

Truth or Consequences?

Do States of Denial about
Sea Level Rise=Government Liability?

Jim Wilkins

Louisiana Sea Grant Law & Policy Program`

Regional Sea Grant Takings Study

- Gulf of Mexico States
 - Legal implications of sea level rise adaptation
 - Takings challenges to property regulation
 - Liability for failure to regulate hazardous development

**JOURNAL OF LAND
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 **FLORIDA STATE
UNIVERSITY
COLLEGE OF LAW**

NO ADVERSE IMPACT AND THE COURTS: PROTECTING THE PROPERTY RIGHTS OF ALL

Prepared for the Association of State Floodplain Managers



By:
Jon A. Kusler, Esq. and
Edward A. Thomas, Esq.

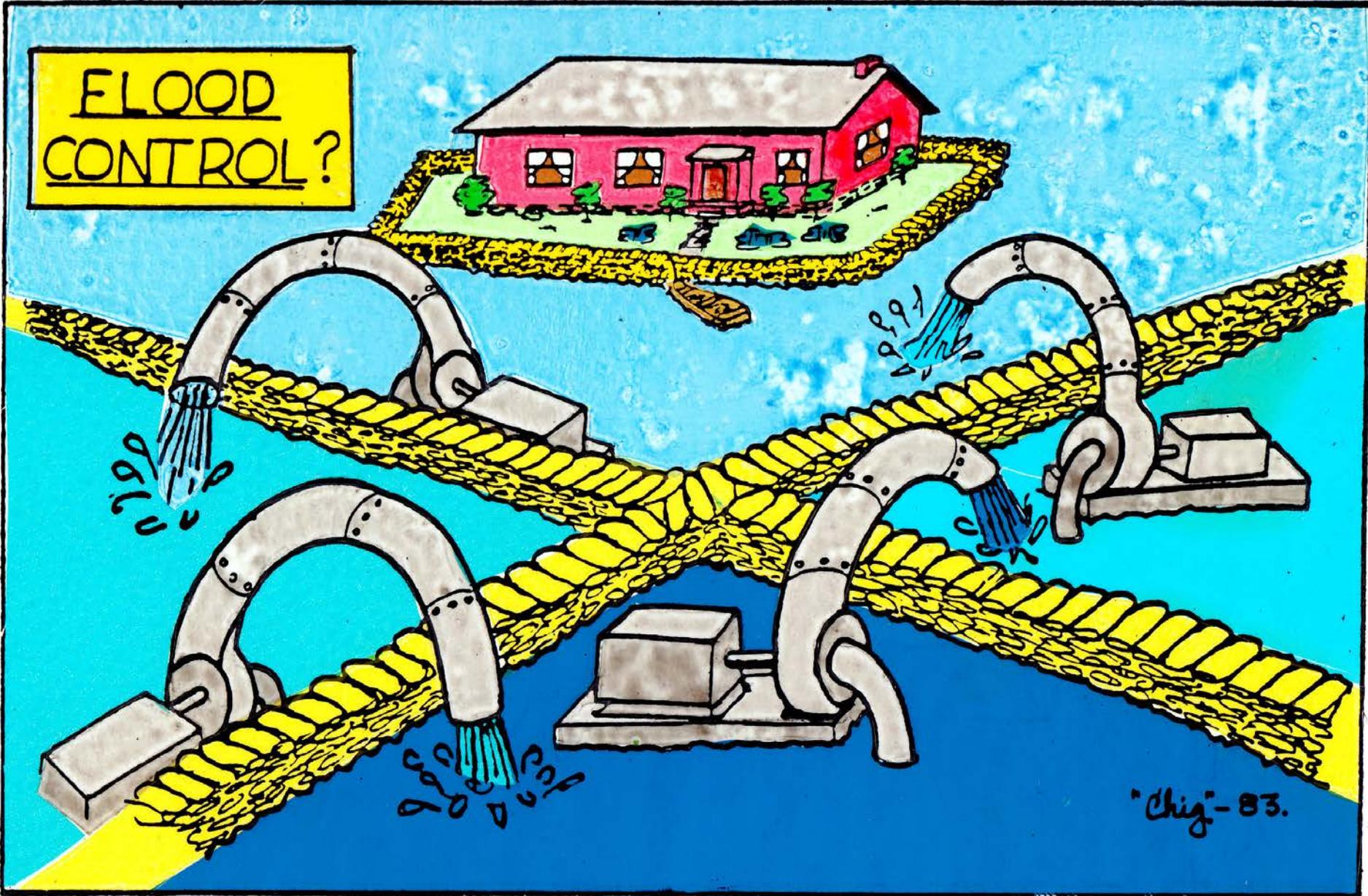
Is There a Government Duty to Prevent Harm or Give Warning?

- Planning and Zoning Authority
- Statutory Assumption of General Duty of Flood Control
- General duty to Maintain Public Safety

NAI/Regional Sea Grant Findings

- The “Common Enemy Doctrine” has largely eroded and been replaced by a “reasonableness” standard

FLOOD
CONTROL?



Chig-83.

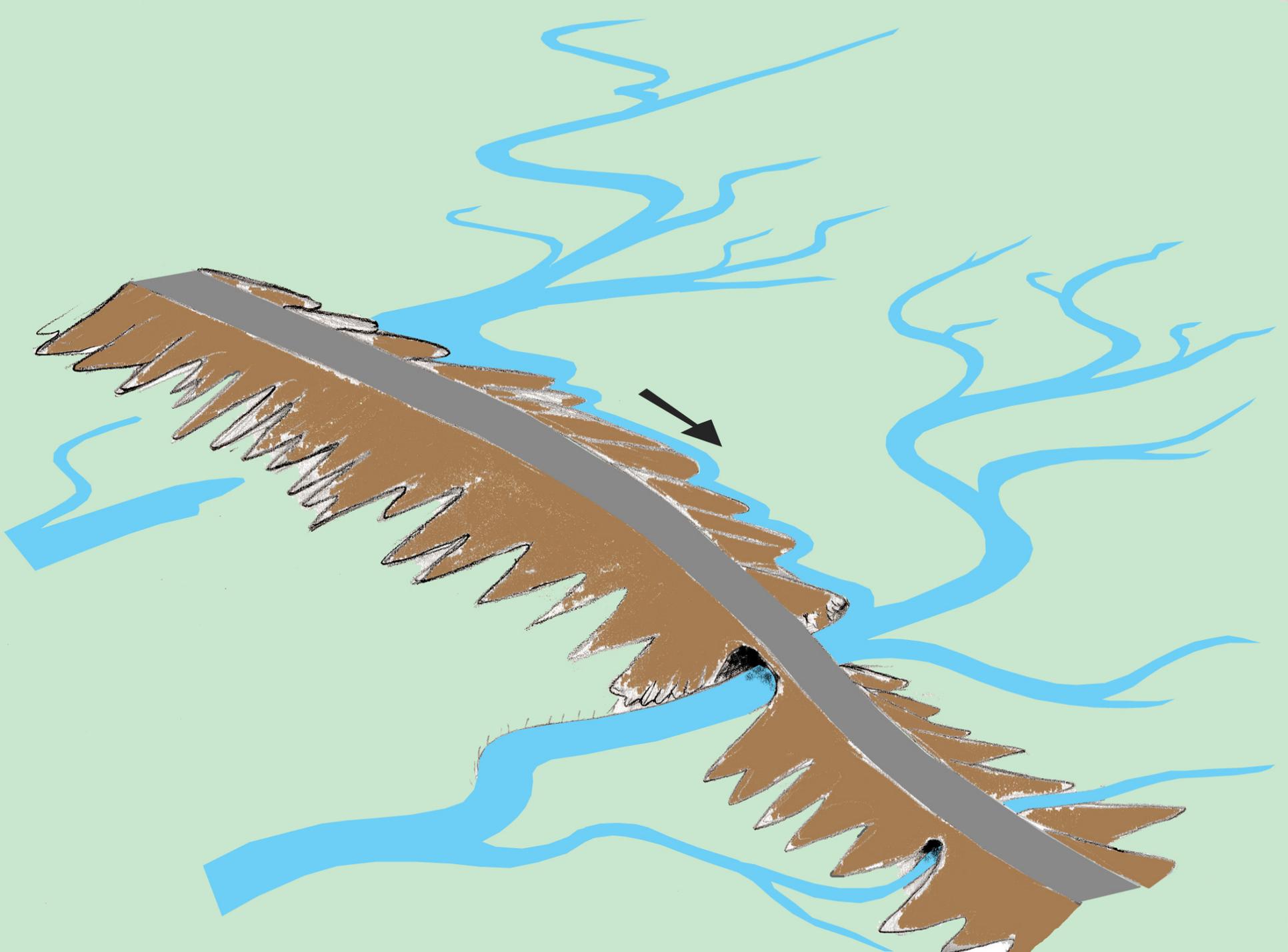
NAI/Regional Sea Grant Findings

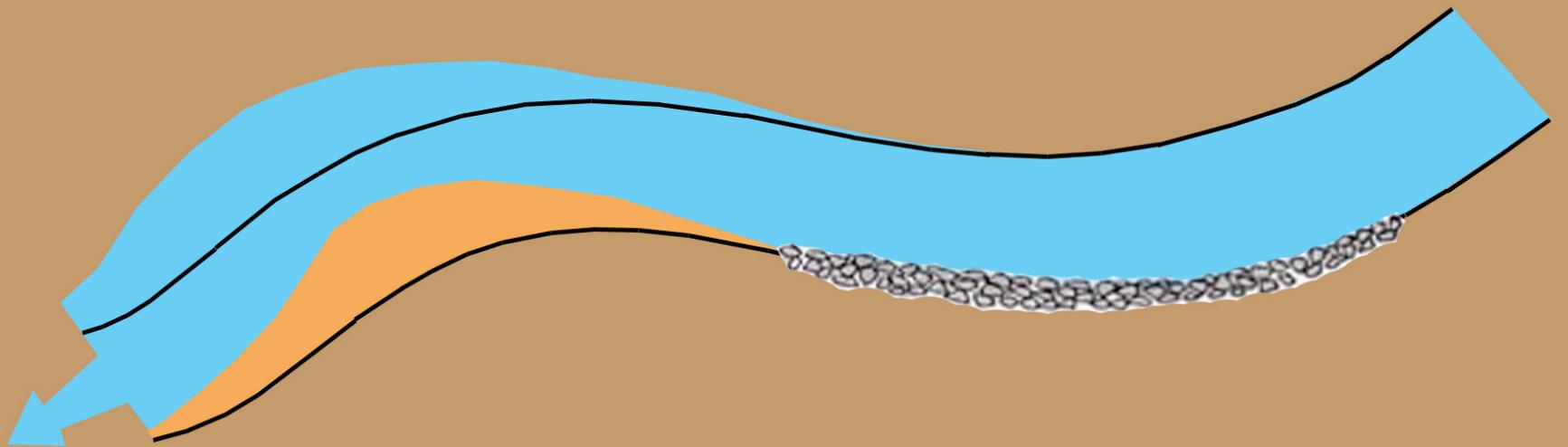
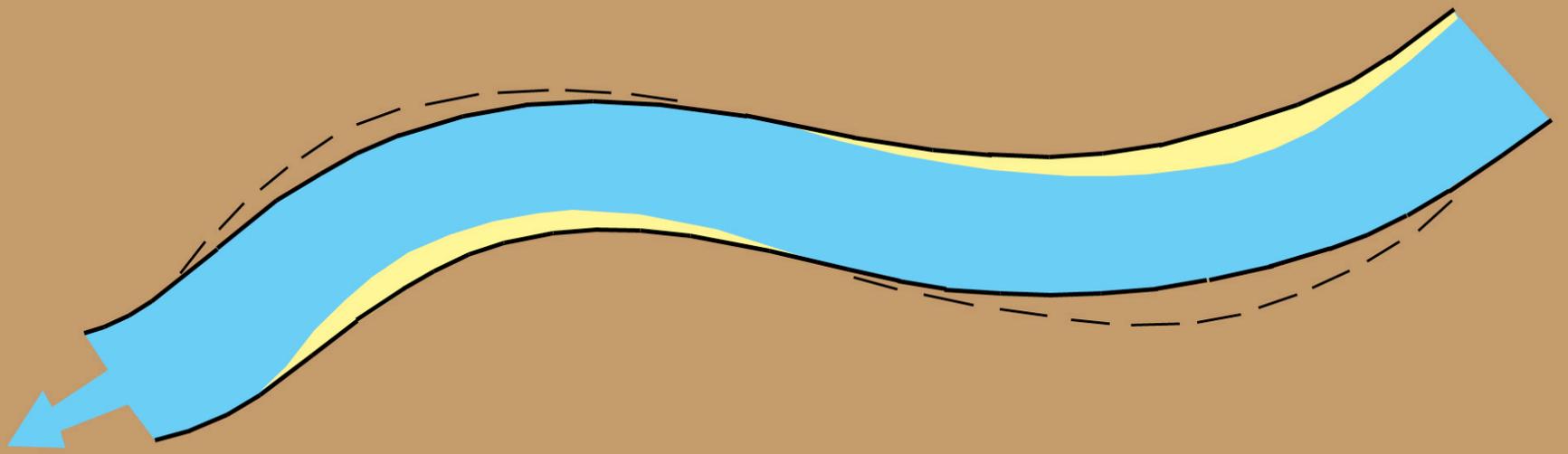
- The “Reasonableness” standard:

No Adverse Impact

Governments can be liable for actions that cause or exacerbate flooding

- Public works projects
- Approving development







































What about natural flooding?

Allowing development that is flooded from a known or obvious natural hazard.

Flooding occurs on the permitted property

Relative Sea-Level Rise Components



Relative Sea-Level Rise Components

**Increasing Sea Level
Elevation**



Relative Sea-Level Rise Components

**Increasing Sea Level
Elevation**



Relative Sea-Level Rise Components

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Elevation**



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Relative Sea-Level Rise Components

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Relative Sea-Level Rise Components

**Increasing Sea Level
Elevation**

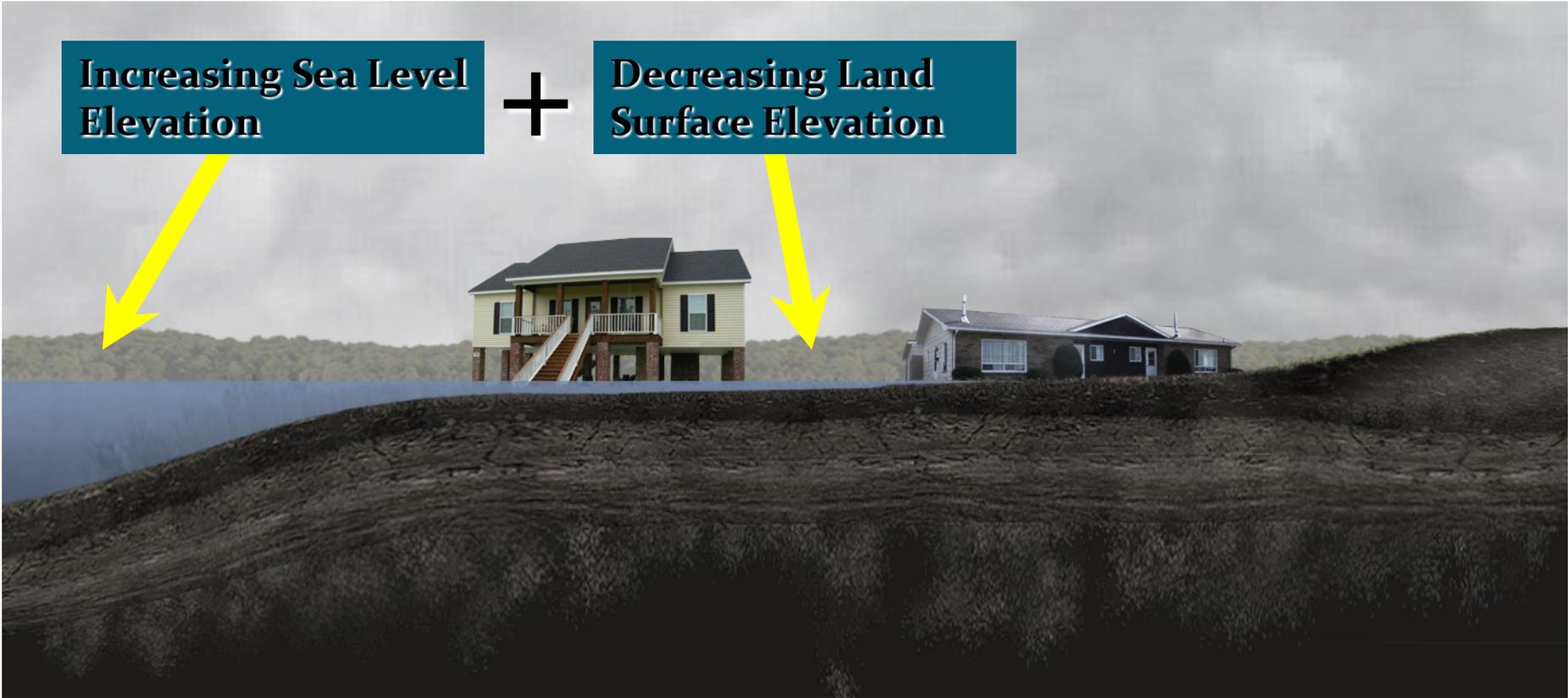


Relative Sea-Level Rise Components

Increasing Sea Level
Elevation

+

Decreasing Land
Surface Elevation

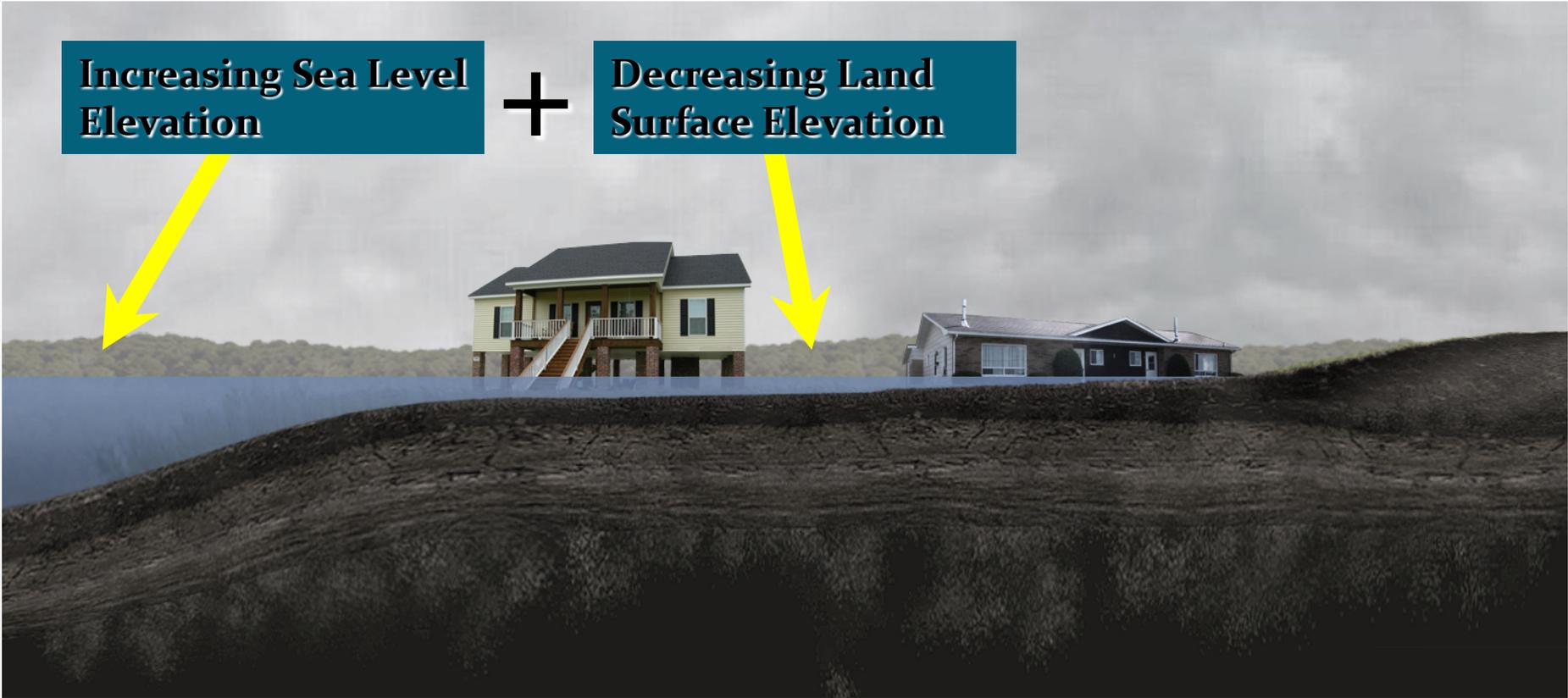


Relative Sea-Level Rise Components

Increasing Sea Level
Elevation

+

Decreasing Land
Surface Elevation



Relative Sea-Level Rise Components

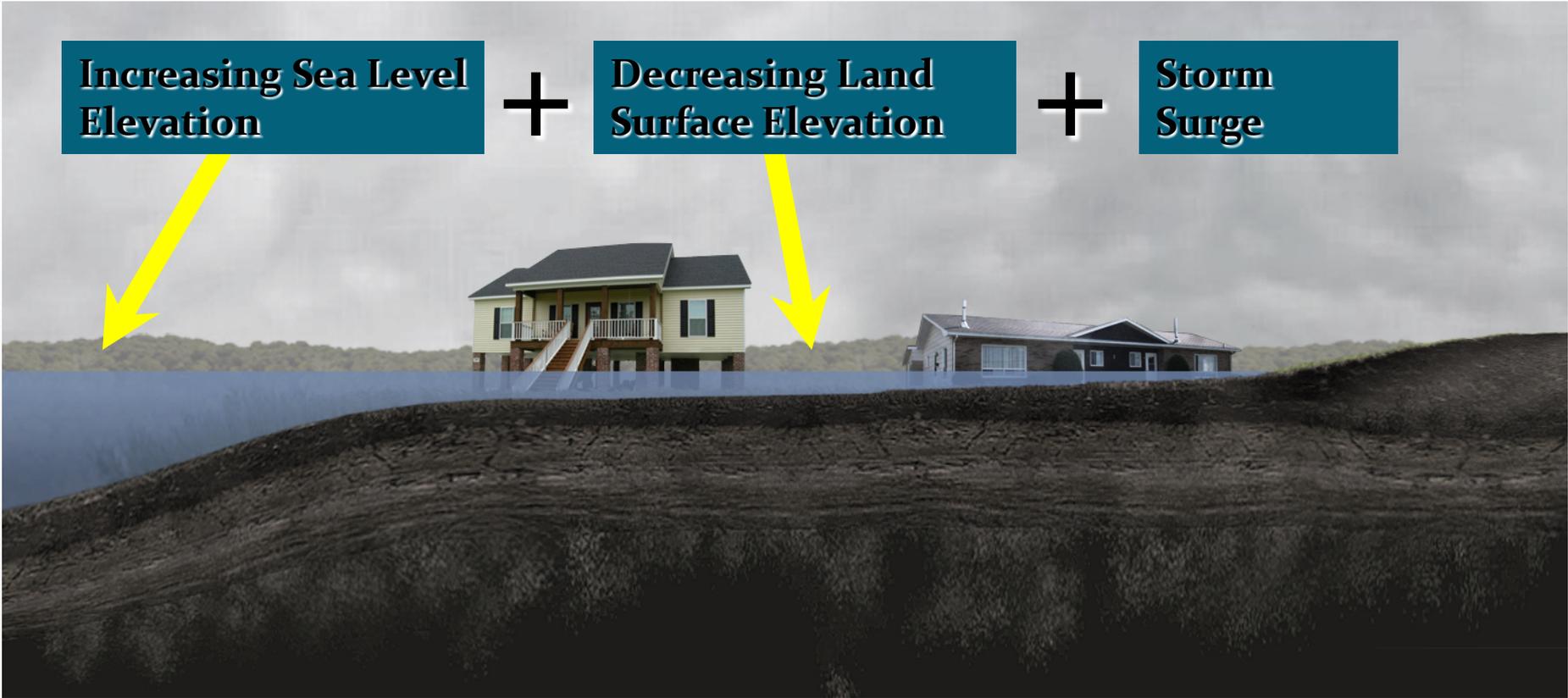
Increasing Sea Level
Elevation

+

Decreasing Land
Surface Elevation

+

Storm
Surge



Relative Sea-Level Rise Components

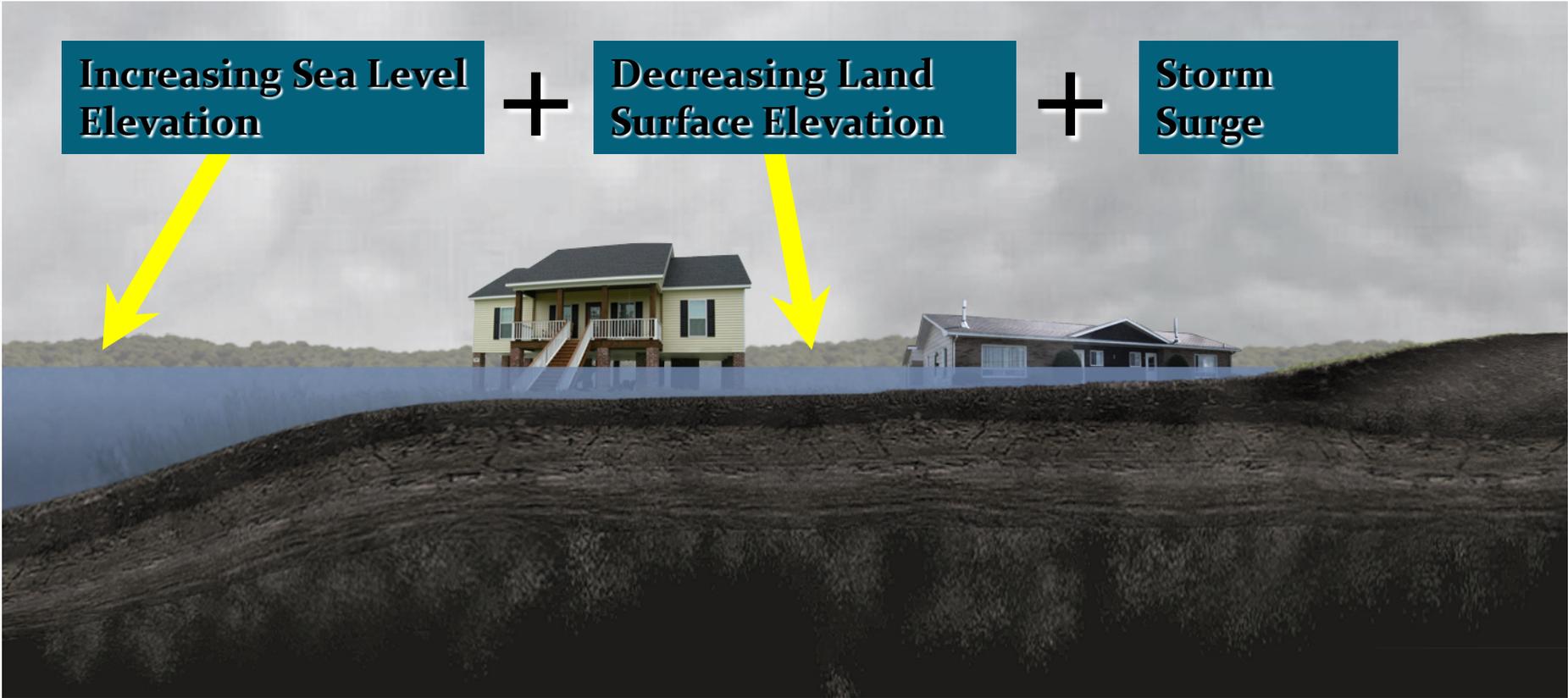
Increasing Sea Level
Elevation

+

Decreasing Land
Surface Elevation

+

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Surge



Relative Sea-Level Rise Components

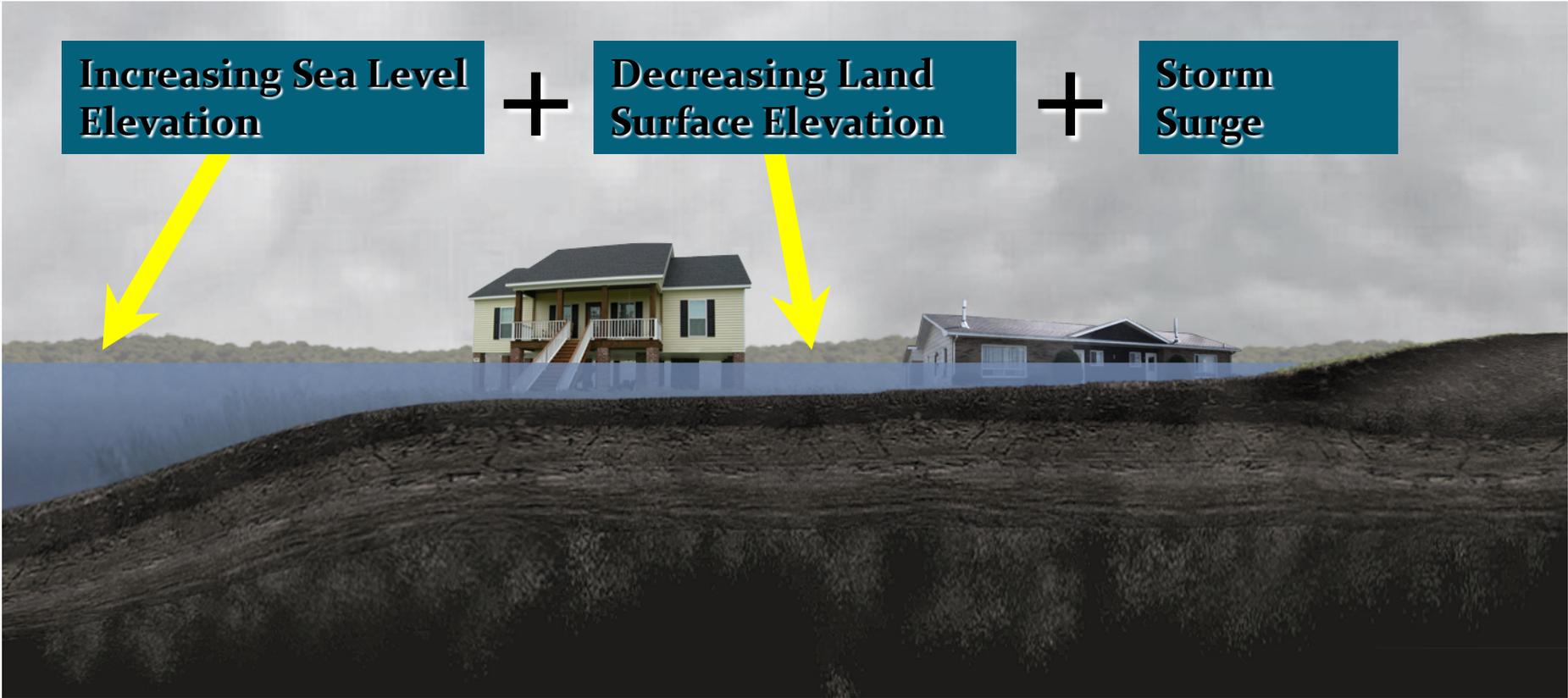
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+

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Storm
Surge



Relative Sea-Level Rise Components

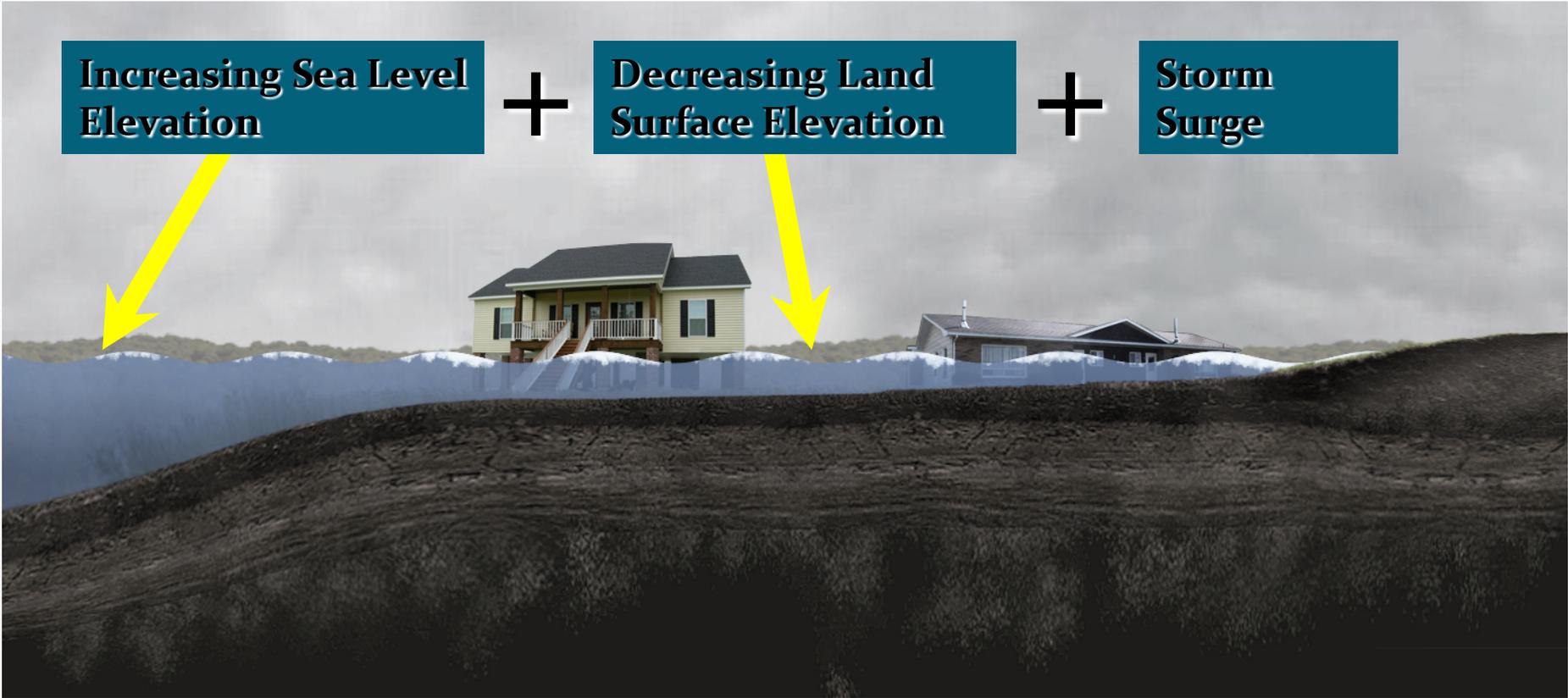
Increasing Sea Level
Elevation

+

Decreasing Land
Surface Elevation

+

Storm
Surge



What about natural flooding?

Gulf Coast regional study found no cases of government liability when flooding occurred only on the permitted property.

Hutcheson v. City of Keizer-city allowed developer to build a housing project in a flood zone and houses flooded

- The city engineer failed to properly review developer's drainage plan when the development plan was approved
- The decision was not protected by discretionary function immunity

Government Defenses

- Sovereign Immunity

Has been totally or partially waived in many jurisdictions

SI has been replaced by “Torts Claims Acts” or other limitations on liability

- Discretionary Functions

Decisions involving an “element of judgment or choice” and “involving social, economic, or political” policies

Policymaking

- Lack of a “special duty”

- “Vital public service” functions

Exceptions to Government Defenses (Exceptions to the Exceptions)

- Examples from Gulf states
 - “Actual or constructive knowledge of a dangerous condition”
 - “Foreseeable zone of risk”
 - ”Willful, outrageous or reckless” acts
 - “Carelessness or unskillfulness”
- Demonstrate a difficult balance between accountability and effectiveness

Non-negligence based liability

- Causes of action not requiring negligence and therefore not protected by tort claims acts defenses

Unconstitutional takings of private property

- Flooding (occupation) of private property by government action
- Must be intentional (recurring)

Violation of drainage servitudes

- Altering natural drainage flows that causes flooding of private property
- Injunctions and mandamus relief is available.

Will Sea Level Rise Inundate Government Defenses?

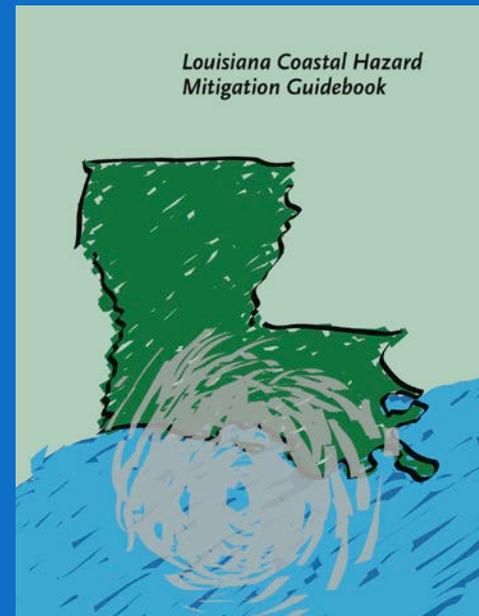
- SLR is not a theory
- SLR will not stop for a very long time
- Immunity afforded to discretionary decisions will be severely weakened by known hazardous conditions such as SLR
- *Hutcheson*
- International examples
- *In re Katrina Canal Breaches*

Does Knowledge Increase Duty?

- Knowledge
 - NFIP flood ordinance-probably underestimates risks
 - Hazards will increase in severity & frequency
- Who is in the best position to know?
 - Government's Special Knowledge
 - Foreseeable Consequences
- Is the minimum responsibility informed consent?
- Will they incur liability?

Information is increasing rapidly

- Best Available Science and Information
 - Sea Grant Focus Area-“Sustainable Coastal Communities, Hazard Resiliency”
 - Workshops and Seminars for Public Officials
 - Public Meetings
 - Educational materials





Terrebonne and Lafourche Parishes Aerial View



Hurricane Rita Storm Surge



Regional Land Use



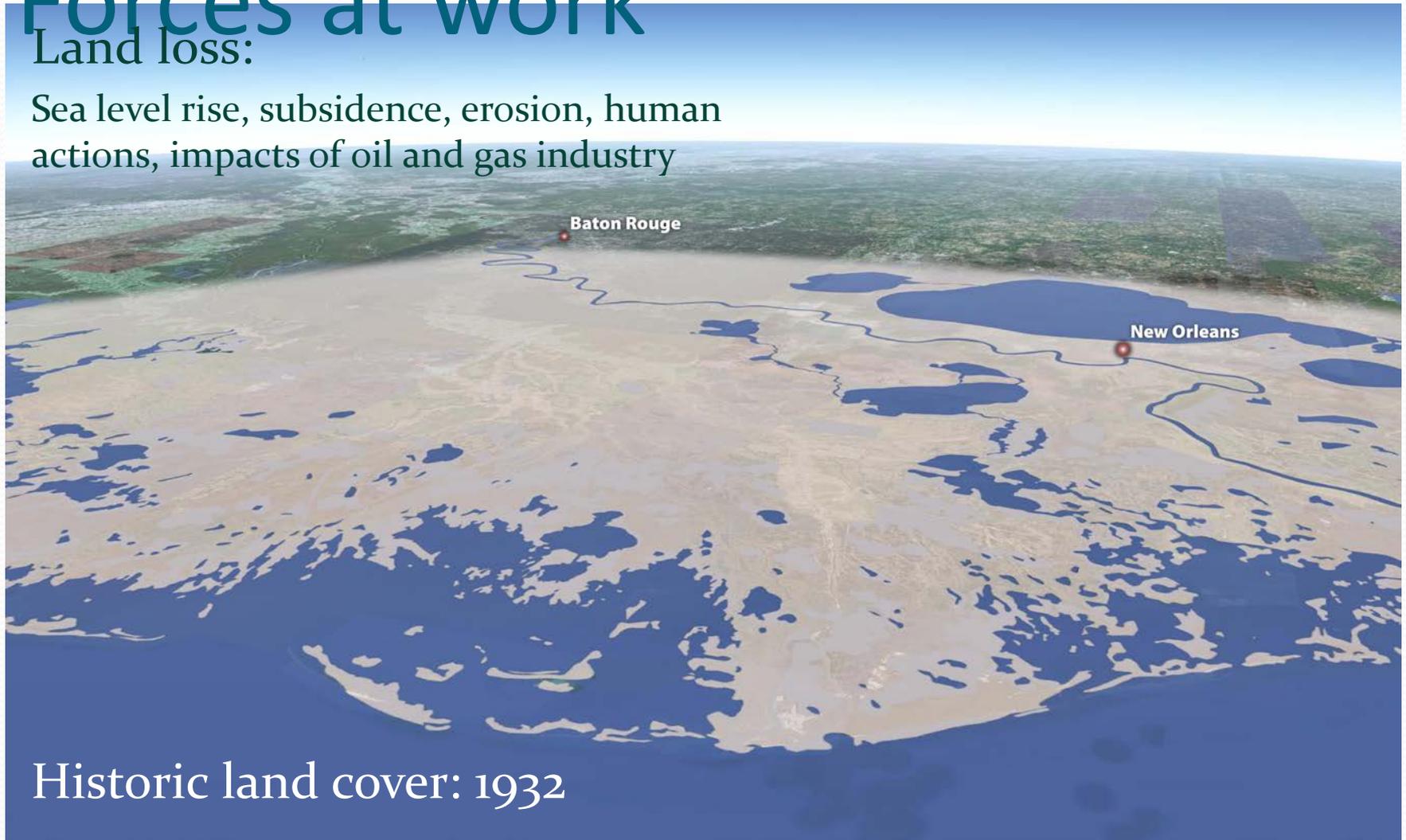
Goal: An Informed (and Safer) Public

- **Understand how storm surge is predicted and the limitations of those predictions**
- **Understand how to interpret surge**
- **Understand that surge estimates do not include waves, and flooding estimates do not include inland rainfall**
- **Understand its destructive potential**
- **Realize the potential extent of its impact - how far inland it can go**

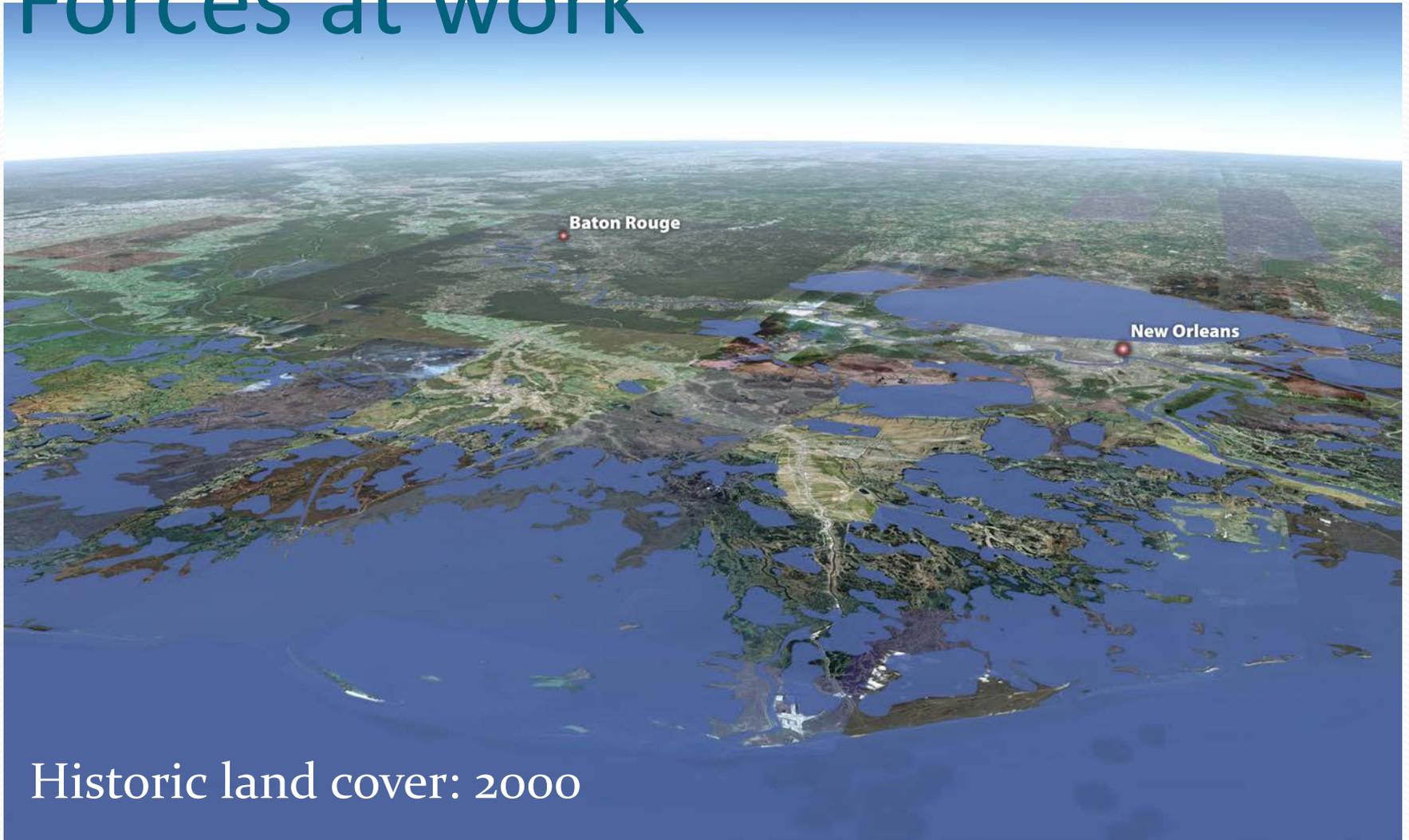
Forces at work

Land loss:

Sea level rise, subsidence, erosion, human actions, impacts of oil and gas industry



Forces at work



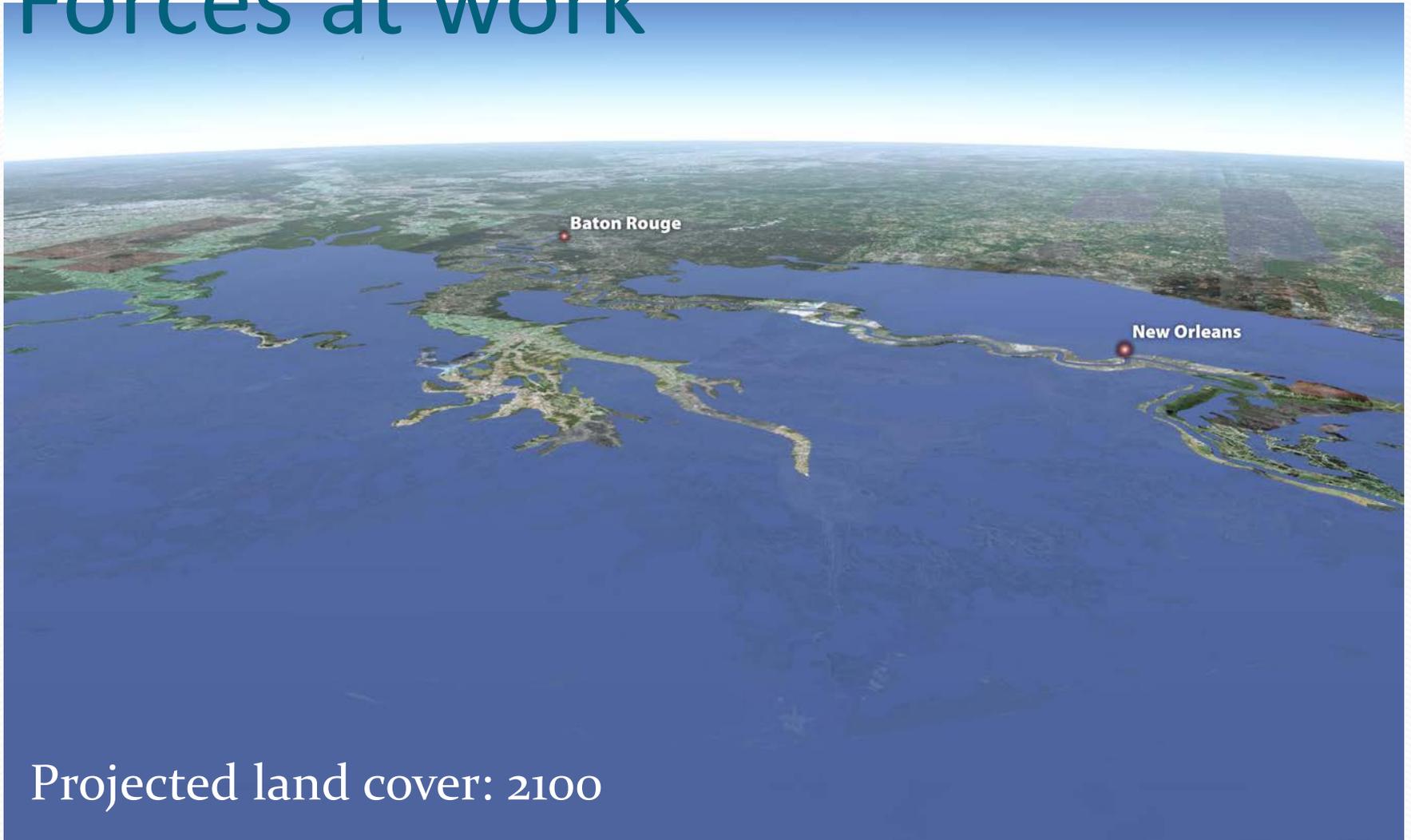
Historic land cover: 2000

Forces at work



Projected land cover: 2050

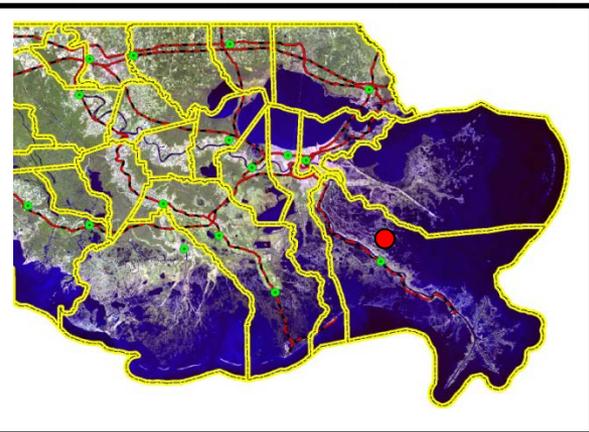
Forces at work



Projected land cover: 2100

BM set in 1980. Marker ID – 1108 D 1980. 158 ft south of the south shore of Lost Bayou, 118 ft west of the west shore of a small freshwater pond, 46 ft north of the south shore of the island. The bench mark is set 0.21 m (0.7 ft) above ground level, crimped to a stainless steel rod driven 19.5 m (64 ft) to substantial resistance, and encased in a 4-inch PVC pipe, and concrete kickblock.

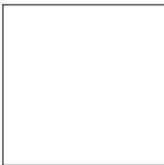
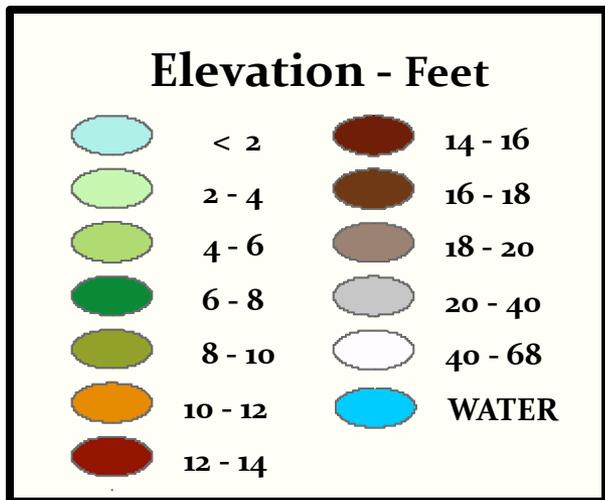
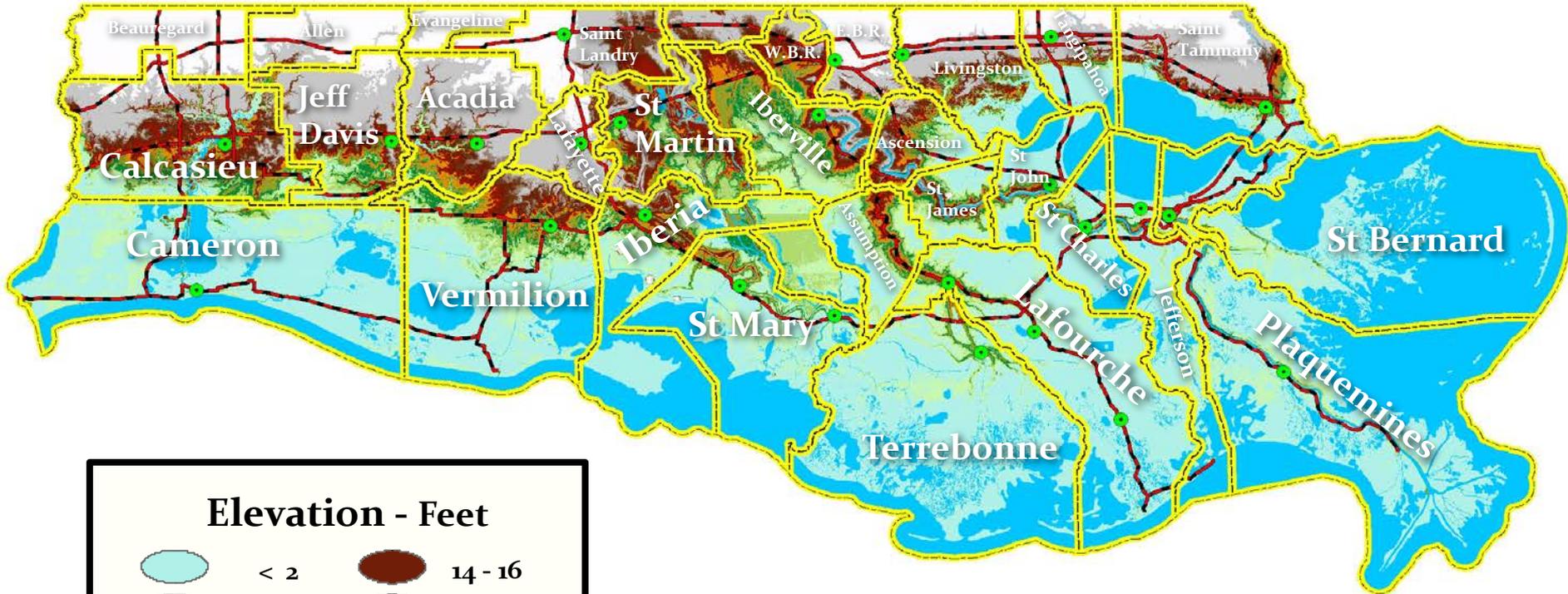
NOAA – Gardene Bay





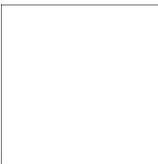
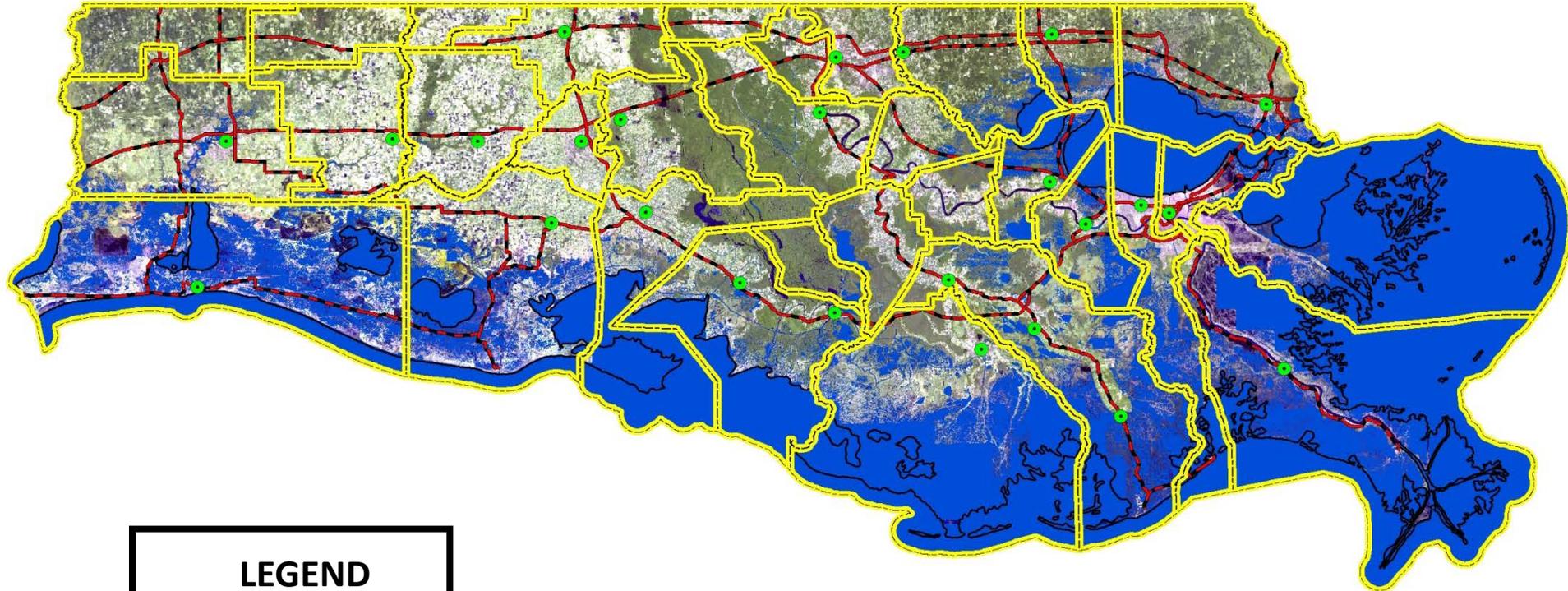
ELEVATION - COASTAL LA. IS LOW

LIDAR SURFACE ELEVATION



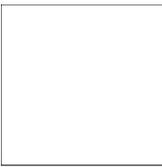
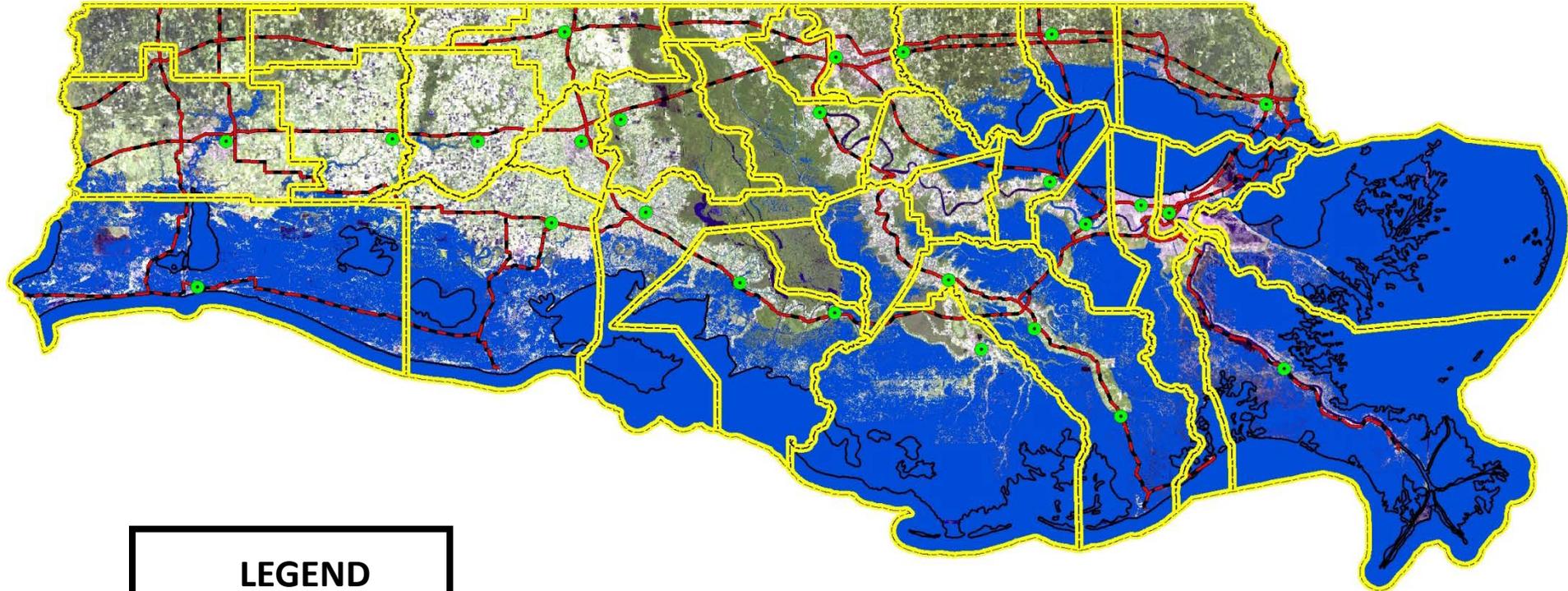
POTENTIAL IMPACTS OF SEA LEVEL RISE

Inundation to 1.0 ft. Elevation



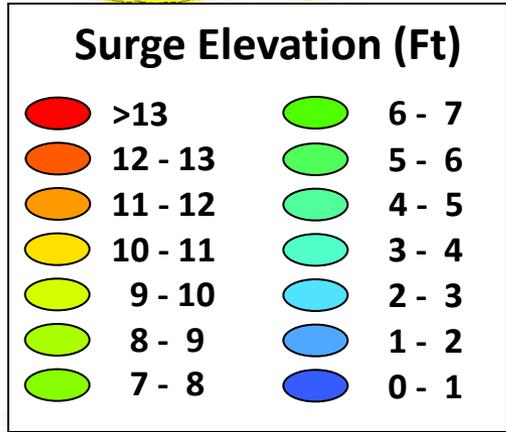
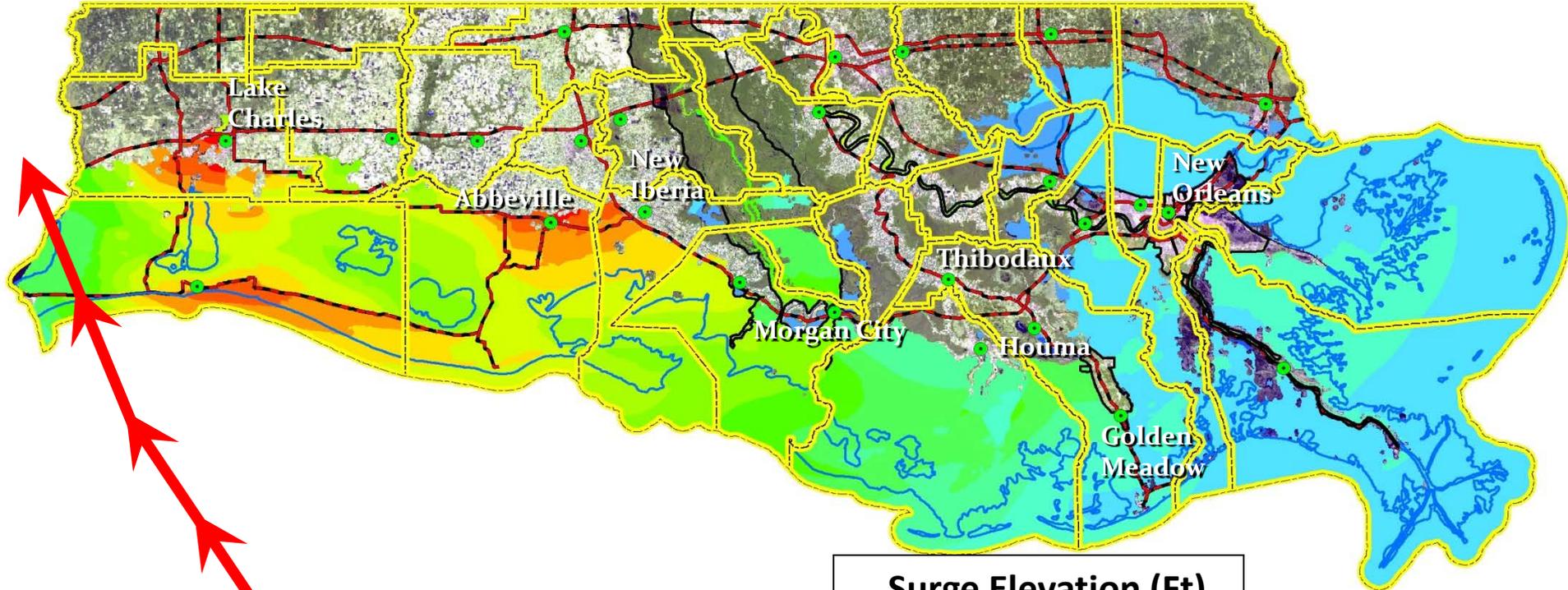
POTENTIAL IMPACTS OF SEA LEVEL RISE

Inundation to 2.0 ft. Elevation

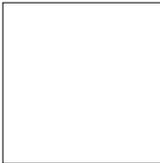


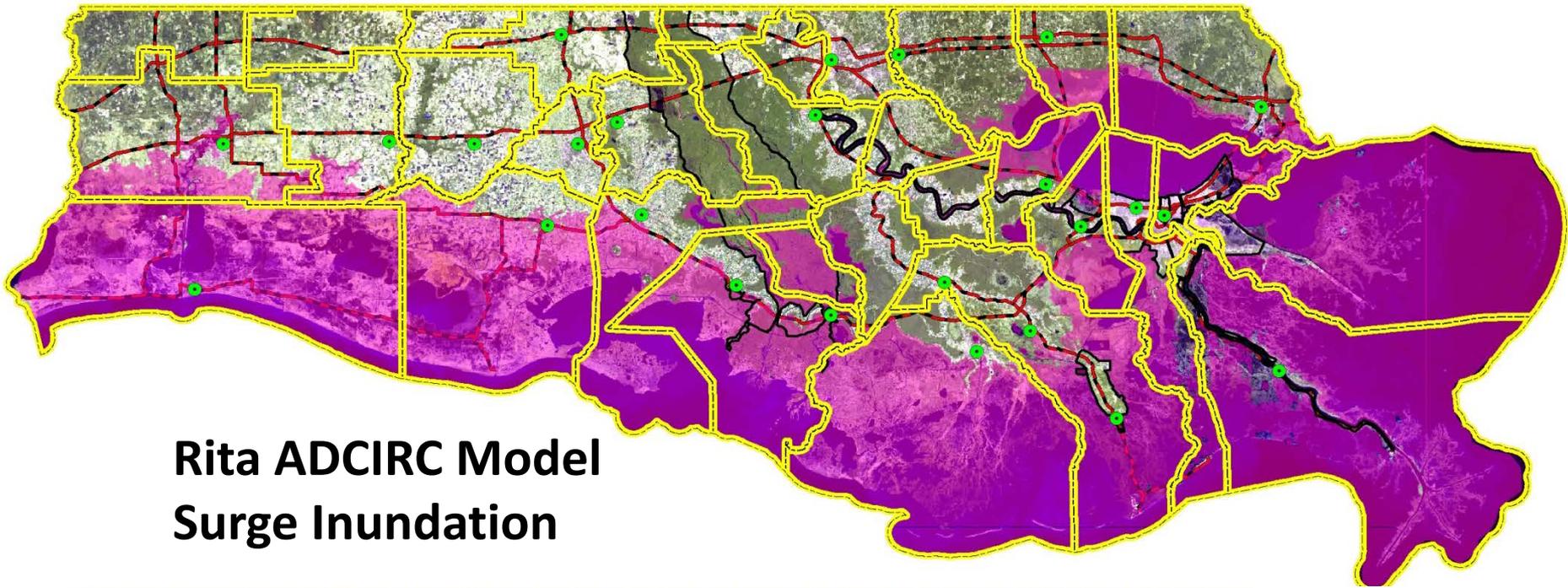
HURRICANE RITA

ADCIRC MODELED STORM SURGE ELEVATIONS

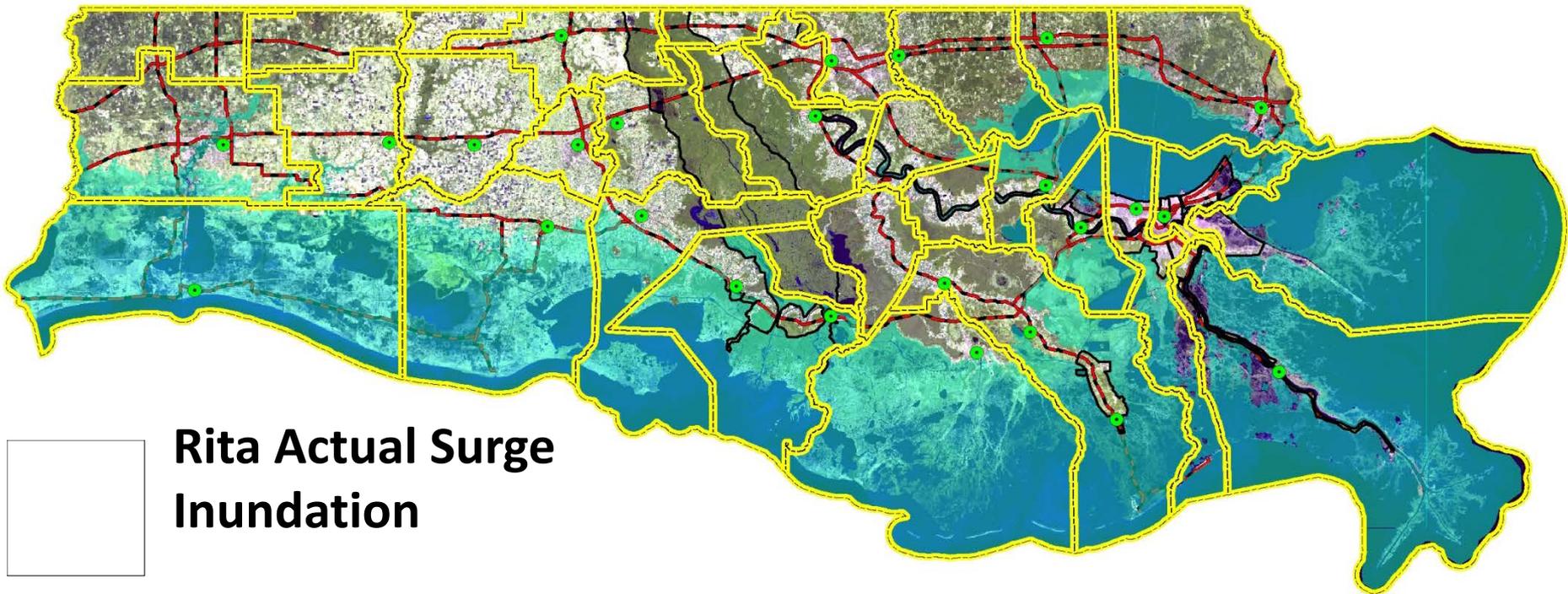


ADCIRC storm surge model data provided by:
Dr. Hassan Mashriqui
LSU AgCenter / LA Sea Grant





**Rita ADCIRC Model
Surge Inundation**

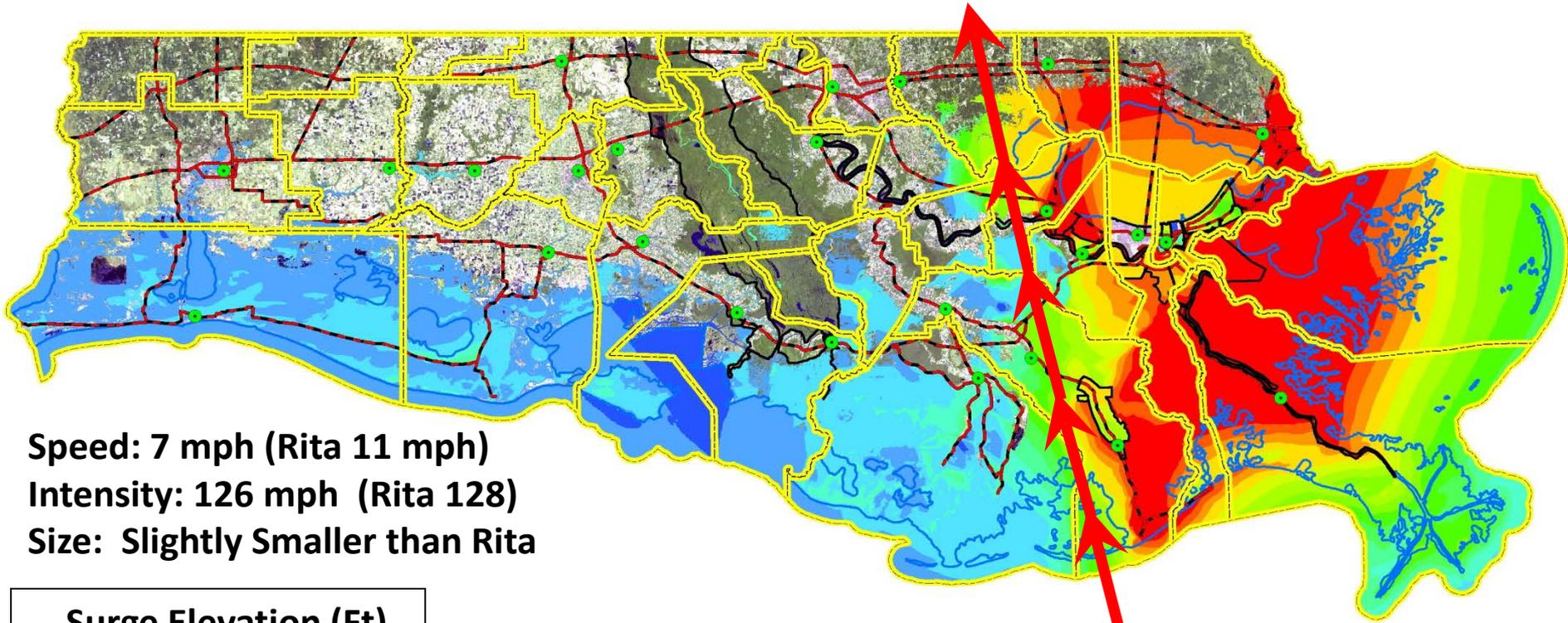


**Rita Actual Surge
Inundation**



Lake Pontchartrain Area

Hypothetical Storm

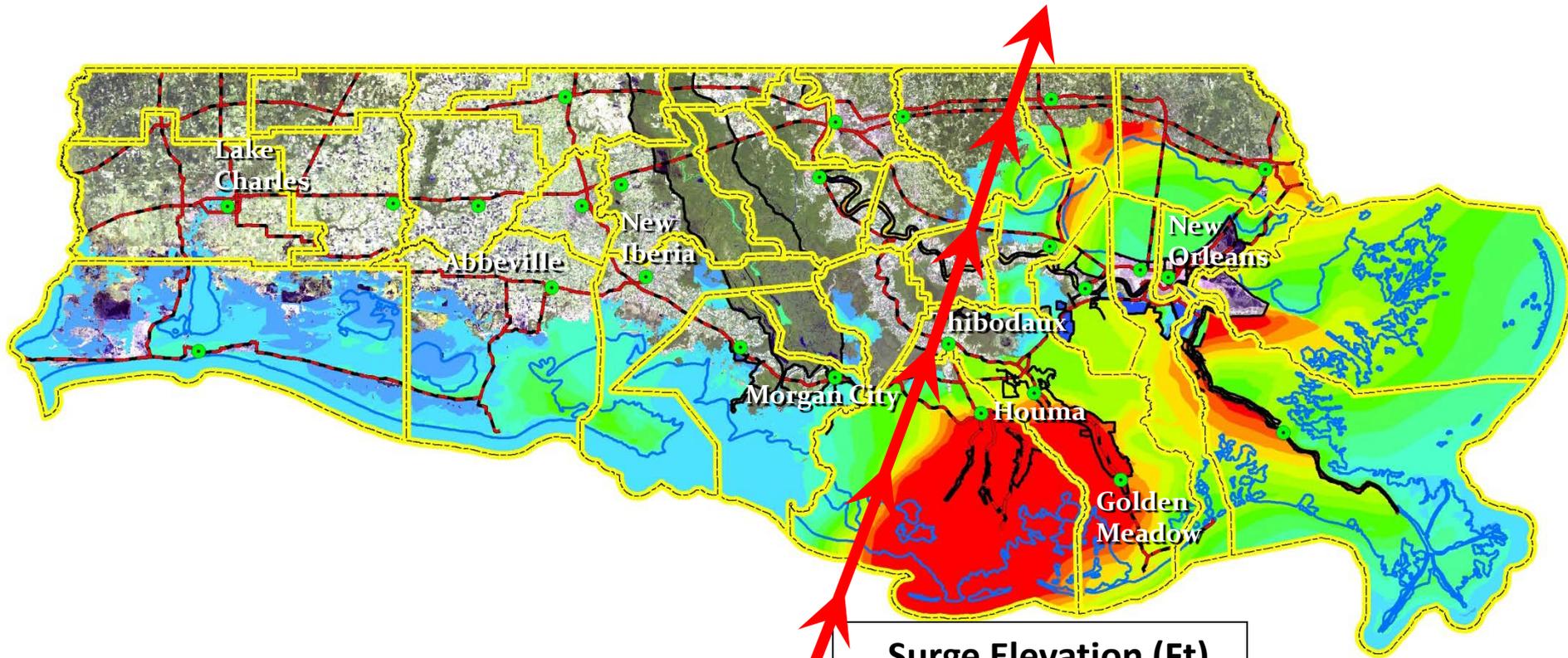


Surge Elevation (Ft)

 >13	 6 - 7
 12 - 13	 5 - 6
 11 - 12	 4 - 5
 10 - 11	 3 - 4
 9 - 10	 2 - 3
 8 - 9	 1 - 2
 7 - 8	 0 - 1



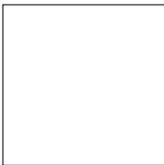
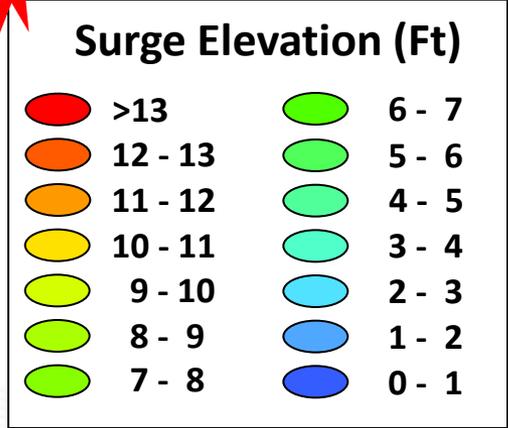
Terrebonne – Lafourche Region Hypothetical Storm



Speed: 13 mph (Rita 11 mph)

Intensity: 128mph (Rita 128)

Size: Same as Rita



Terrebonne – Lafourche Region Storm # 3

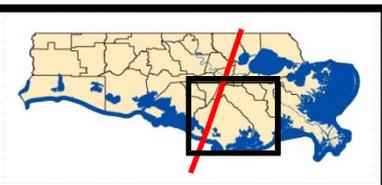
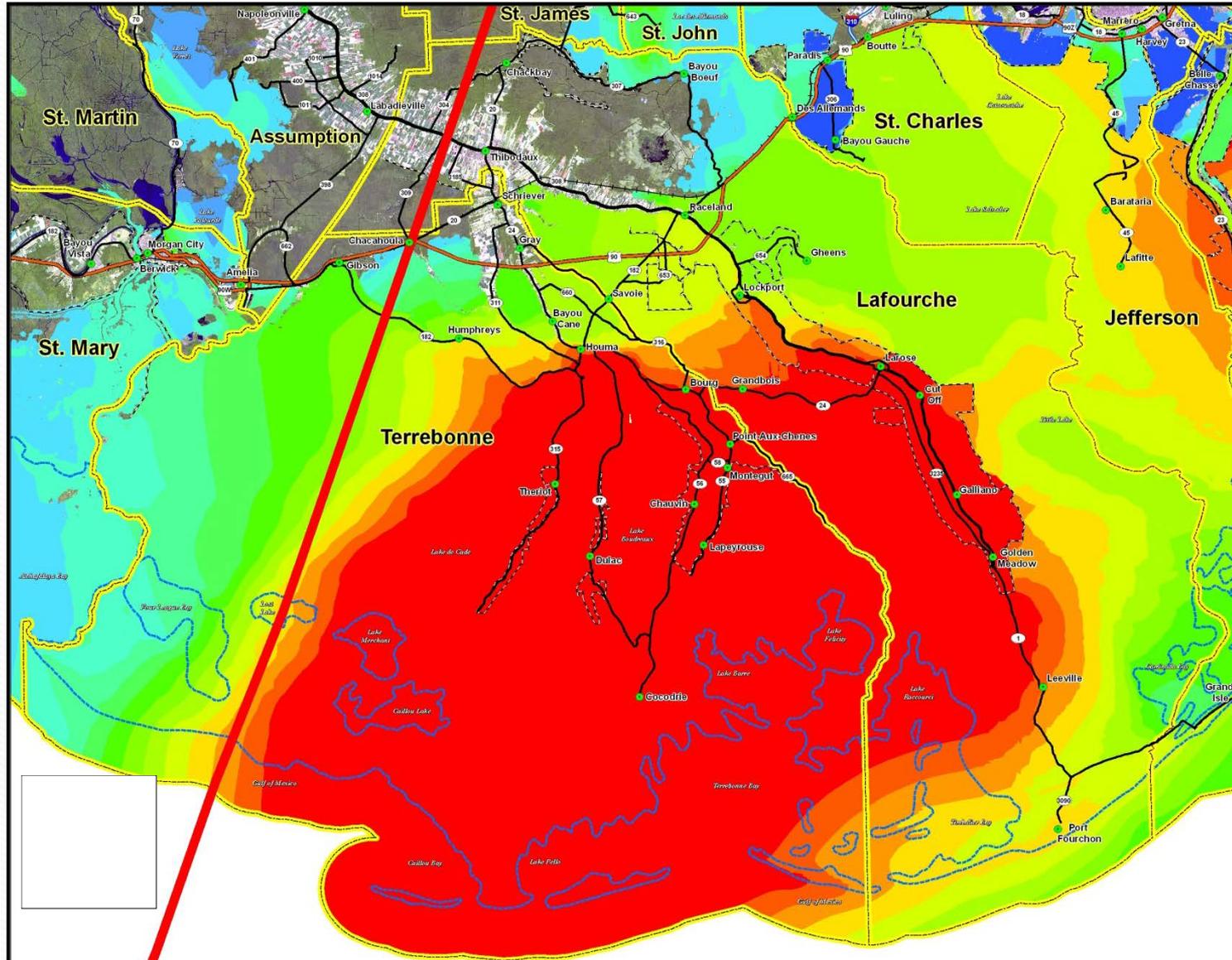
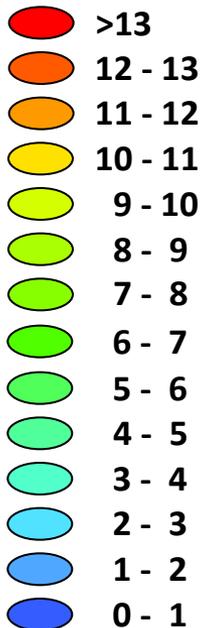
ADCIRC Predicted Storm Surge Elevations

WS = 128 mph

FS = 13 mph

Surge Elevation

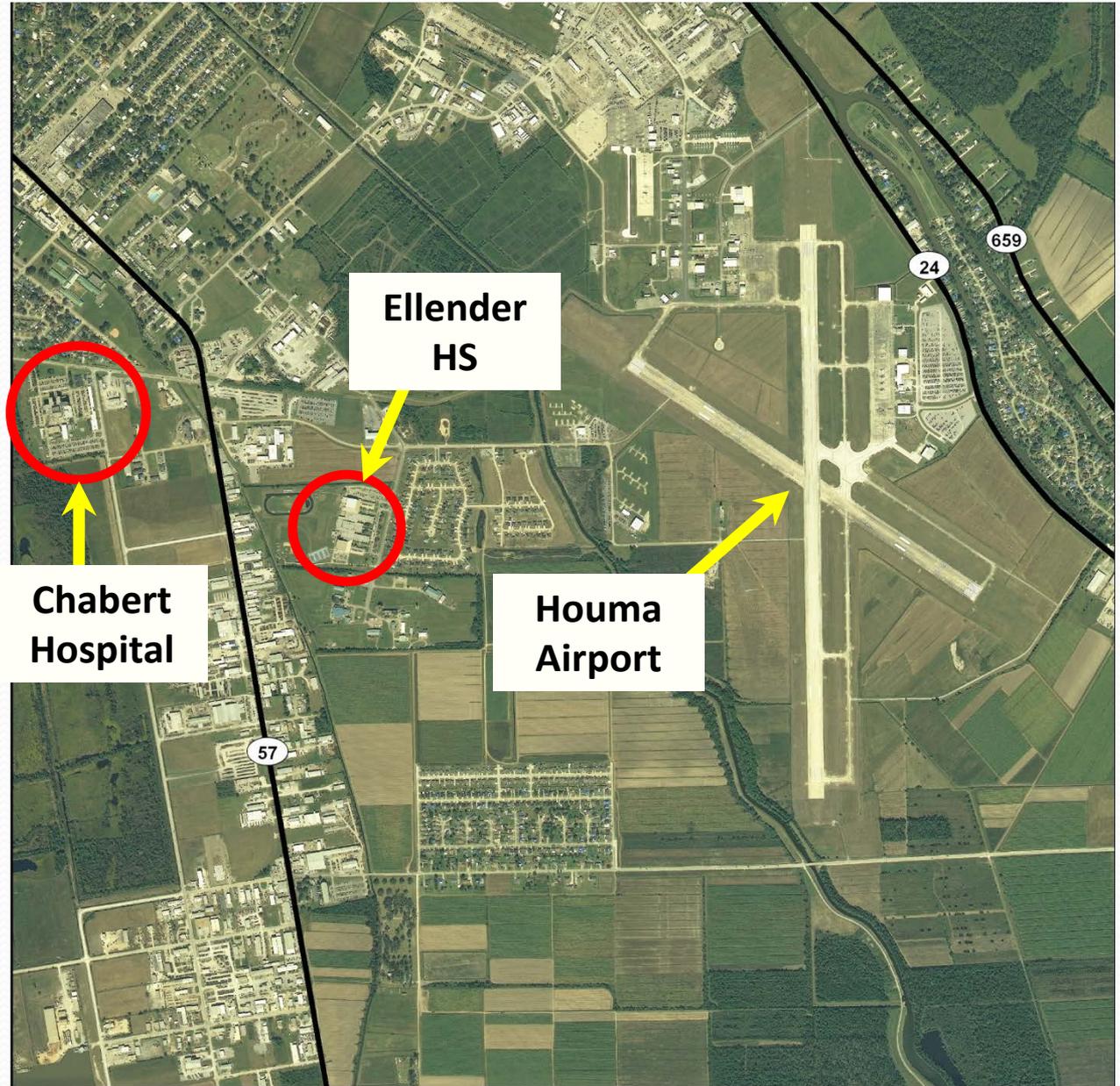
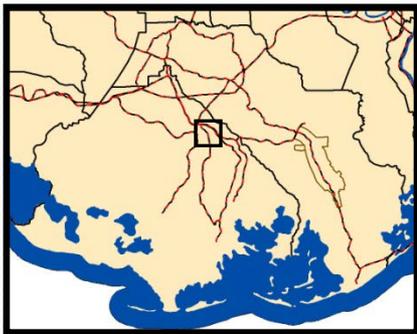
Feet

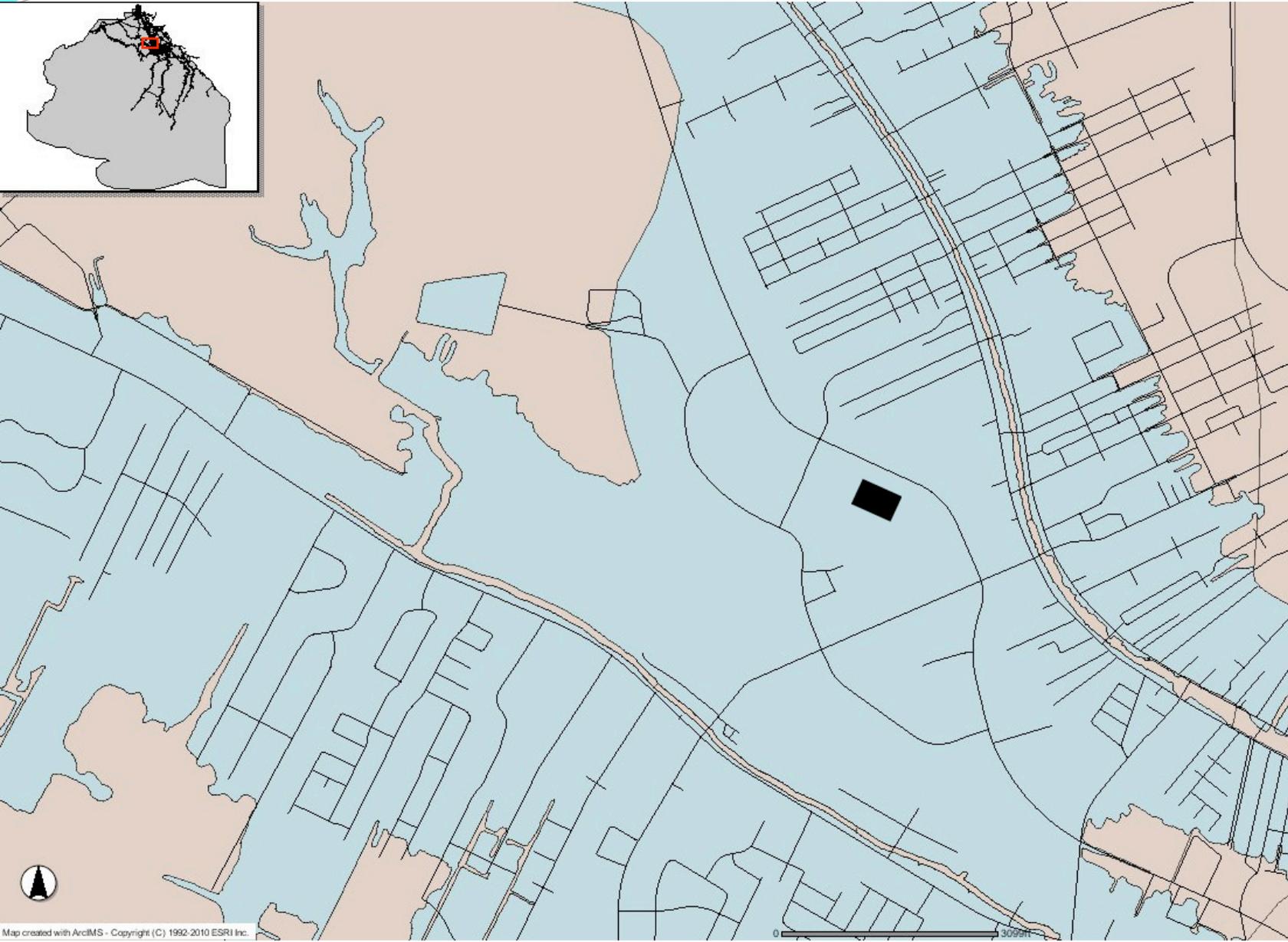
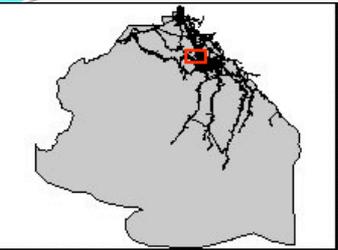


Terrebonne Parish – Houma Airport Area

LEGEND

- PLACES
- ▬ INTERSTATE
- ▬ U. S. HWY
- ▬ STATE HWY
- ▬ RAILROAD
- ▬ LEVEE
- PARISH BNDRY



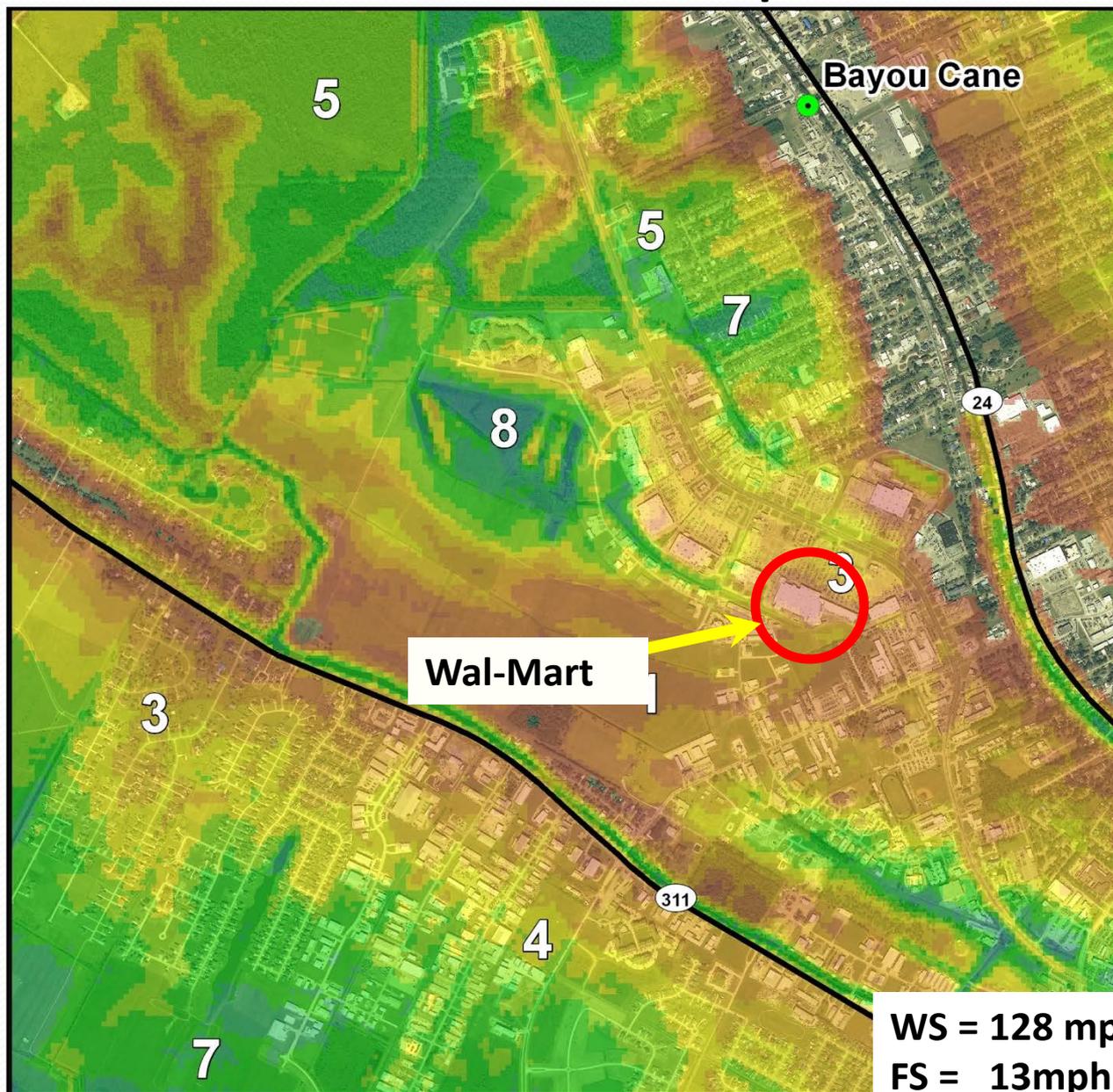
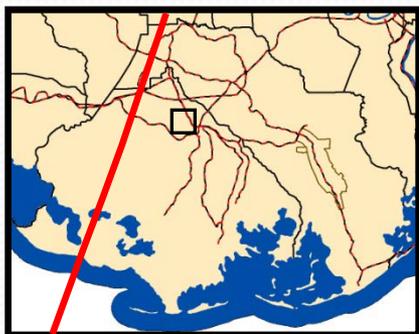
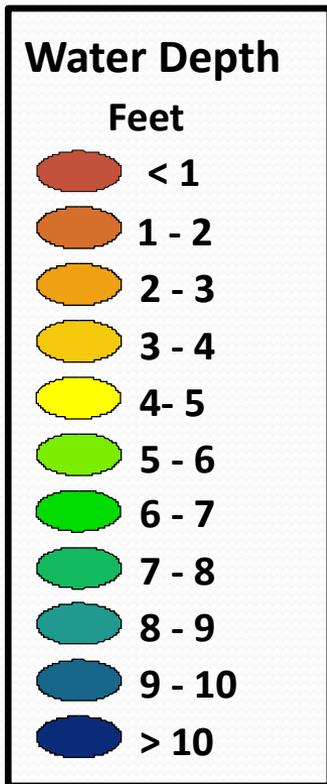


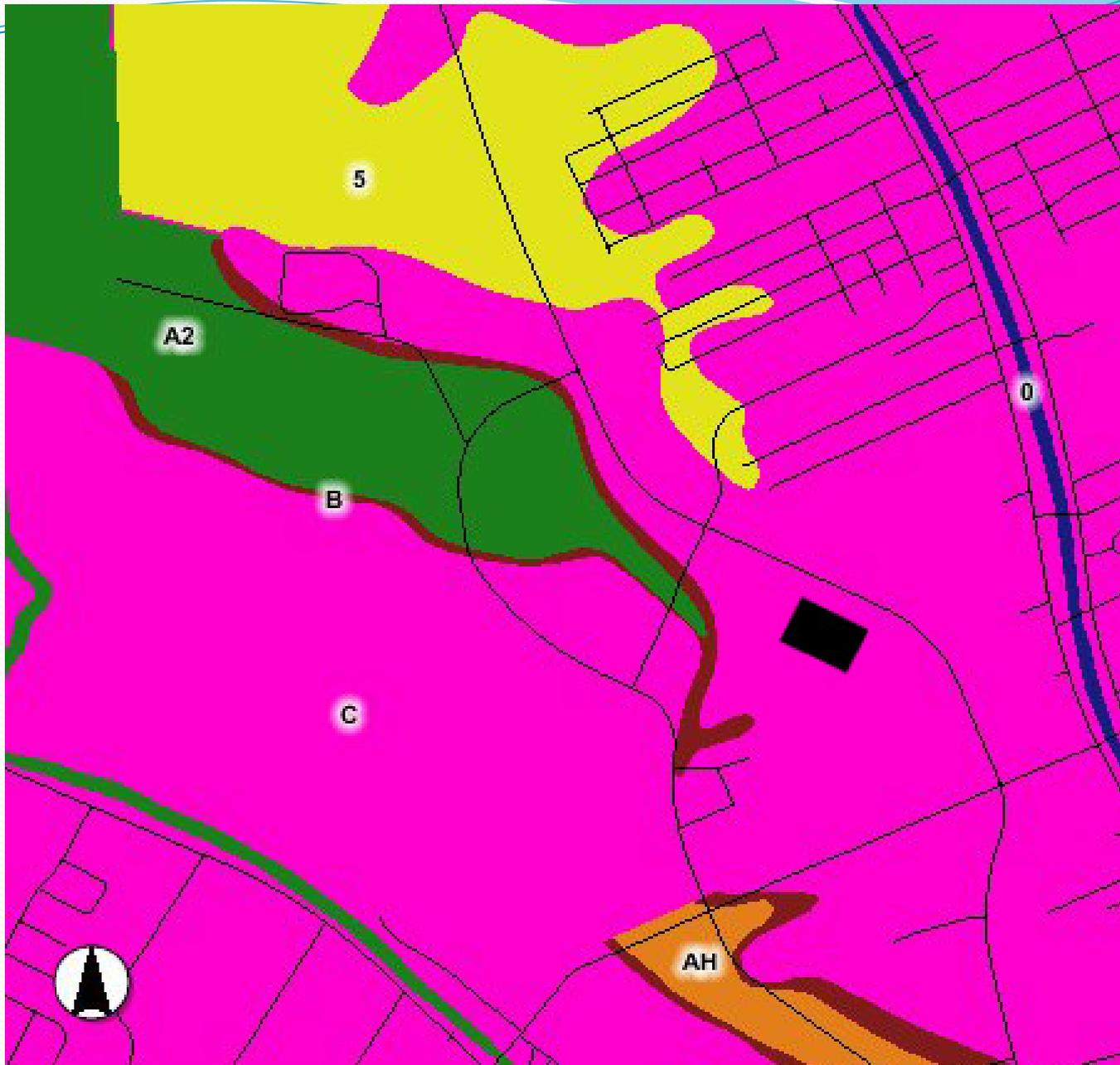
- Legend**
- Streets
 - DFIRM 2008
 - 0.2 PCT ANNUAL CHANCE FLOOD HAZARD
 - A
 - AE
 - V
 - VE
 - Parish Boundary



Bayou Cane Area – Storm # 3

ADCIRC Predicted Flood Extent and Depth





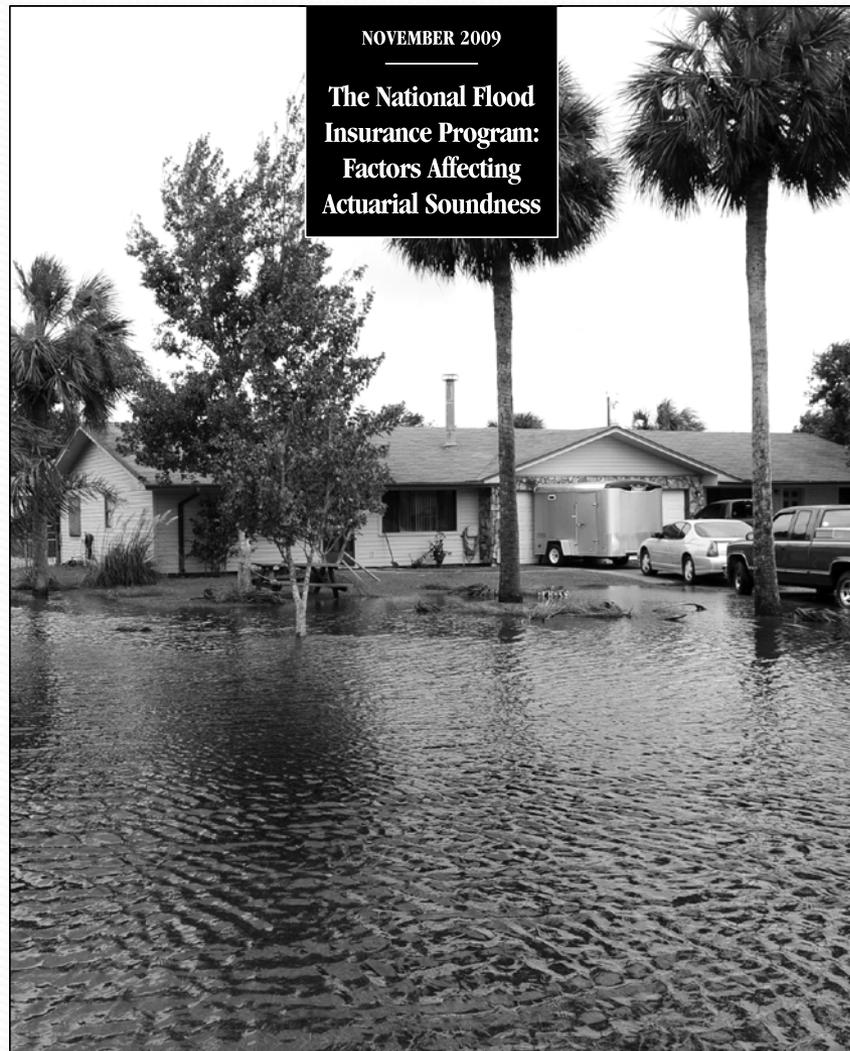
A
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PAPER

NOVEMBER 2009

**The National Flood
Insurance Program:
Factors Affecting
Actuarial Soundness**

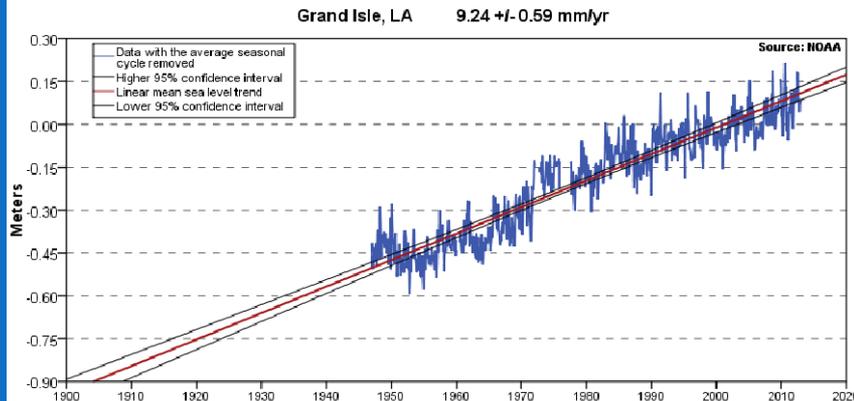
October 2008

Comments
Attention



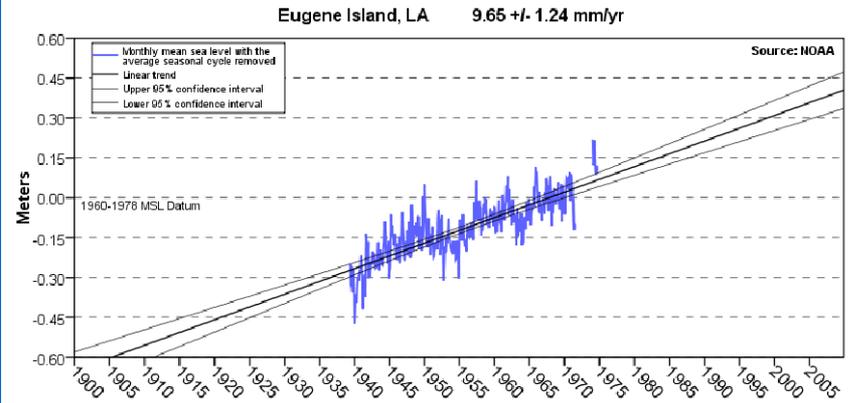
Louisiana Sea Level Trends

Mean Sea Level Trend
8761724 Grand Isle, Louisiana



The mean sea level trend is 9.24 millimeters/year with a 95% confidence interval of +/- 0.59 mm/yr based on monthly mean sea level data from 1947 to 2006 which is equivalent to a change of 3.03 feet in 100 years.

Mean Sea Level Trend
8764311 Eugene Island, Louisiana



The mean sea level trend is 9.65 millimeters/year with a 95% confidence interval of +/- 1.24 mm/yr based on monthly mean sea level data from 1939 to 1974 which is equivalent to a change of 3.17 feet in 100 years.

The Legal Effect of Knowledge

Exceptions to immunity

- “Actual or constructive knowledge of a dangerous condition”
- “Foreseeable zone of risk”
- “Willful, outrageous or reckless” acts
- “Carelessness or unskillfulness”

What will be the Effect of NFIP Reforms (Biggert-Waters)?

- Move towards actual risk-based premiums
- Increased pressure on local governments to use better hazard planning

Angry property owners

Loss of population

- Hang on for the ride