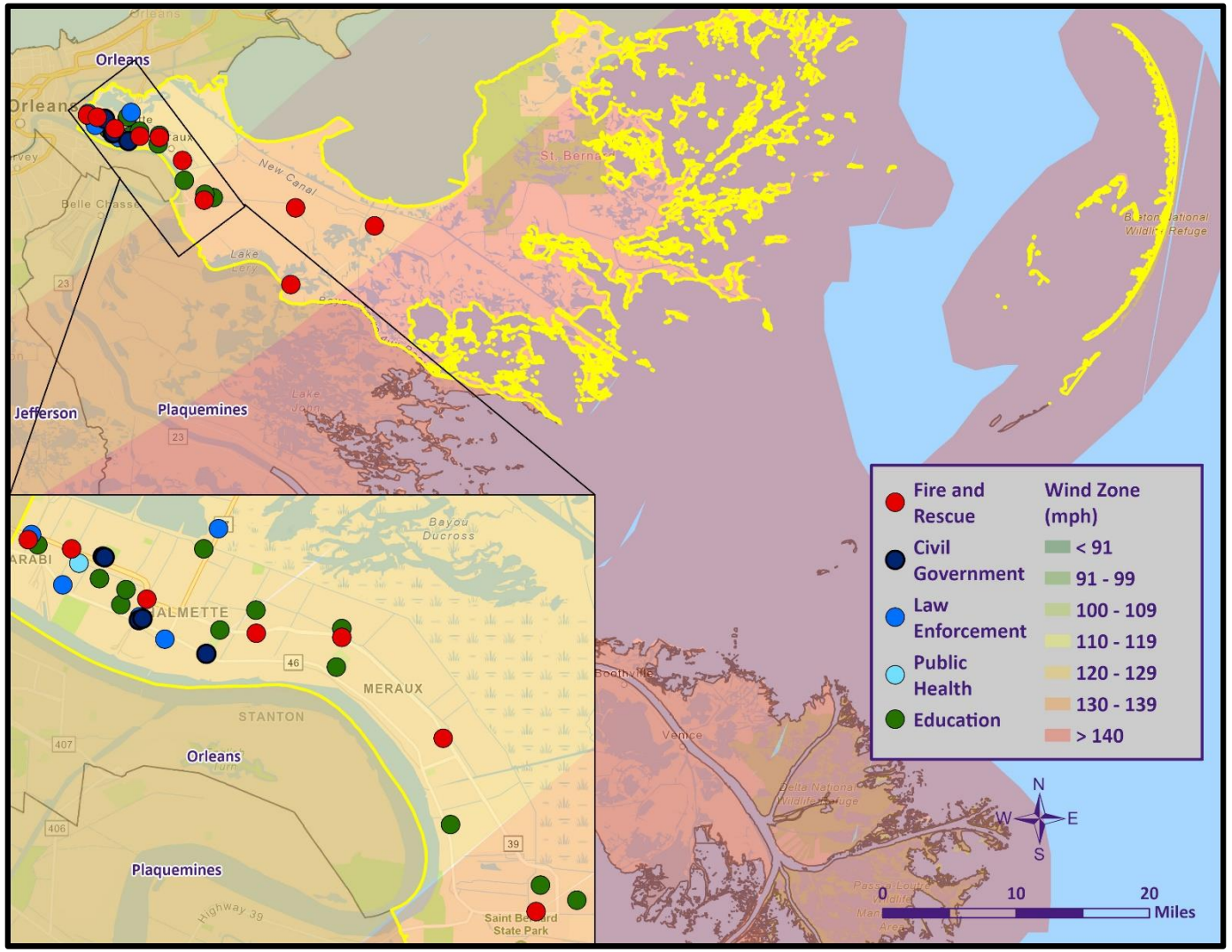


Hurricane Ida (2021)



Tropical Storm Francine (2024)

Wind Speed Impacts on C.I.



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Parish Hazard Mitigation Project Update

St. Bernard Parish OHSEP/

St. Bernard Parish Government Discussion

St. Bernard Parish Mitigation Goals

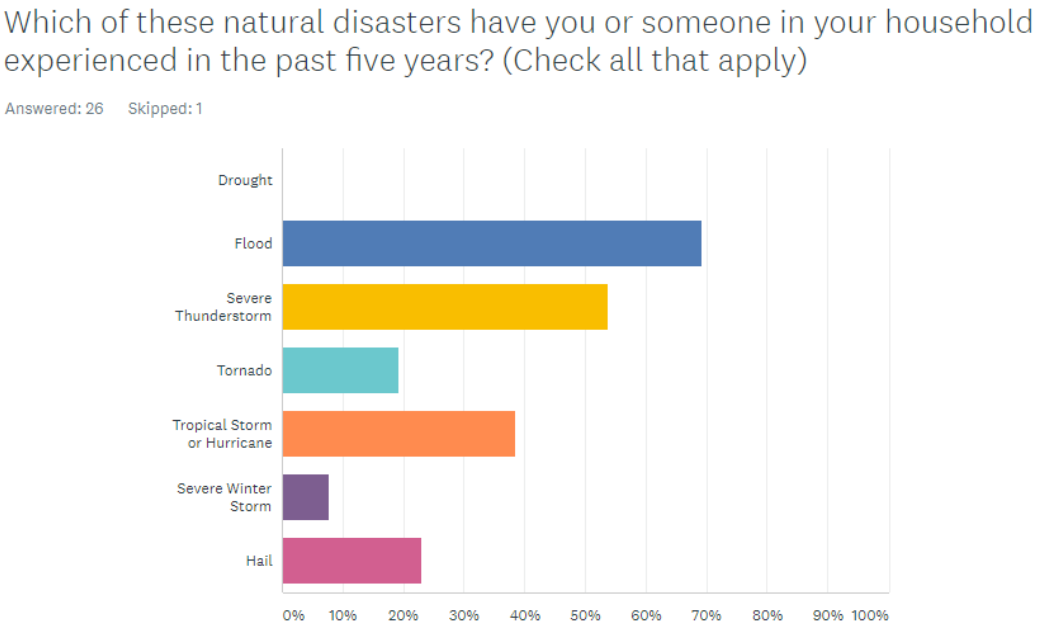
Goals & Objectives

1. Identify and pursue preventative measures that will reduce future damages from hazards
2. Enhance public awareness and understanding of disaster preparedness
3. Reduce repetitive flood losses in the parish
4. Facilitate sound development and rebuilding in the parish so as to reduce or eliminate the potential impacts of hazards

Public Outreach Activity #1

Hazard Mitigation Public Opinion Survey

https://lsu.qualtrics.com/jfe/form/SV_9QCyzhJGx7X02CG



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Public Outreach Activity #2

Please fill out an incident questionnaire!

ST. BERNARD PARISH PUBLIC MEETING

PUBLIC ACTIVITY: INCIDENT/ ISSUE QUESTIONNAIRE

1. HAZARD TYPE(S):

A. COASTAL HAZARDS
B. FLOODING
C. SINKHOLES
D. THUNDERSTORMS
E. TORNADOES
F. TROPICAL CYCLONES

2. DESCRIBE INCIDENT OR ISSUE:

3. LOCATION:

A. CITY:

B. ADDRESS OR AREA:

4. INTENSITY:

A. DEPTH (FLOODING) OR SIZE (HAIL ETC.):

B. WIND STRENGTH

5. RECURRING OR ONE TIME:

A. IF RECURRING, HOW OFTEN:

6. WHAT TYPE OF INTERRUPTIONS DOES/DIDTHE INCIDENT OR ISSUE CAUSE? (BUSINESS CLOSURE,DAMAGE, EVACUATION, ETC.)

7. HOW LONG WAS THE INTERRUPTION (HOURS, DAYS, WEEKS ETC.)

8. HOW COULD THIS HAZARD OR IMPACT BE PREVENTED, FIXED OR ALLEVIATED?

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SDMI Hazard Mitigation Website

- Repository for materials used during update process
- https://hmplans.sdmi.lsu.edu/Home/Parish/st-bernard

Contact Us

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