



Lessons Learned From Katrina

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> What happened

> How we responded

> What we learned

Tulane University

Department of Vivarial Science & Research

New Orleans facilities

- Major animal facilities on two campuses
- 38,000 sq. ft. animal holding space



Tulane National Primate Research Center

>5,000 non-human primates on 500 acres



The Disaster Plan

- **Developed in coordination with Tulane Office of Emergency Preparedness.**
- **Coordinated with Facilities Services.**
- **Plan development and pre-storm preparation are critical.**

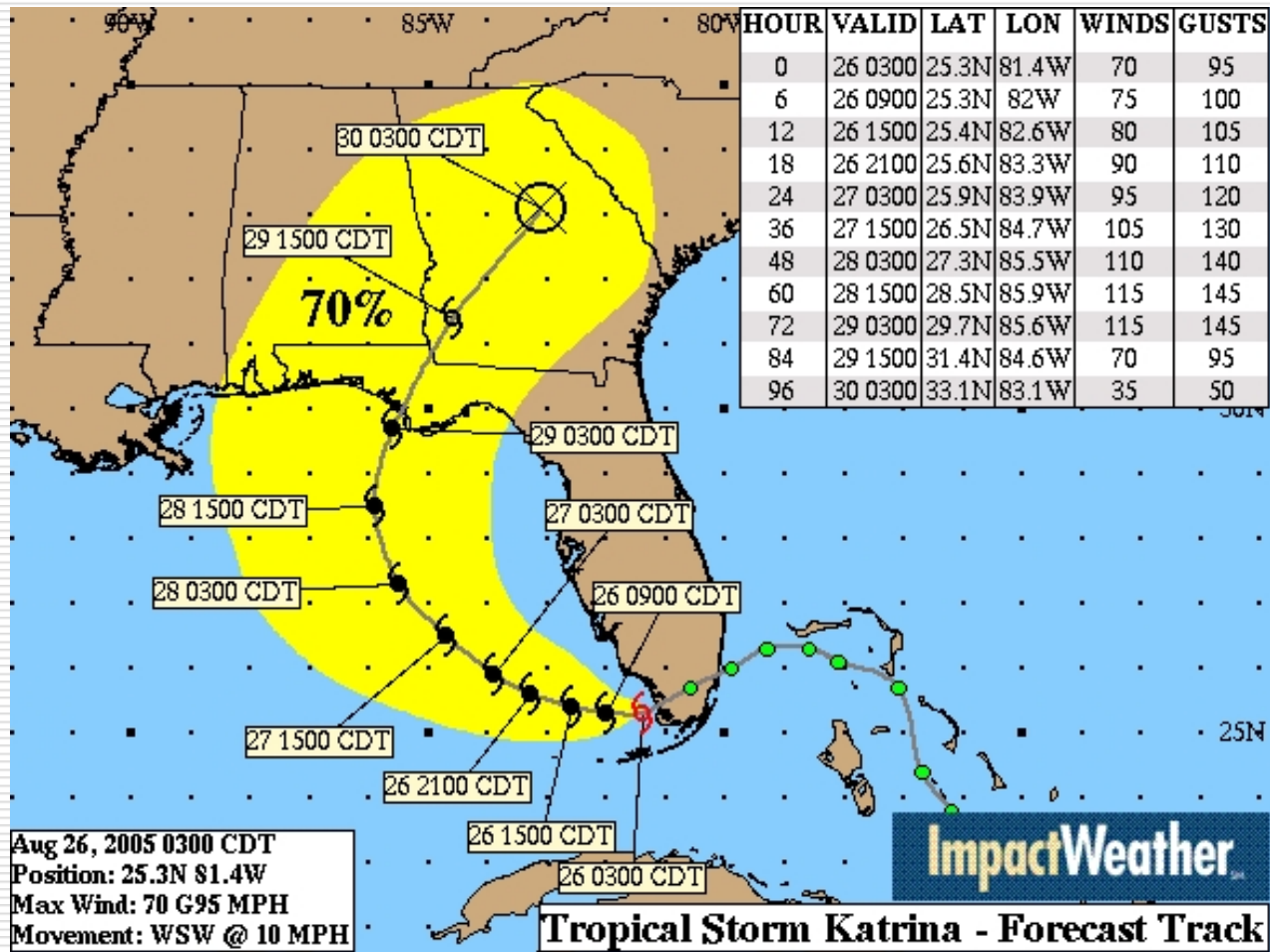
Advance Preparation

- **Pre-hurricane season practice drill and training**
- **Weekly generator testing**
- **Secure Emergency Supplies**
- **Identification of essential personnel**

Advance Preparation

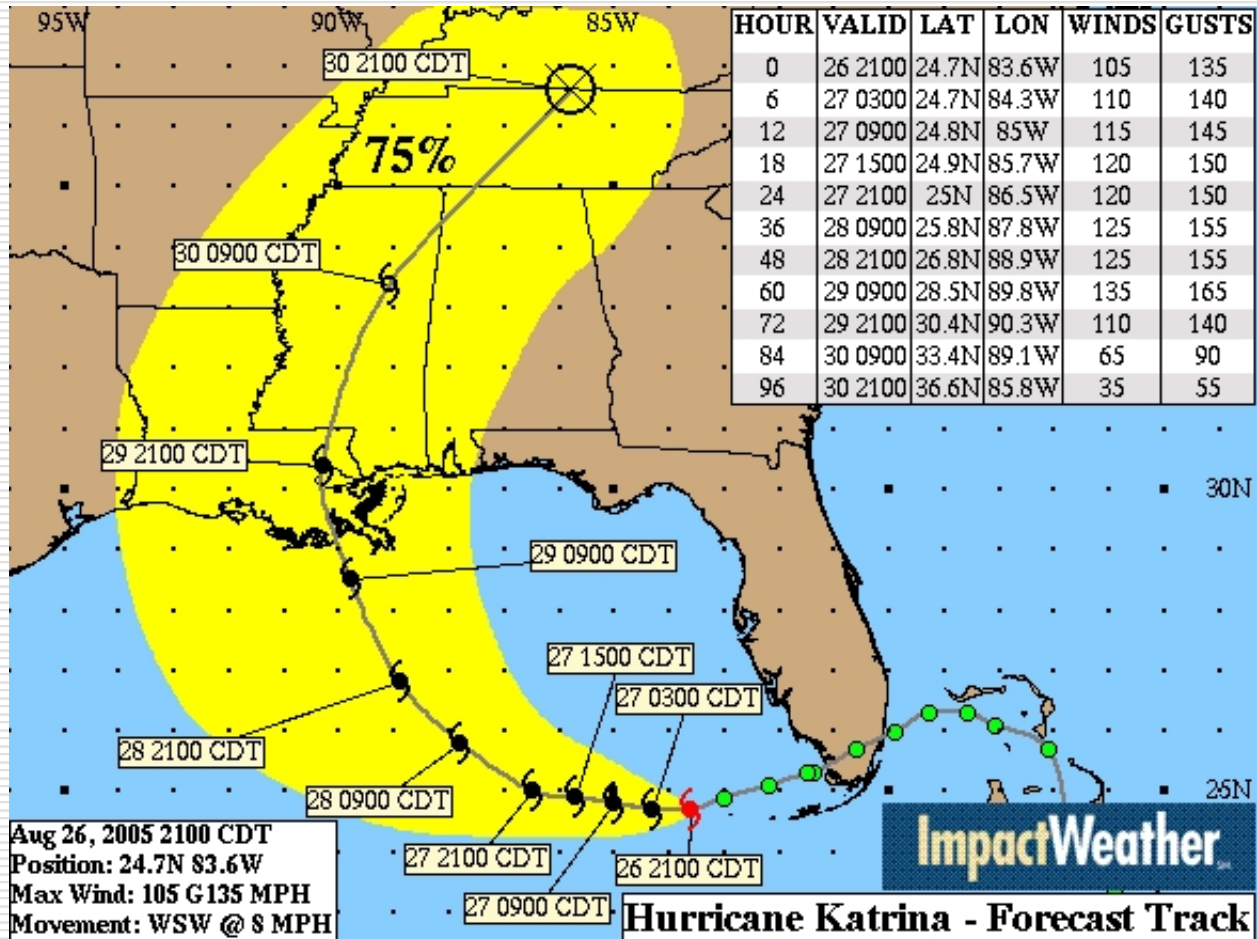
- **Ensure safety of research colony animals**
- **Secure additional food supply**
- **Ready evacuation plan**
- **Off-site back-up of animal records system**

Timeline—August 26, 3 a.m. Friday



Hurricane Katrina weakens to T.S. Katrina following landfall

Timeline—August 26, 9 p.m. Friday



Revised track seriously threatens New Orleans metropolitan area

Storm Preparations

- **Essential personnel on-site (DVSR and Facilities Services)**
- **Send key contact person off-site to handle communications with key agencies (NIH, USDA, etc.)**
- **Activate Evacuation Plan of Animals**



Tulane University Health Sciences Center

An aerial photograph showing a large courtyard area completely inundated with brown floodwater. The water reflects the sky and surrounding structures. In the upper portion of the image, a brick building features a sign that reads "Tulane University Health Sciences Center". To the left, a multi-story brick building has several balconies; one balcony has a few people standing on it. A tall utility pole with a blue sign stands in the water. A large, leafy tree is partially submerged on the right side. In the lower-left foreground, a small green boat is visible in the water. A street lamp is positioned in the lower-right area. The overall scene depicts significant flooding in an urban or campus setting.



08/30/2005





The Rescue - Timeline

- **Aug. 29:** Storm hits
- **Aug. 30:** Extensive flooding
 - White Caps on Tulane Avenue
 - USDA, OLAW, and AAALAC contacted
 - Humane euthanasia of colony begins
 - Re-entry to rescue remaining lab animals initiated

The Rescue - Timeline

- **Aug. 31:** Loss of emergency generator power and communications
- **Sept. 1 - 2:** E1 personnel safely evacuated from the Health Sciences Center Vivarium
- **Sept. 6 - 8:**
 - **Transgenic founder animals evacuated from TUHSC and TUV to TNPRC.**
 - **Remaining animals humanely euthanized.**

Obstacles to Rescue

- **No electricity**
- **No plumbing or potable water**
- **Roads impassable**
- **Communications lost (voice and data)**
- **Fuel in short supply**
- **Civil unrest**

PJ's
COFFEE







Candace
10/10/10

Candace
10/10/10

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Clean-up and Re-Entry

- Sept. 9: Remediation of TUHSC & TUV campuses began**
- Oct. 3: Remediation of TUHSC Vivarium**
 - Electric and water restored to JBJ (no steam)**
 - No power to TMC**
 - Generator Power to Satellite Facility**
- Oct. 17: Re-entry of Satellite Facility.**
- Coordination of returning personnel for re-entry of TUHSC Vivarium**

Clean-up and Re-Entry

Nov. 1: Re-entry of Vivaria

- 5 of 11 technicians available for return to TUHSC facility
- Utilities on line

Utility Challenges

November and December: Scrubbing every inch of facility from floor to ceiling!

Jan. 2: Re-entry

- 1/3 of TUHSC facility had utilities
- Remaining 2/3 to brought on-line in Feb/March





Repopulation

- Jan 23: Re-population of animals from approved vendors**
- Jan. 31: Re-population of animals from non-approved vendors and return of animals evacuated to Waco, TX**

Post-Disaster Issues

- **Sheltering evacuated/displaced employees**
- **Mental health support**
- **Personnel issues**

Payroll

Attrition

Tulane Response

- **Valuable, investigator-derived transgenic animals were successfully evacuated to approved facilities.**
- **Remaining animals were humanely euthanized.**
- **No animals died as a direct result of the storm.**
- **Essential personnel were successfully evacuated from the city**

How Can We Prepare for These Problems?

Loss of Power/Fuel Availability

- **Ensure that critical functions/buildings are supported by natural gas/diesel generators.**
- **Have adequate fuel storage facilities to support your facility for several weeks if possible.**
- **Establish relationships with fuel suppliers out of your region.**

How Can We Prepare for These Problems?

Civil Unrest

- Properly train and equip police/security personnel (tactical training, body armor, carbines/shotguns, tactical flashlights, etc.)
- Understand that local law enforcement ability to respond is likely to be severely compromised.
- Require and provide security escort to personnel entering unsecured facility.

How Can We Prepare for These Problems?

Preservation of Research Animals and Materials

- Plan for animal holding space at remote locations.
- Plan logistics for evacuation, transport and security
- Prepare for supply of liquid nitrogen and vessels to transport it to affected laboratories

How Can We Prepare for These Problems?

Purchasing goods and services

- High limit credit cards without restrictions available to key personnel
- Cash on hand in a secure location

How Can We Prepare for These Problems?

Sheltering evacuated/displaced employees

- **Maintain provisions for food preparation and a supply of long shelf-life items such as MREs.**
- **Designate areas where employees and family members can sleep.**

How Can We Prepare for These Problems?

Personnel

- Plan for relocating payroll functions immediately after the disaster.
- Require all employees to utilize direct deposit.
- Plan for communication with employees during evacuation.

Tulane DVSR:

James Blanchard

Patricia Coan

Lynelle Dupepe

Kimberly Scamardo

Martina Knoedler

Ronald Handy

Scott Malbrough

Anthony Deluca

TNPRC:

Aubrey Releford

Wayne Cyprian

USDA:

Fred Bourgeois

Lynn Bourgeois

USDA Field Crew

Texas:

Valeri Lansford

John Park

John Zapada

Tulane Police

LA State Police Troop B

National Guard

Kelly Giangrosso

LSU School of Vet Med:

Rick Ramsey