



# Lunch Break

- Hurricane Katrina Wreck and debris removal-
- A potential model for incidents in US Coral regions...
  - Gallery
  - Approach/Process
  - Examples
  - Specific Issues
  - Considerations for Coral Regions





# Perspectives

- Human toll from Katrina widely report
- You may not have heard about
  - 8.4 million gallons of oil spilled
  - 53,000 large drums and tanks, 1.2 million small hazmat containers
  - 99% of ATONs damaged or destroyed
  - Thousands of vessels stranded or sunken































08.31.2005 16:26

















STOP

78

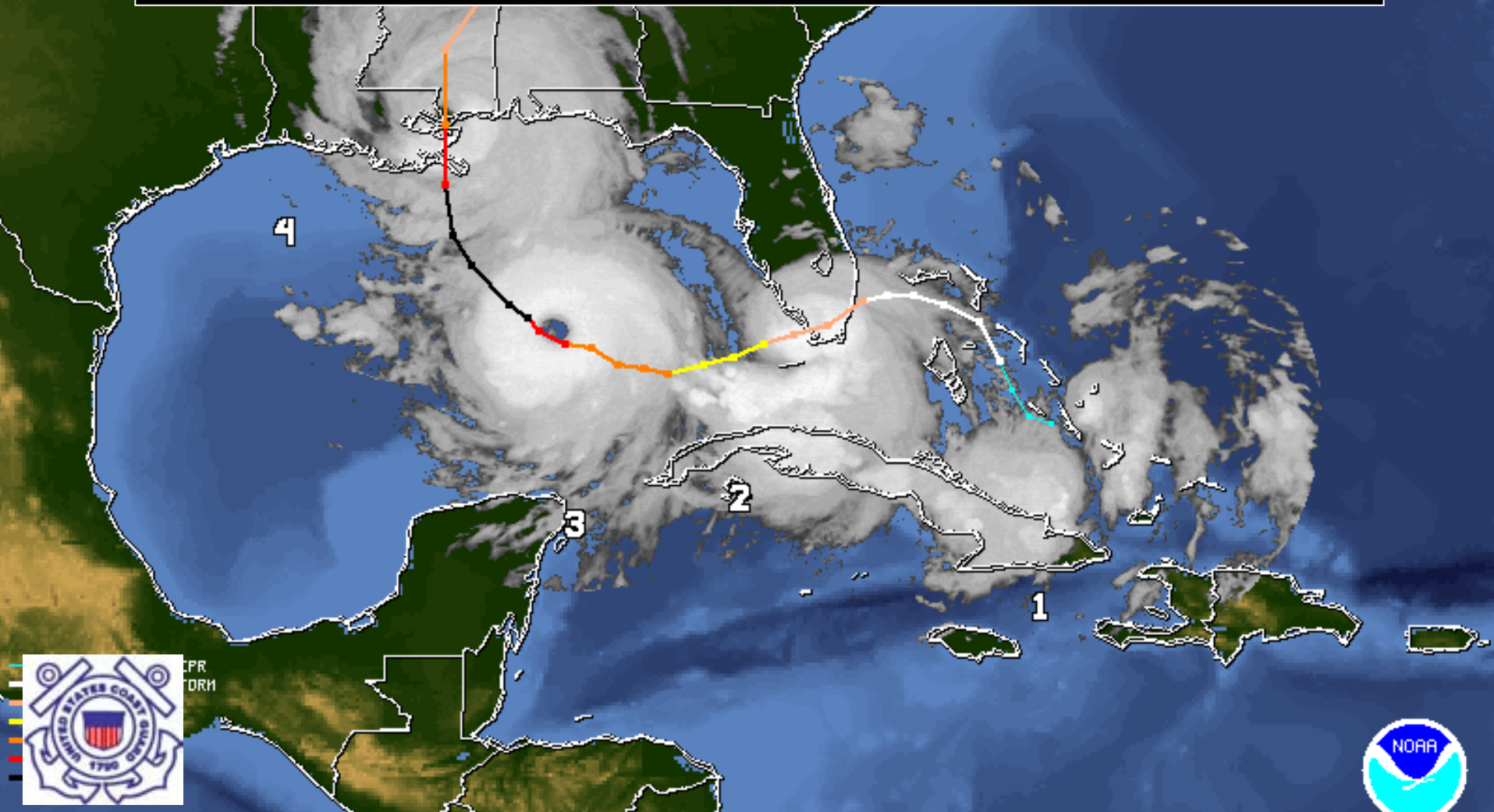






# Hurricane Katrina Vessel Salvage and Wreck Removal

: 00UTC  
: 00UTC  
: 00UTC  
: 00UTC





120° 115° 110° 105° 100° 95° 90° 85° 80° 75° 70° 65° 60° 55° 50° 45° 40° 35° 30° 25° 20° 15° 10° 5° West 0° East 5°

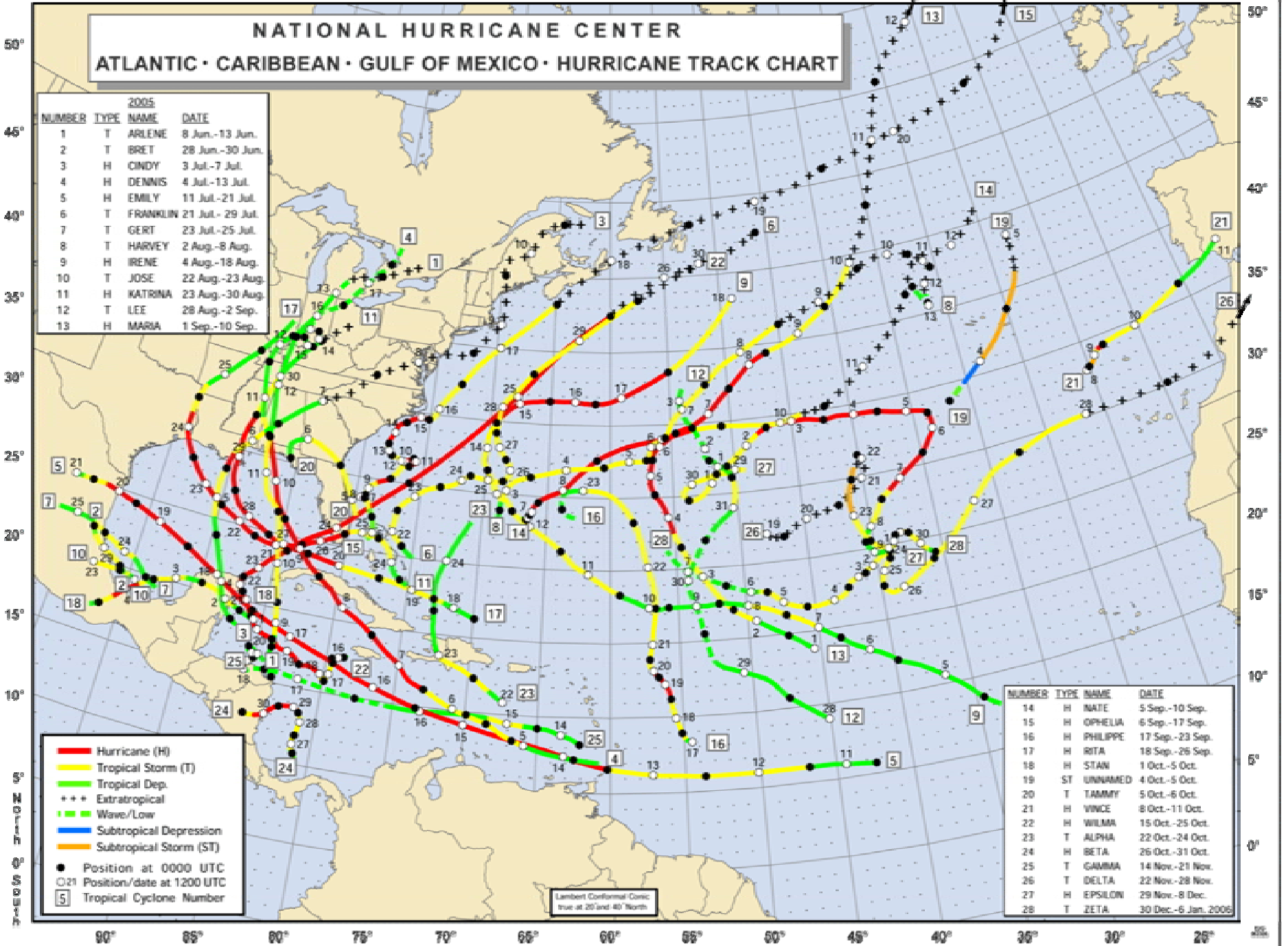
# NATIONAL HURRICANE CENTER ATLANTIC · CARIBBEAN · GULF OF MEXICO · HURRICANE TRACK CHART

2005			
NUMBER	TYPE	NAME	DATE
1	T	ARLENE	8 Jun.-13 Jun.
2	T	BRET	28 Jun.-30 Jun.
3	H	CINDY	3 Jul.-7 Jul.
4	H	DENNIS	4 Jul.-13 Jul.
5	H	EMILY	11 Jul.-21 Jul.
6	T	FRANKLIN	21 Jul.-29 Jul.
7	T	GERT	23 Jul.-25 Jul.
8	T	HARVEY	2 Aug.-8 Aug.
9	H	IRENE	4 Aug.-18 Aug.
10	T	JOSE	22 Aug.-23 Aug.
11	H	KATRINA	23 Aug.-30 Aug.
12	T	LEE	28 Aug.-2 Sep.
13	H	MARIA	1 Sep.-10 Sep.

<span style="color: red;">—</span>	Hurricane (H)
<span style="color: yellow;">—</span>	Tropical Storm (T)
<span style="color: green;">—</span>	Tropical Dep.
+++	Extratropical
<span style="color: lightgreen;">—</span>	Wave/Low
<span style="color: blue;">—</span>	Subtropical Depression
<span style="color: orange;">—</span>	Subtropical Storm (ST)
●	Position at 0000 UTC
○	Position/date at 1200 UTC
5	Tropical Cyclone Number

NUMBER	TYPE	NAME	DATE
14	H	INATE	5 Sep.-10 Sep.
15	H	OPHELIA	6 Sep.-17 Sep.
16	H	PHILIPPE	17 Sep.-23 Sep.
17	H	RITA	18 Sep.-26 Sep.
18	H	STAN	1 Oct.-5 Oct.
19	ST	UNNAMED	4 Oct.-5 Oct.
20	T	TAMMY	5 Oct.-6 Oct.
21	H	VINCE	8 Oct.-11 Oct.
22	H	WILMA	15 Oct.-25 Oct.
23	T	ALPHA	22 Oct.-24 Oct.
24	H	BETA	26 Oct.-31 Oct.
25	T	GAMMA	14 Nov.-21 Nov.
26	T	DELTA	22 Nov.-28 Nov.
27	H	EPSILON	29 Nov.-8 Dec.
28	T	ZETA	30 Dec.-6 Jan. 2006

Lambert Conformal Conic  
True at 25° and 40° North





# Key Messages

- Vessel impacts after a hurricane can be extensive
- Managing a large salvage and wreck removal process is complex
- Wreck removal can have adverse impacts
- Environmental protection goals may be accomplished along with commerce and navigation
- Federal funds may be short lived. Without fast action, vessels may be left
- Regions should plan for large storm damage events





# Vessel and Debris Removal ESF-Other

- USCG is the lead under FEMA mission assignment
- NOAA conducted environmental review of each salvage plan to minimize collateral impacts
- Removal efforts focused on tidally influenced waterways that *also* support “sustained” commercial activities



Coast Guard is also tasked with removing substantial volumes of debris that may potentially block navigable waterways

6 9:18 AM





# Statistics

- Over 3500 salvage cases\*
- USCG oversight of commercial salvage projects
- USCG removed over 825 vessels with no viable owner or insurer
- 23,432 cubic yards of vessel debris
- 80-100 USCG and contractor staff on long-term rotations
- Work is on-going, over a year post storm

\*This does not include an estimated 10,000+ recreational boats



# Basic Process

- Surveying, marking, developing inventory
- Determining threats, mission applicability, priority
- Determining ownership and issuing notice
- Packaging waterways, and proposals from salvors
- Review of salvage plan
  - Feasibility, Cost, Environmental and Historic issues
  - Agency sign-offs
- Conduct Salvage
  - Oversight on safety, environment
- Return to owner, storage, or disposal
- Documentation





# Surveying and Marking





# Developing Inventory

**Master**

**Case #** Read Only  
**2588**

**Storm** Katrina

**Parish/County** LA-Plaquemines

**Waterway:** Doullut Canal

**Zone** Empire

**Current Status**  
Closed-Work Complete

**Owner/RP** Private

**RP Action** RP Contacted

**Salvage Plan** Approved

**Funding** All

**Vessel Name** SPECIAL LADY

**Vessel #** LA 1266 CA

**Vessel Type** Fishing Vessel

**Initial Cond**

**Loading Cond**

**Priority Class**

**CG Priority**

**Mile Marker**

**DCS Grid #**

**Water Depth (ft)**

**Weight (kips)**

**Length (ft)** 32

**Width (ft)** 12

**Height (ft)**

**Open** 11/09/2005

**Appr to Proceed** 01/25/2006

**In Progress** 01/26/2006

**Work Complete** 01/27/2006

**Storage Location** Parish Authorize

**Closed-Wk Complete** 05/28/2006

**Closed Arch USCG**  **DOC**

**Closed-Archived**

**Closed-Not Mission Applicable**

**Closed-Admin**

**Closed-Duplicate**

**Salvage Lead** T&T Marine

**RP Complt Target**

**Working Cond** DOC Final

**Src** USCG-New Orleans-ESF03

**Task #** 222

**Doc** TBD

**Cost To Date** \$52,630.78

**Cur Est** \$0.00

**Notes**  
OWNER: LUAN LE  
P.O. BOX 1145  
BURAS LA 70041  
PHONE# 504.349.4806

Document Name	Date
2588 01-26-2006 5136 revised.pdf	03/26/2006
2588 01-26-2006 5136.pdf	02/01/2006
2588 012706 5136.pdf	03/30/2006
2588 Salvage Plan.pdf	01/25/2006

Status	mm/dd/yyyy	hh:mm:ss	Notes	Upd.
Open	11/09/2005	14:56:50	LOCATION: LEFT SIDE GOING TO FLOOD GATE. VESSEL NEEDS TO BE PUMPED OUT AND SENT TO SHIPYARD FOR REPAIRS.	1
Open	11/11/2005	14:22:56	RIGHT OF ACCESS AND INSURANCE COVERAGE AGREEMENT SIGNED 11-06-05	1
Closed	11/13/2005	10:12:00	Case Closed for Administrative Purposes due to Insufficient Information	1

Record: 14 of 3802

Vessels are private property. Documentation a major effort.

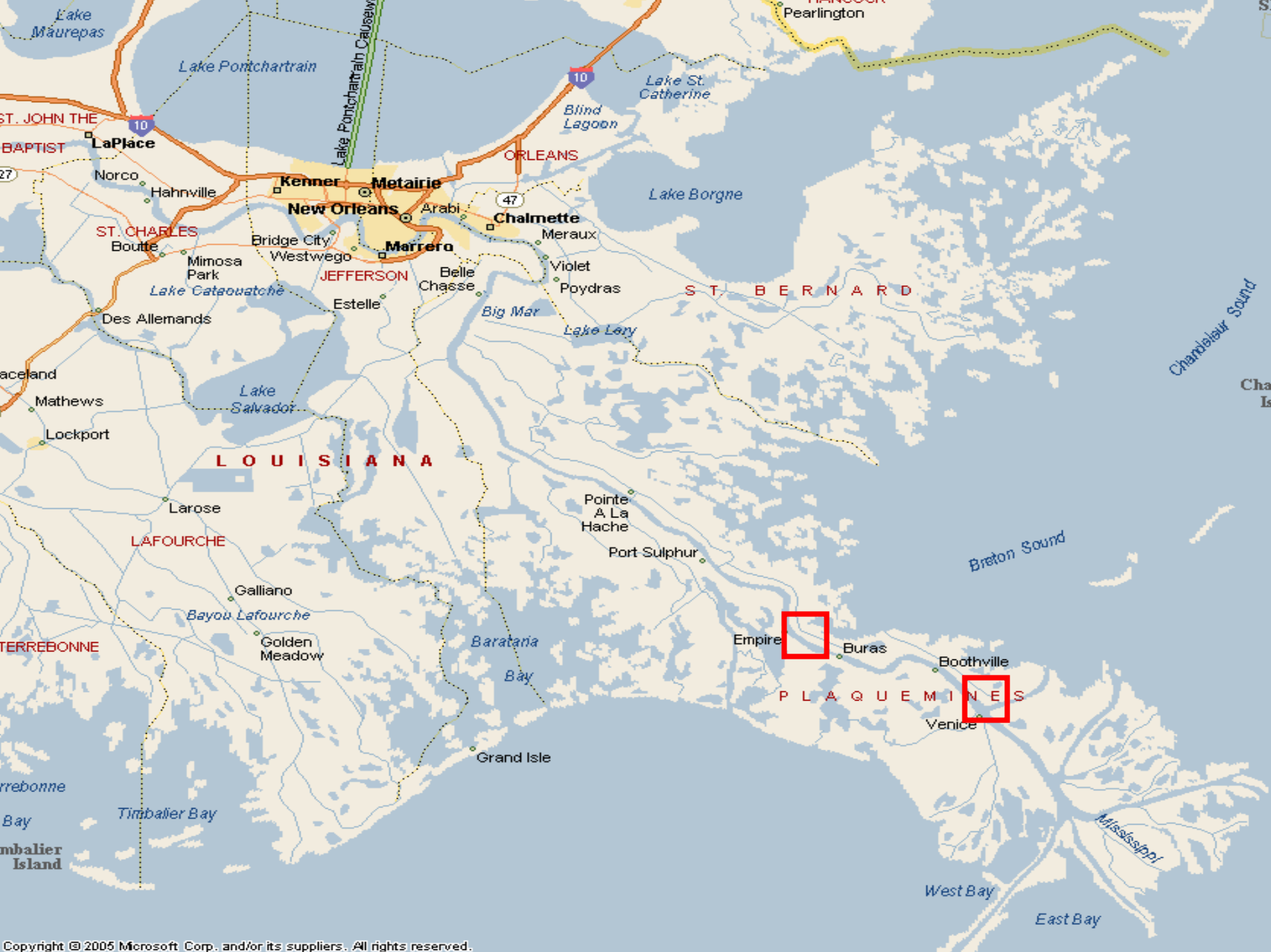




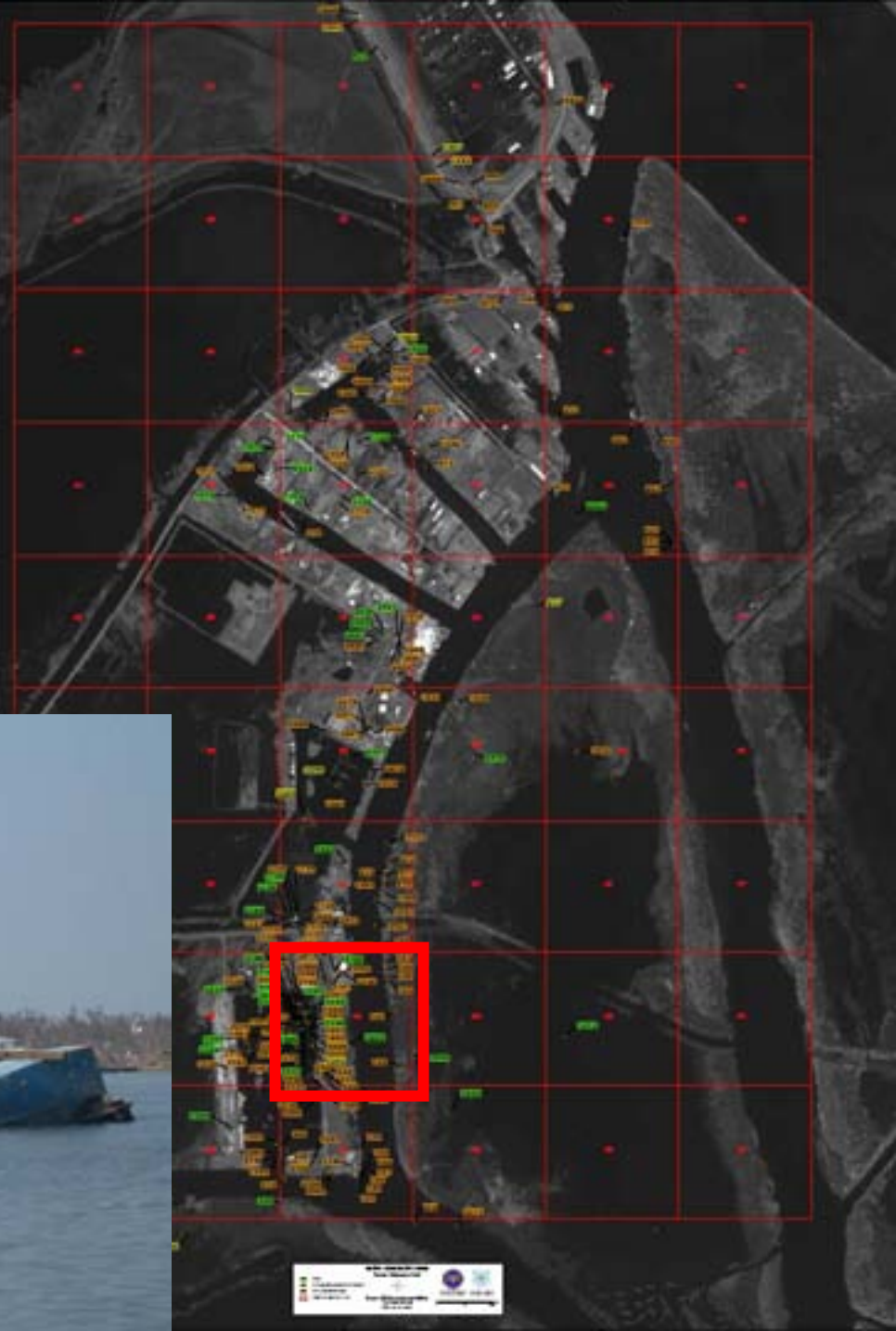
# Database Issues

- FEMA funds are for specific named storms
- Pre-existing wrecks
- Vessel sinking post-storm
- Vessels sinking again













# Empire, Louisiana







# High Priorities

- Blocking roads and waterways
- Blocking flood control structures
- Blocking Levee repairs
- Pollution

OCT 15 2005











# Low Priorities

- Stranded on land or in wetlands
- Blocking residential canals and marinas









# Transportation





# Storage and Disposal



- Storage and disposal may be a problem in island locations







# Approaches



# Lifting







TRAIL

APACHE  
0223

DUMS

0223

APACHE  
0223

COLUMBIA NEW YORK  
NO. 8 1000-01



# Pulling and dragging









# Roller Bags







SEA WOLF

SEA FALCON

USCG







# Trenching and floating



St. Bernard Parish  
Bayou Restoration

- Green: Open
- Yellow: In Progress/Approach to be Resealed

Scale: 1 inch equals 0.1 miles  
Date: 11 Apr 08

US Coast Guard









21 3:17PM









# Breaking







# Secondary Events



# Marine Debris







# Marine Debris



Have you seen me?















# Discussion for Coral Regions

- National salvage and wreck removal policy needed but in the meantime, build relationships with USCG and FEMA
- Large logistical effort and competing priorities. Local salvage capability may be limited, damaged or in high demand.
- Priority should be prompt but careful removal. Need to balance environmental protection and pragmatism.
- FEMA funds generally time limited. Without prompt removal, coral jurisdictions may be left with a legacy of wreckage
- How to best prepare?







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