

Hurricane Recovery Efforts

Louisiana Cooperative Extension Service

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General Facts

HURRICANE QUICK FACTS

SOURCES: NOAA, FEMA, LAGIC, LDHH, LDOL, LDED, & ISO	HURRICANE KATRINA August 23 – 31, 2005	HURRICANE RITA September 2 – 31, 2005
US STATES IMPACTED	Florida, Louisiana, Mississippi, Alabama, and Tennessee.	Louisiana and Texas
STRENGTH <i>at landfall</i>	Category 4	Category 3
MINIMUM BAROMETRIC PRESSURE	902mb (32mile wide eye)	897mb
WINDS <i>at landfall</i>	140+ mph	120+ mph
RAINFALL	12in – 16in	6in – 12in
STORM SURGE	4 – 32 feet 30'+ in Biloxi, MS; 20'+ in Plaquemines, LA	4 – 16 feet 15'+ Storm Surge
AREA IMPACTED	Total: 108,456 sq. miles	Total: 85,729 sq. miles
CASUALTIES <i>as of 12/16/05</i>	Total: 1,321 Louisiana: 1,095	Total: 119 Louisiana: 0
PEOPLE IMPACTED	2,500,000 households request Individual Assistance	460,000 households request Individual Assistance
LEFT HOMELESS	Total: 527,000 Louisiana: 288,700	Total: 76,500 Louisiana: 76,500
BUSINESSES IMPACTED	71,000+ in Louisiana	10,000+ in Louisiana
JOB LOSSES	400,000+ in Louisiana	45,000+ in Louisiana
DAMAGE ESTIMATES	\$34.4 Billion Total; \$22 Billion in Louisiana <i>(source: ISO Properties Report 10/7/05)</i>	\$4.7 Billion Total; \$ 2.4 Billion in Louisiana <i>(source: ISO Properties Report 10/7/05)</i>

Hurricane “KATRINA” 08-29-05

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see to believe”**

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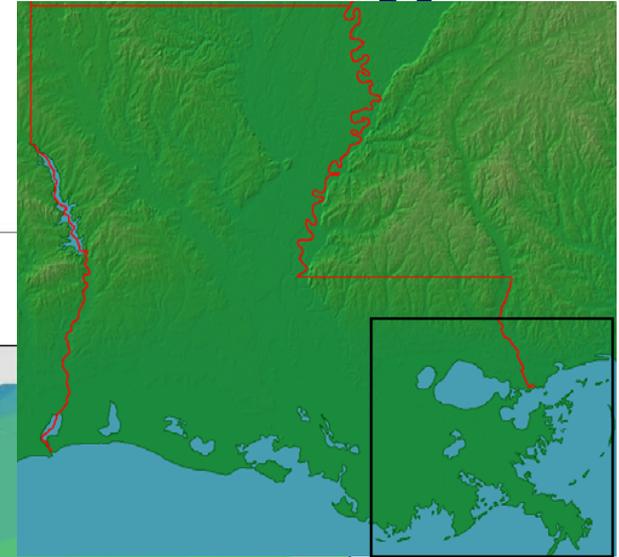
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Hurricane Katrina Storm Surge



2005 LOUISIANA HURRICANE IMPACT ATLAS



ESTIMATED STORM SURGE

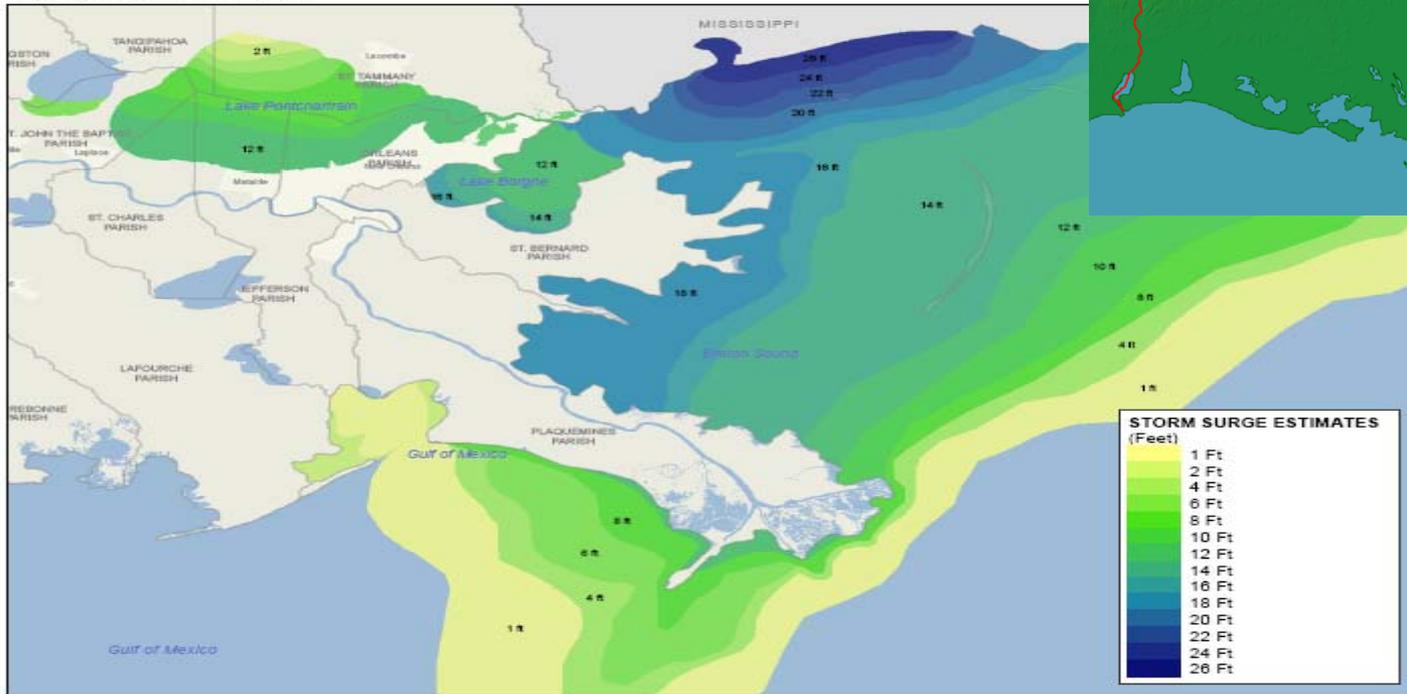
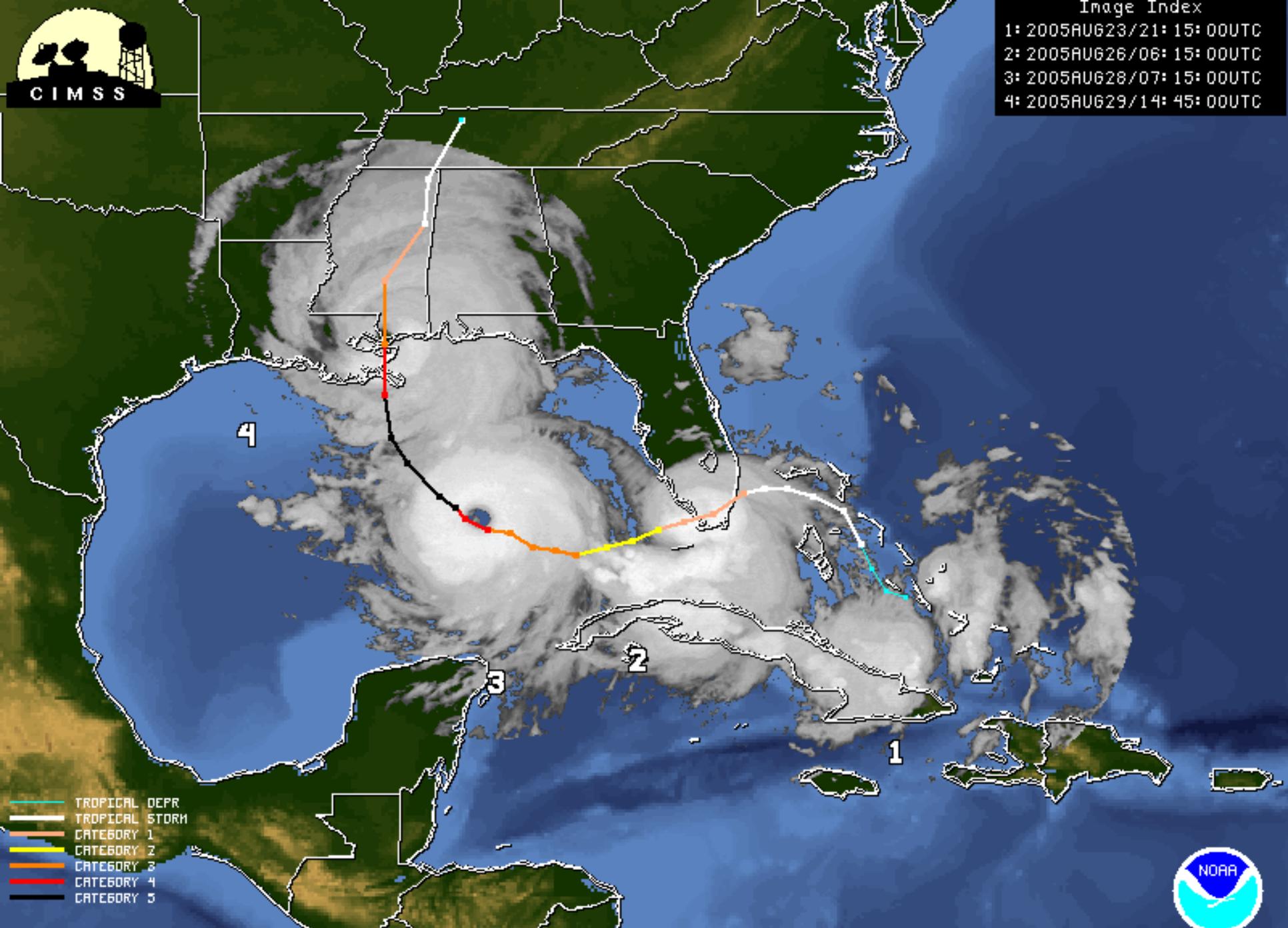


Figure 7: Hurricane Katrina Estimated Storm Surge – Computer Model (LSU – A HEF, 2005).

2005 LA GEOGRAPHIC INFORMATION CENTER (LAGIC) – <http://logic.lsu.edu>



Image Index
 1: 2005AUG23/21: 15: 00UTC
 2: 2005AUG26/06: 15: 00UTC
 3: 2005AUG28/07: 15: 00UTC
 4: 2005AUG29/14: 45: 00UTC



- TROPICAL DEPR
- TROPICAL STORM
- CATEGORY 1
- CATEGORY 2
- CATEGORY 3
- CATEGORY 4
- CATEGORY 5



25

9/15

NO BODIES
9.3 SEMPER
THANKS FI





5918



SEA LEVEL

Subsidence Due to
Soil oxidation After
Drainage of
Wetland Soils

Other Surge Measurements

Diamondhead >25 ft, Biloxi 22 ft, Slidell 12.3 ft



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Ocean Barge on Levee, radio tower at Buras looking from river

29° 21' 27.84" N

89° 31' 29.57" W



MISSISSIPPI RIVER

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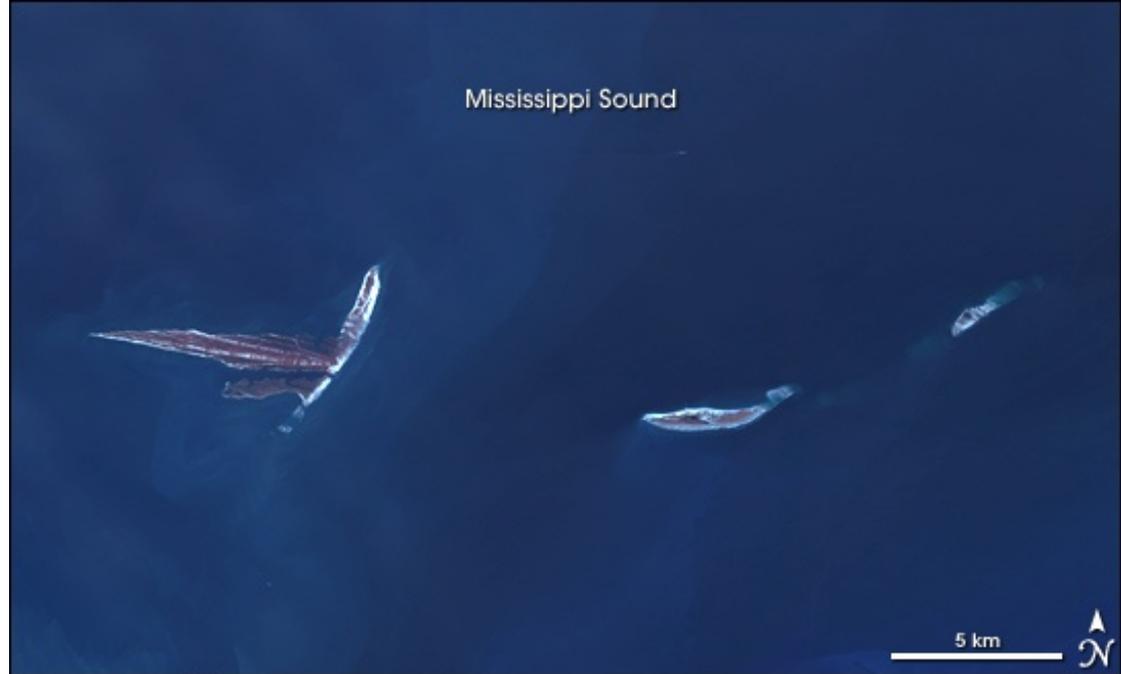
Here are the cotton fields that existed in Leeville in South Lafourche Parish in the 1920s. This area has now been converted mostly to open water in most areas.



The vulnerability of LA-1, the only road access to Port Fourchon and Grand Isle, is seen clearly in the second photo

improve lives





September 8, 2005



June 4, 2005

April 22, 2001

NASA images courtesy Jesse Allen, Earth
Observatory, using data obtained courtesy of
the NASA/GSFC/METI/ERSDAC/JAROS,
and U.S./Japan ASTER TEAM

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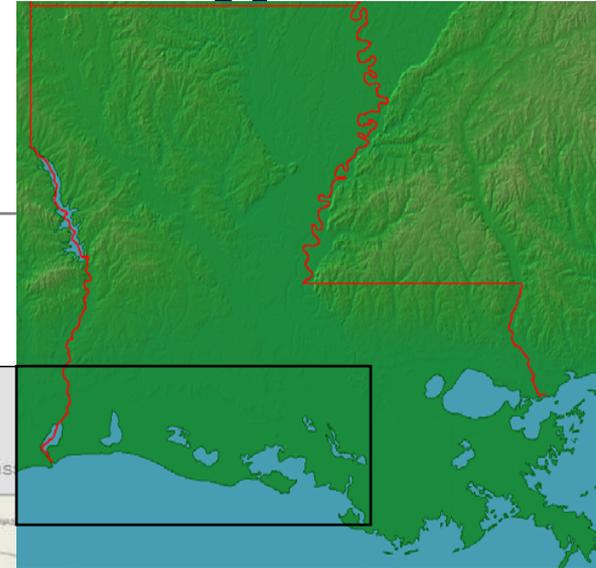
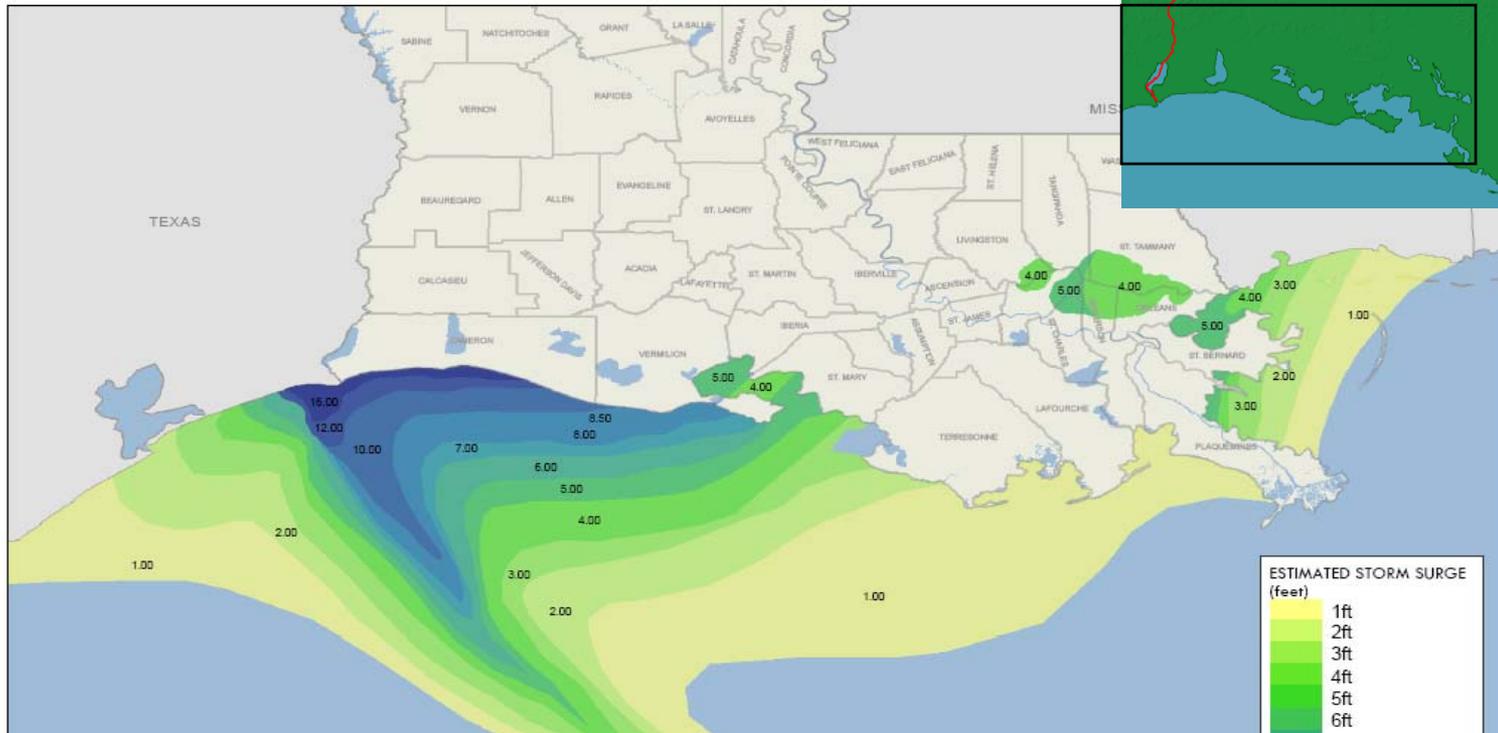
Home . Crops & Livestock . More

Hurricane Rita Storm Surge



2005 LOUISIANA HURRICANE IMPACT ATLAS

ESTIMATED STORM SURGE



Hurricane “RITA” 09-23-05

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Big Lake



Big Lake, La



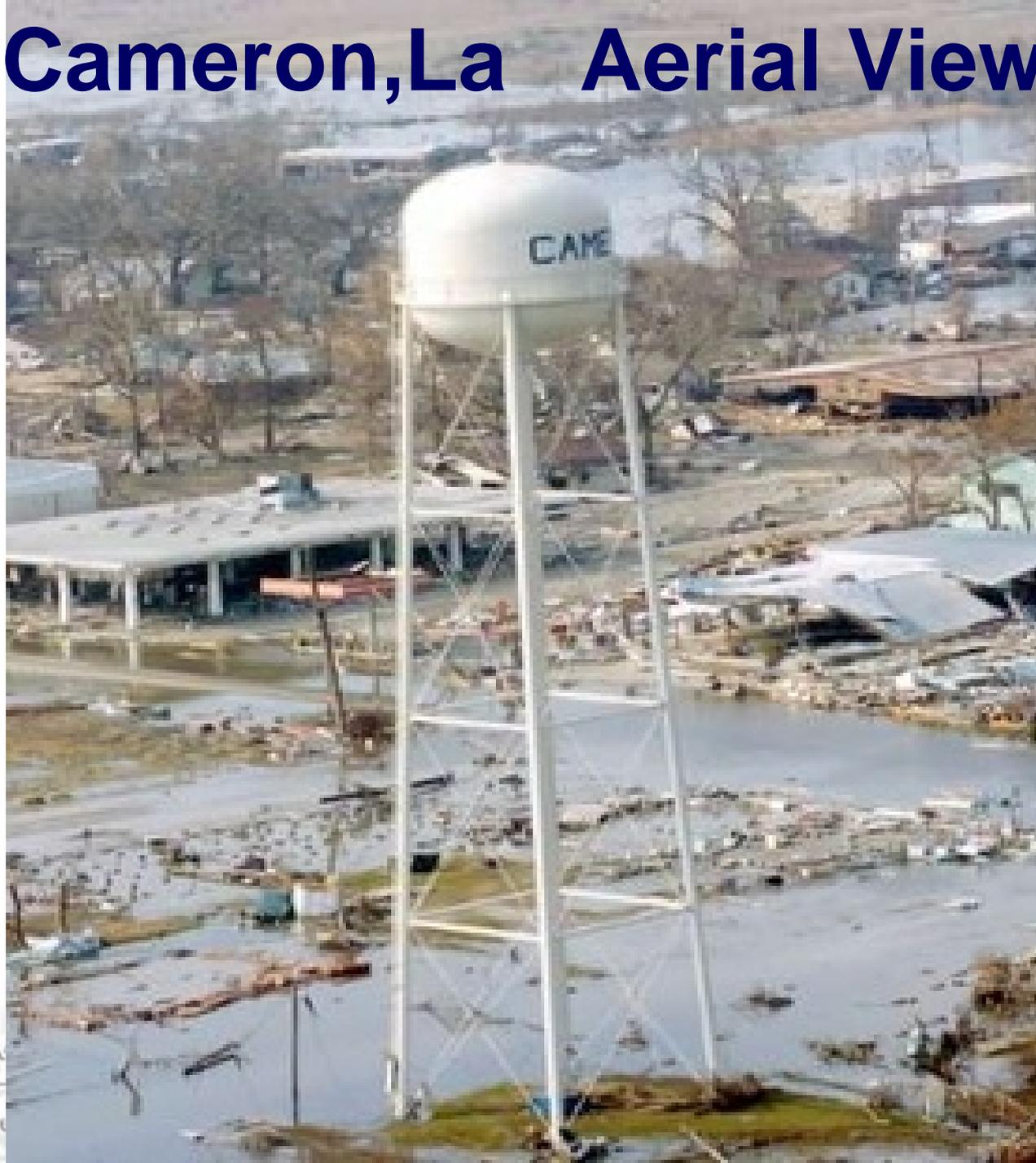
Cameron, La Downtown Area





Cameron,La Aerial View

Cameron, La Aerial View



business . Com
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Cameron,La Aerial View



Cameron,La Aerial View

Cameron, La Tank Battery



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Carlyss, La Hwy 27 South



Carlyss, La Hwy 27



Johnson Bayou, LA



Johnson Bayou Gas Plant



Holly Beach Before



By Arthur Belsis / courtesy USACE

Holly Beach After



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Hackberry, La



Hackberry, La



Abbeville, LA



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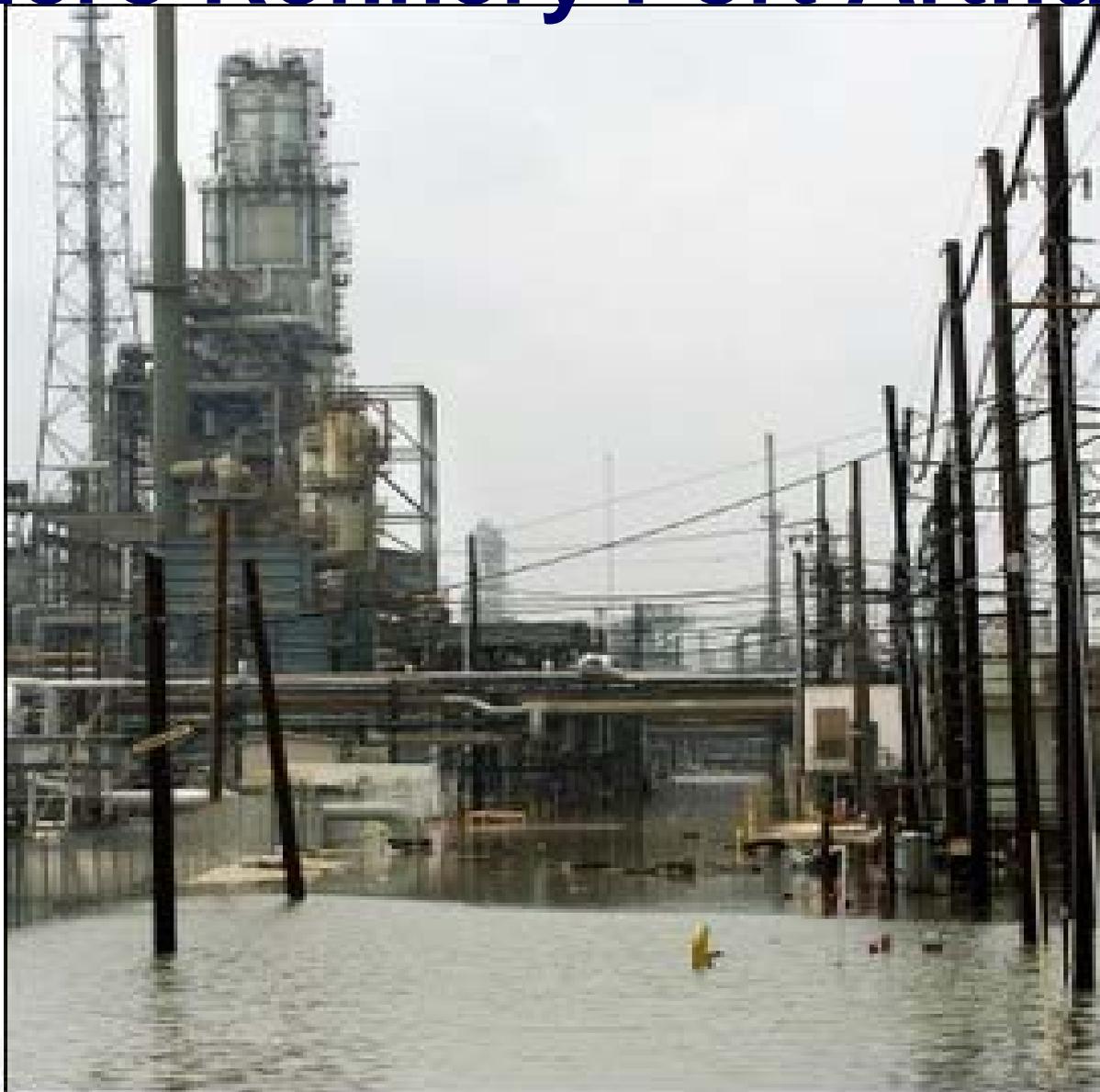
Galveston, Tx Coast





Port Arthur, Tx Coke Plant

Valero Refinery Port Arthur, Tx



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Lake Charles Wildlife Office



Lake Charles, Hibernia Bank





Lake Charles, Hibernia Bank

Lake Charles Beach



210 Beach Trailer Lake Charles, La



210 Beach Lake Charles,La



Lake Charles Boardwalk



Lake Charles Isle Of Capri



Lake Charles Harrah's Casino



Lake Charles, La Sail Boat & Railroad



Lake Charles Railroad Crossing at I-10

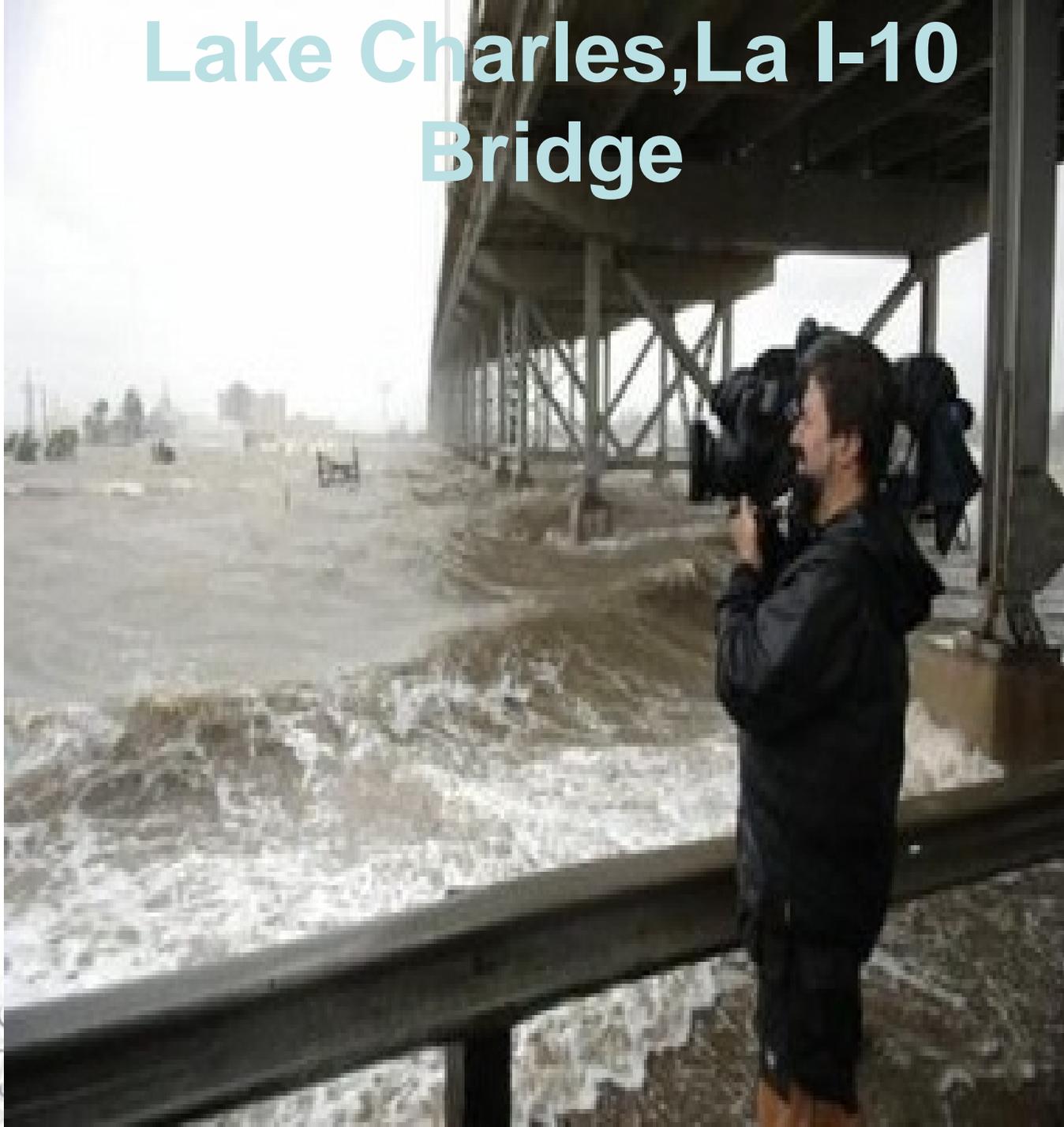


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Lake Charles, La I-10 Bridge



business, Co
Home, CRO
Health, Env
for the late
ome, Crops

Lake Charles, La HWY-14



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Mc Neese Stadium Lake Charles, La



St. James Parish Katrina



Lafourche Parish Katrina

Vermilion Parish Rita



Vermilion Parish

Rita



Vermilion Parish

Rita

Iberia Parish Rita



***Iberia Parish
Rita***

Iberia Parish Rita

Iberia Parish Rita



10 4:58PM



17 11:07AM

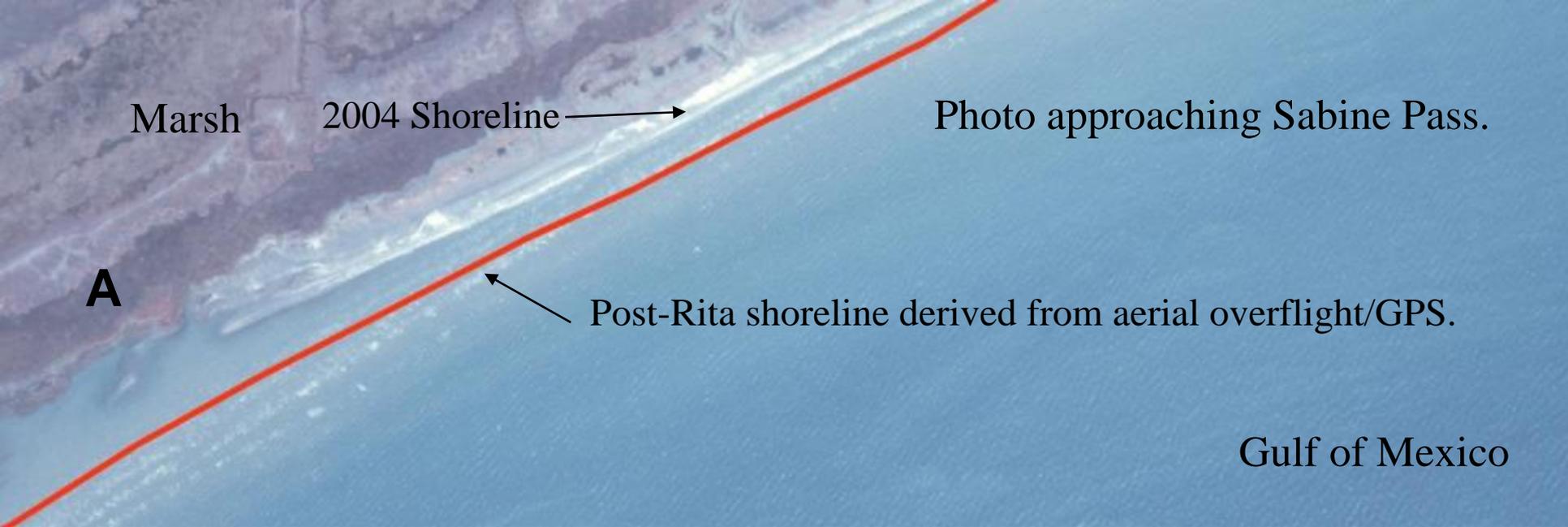
Holly Beach



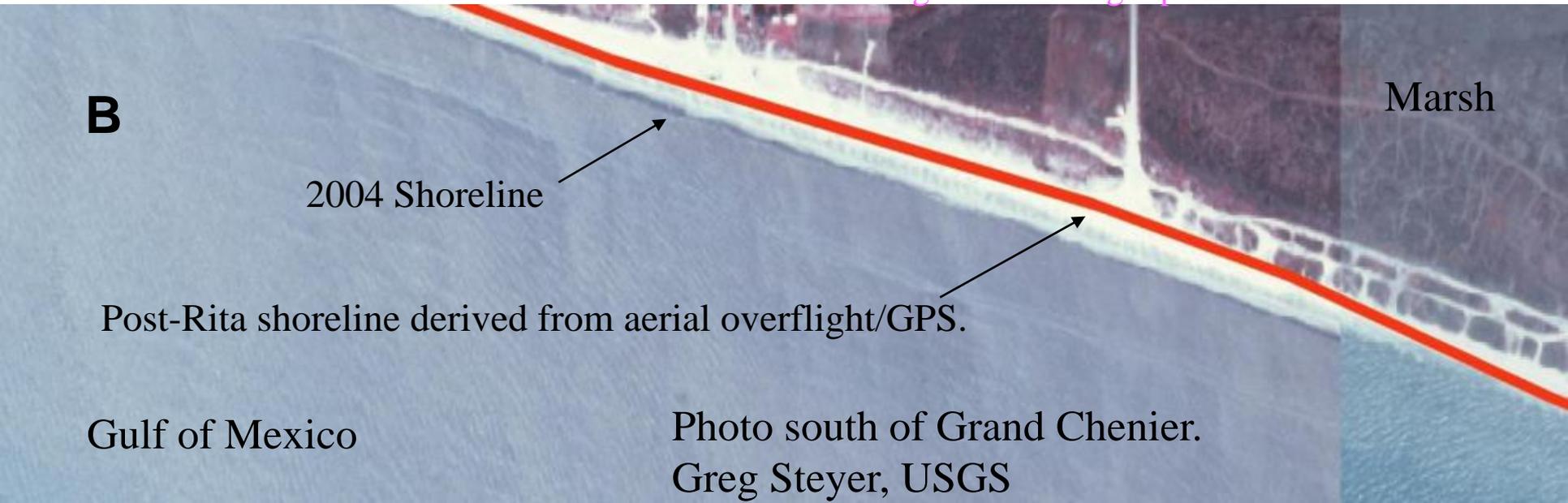
Before Hurricane Rita



After Hurricane Rita



Color infrared photography collected in 2004. Photo A (above) is west of Photo B (below).
Red line indicates 5-second GPS coordinate accumulation along shoreline flight path



DONT TRY.
I AM SLEEPING
INSIDE WITH
A BIG DOG
AN UGLY WOMAN,
TWO
AND A
SHOTGUNS
CLAW HAMME

PEOPLE HANDLE DISASTER IN THEIR
OWN WAY, SOME NOT GOOD.....

Business
Home
Health
Home . C

Holly Beach After



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Where Does the University Fit in the Scheme of Disaster Relief

- **Dependent on the State Emergency Plan**
 - **Emergency Support Function**
- **Emergency Support Function – 11**
 - **ESF 11 provides protection for the state's food supply to ensure victims of emergencies are provided adequate nutrition.... It is also concerned with disease spread, infestations, animal evacuation, sheltering, and healthcare.**

Incident Command System

- **Central coordination for storm relief**
- **Incident Action Plan**
- **All FEMA funding and sponsored supplies incorporated in this portion of the plan**

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ESF-11

- **County Extension personnel are assumed to be first responders**
- **State Animal Response Team (SART)**
- **Veterinary Medical Assistance Team (VMAT)**

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LSU FIELD HOUSE



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AgCenter
Research & Extension



A woman in green scrubs stands in a large arena, looking up at a yellow sign that says "Pediatrics". The arena is filled with medical equipment, including gurneys and monitors, and other people in the background. The sign is mounted on a stand and is the central focus of the image.

Pediatrics

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AgCenter
Research & Extension

How can Extension help?

- **Prior Planning**
- **Immediate Disaster Response**
- **Long-Term Planning**
- **Expertise in many technical areas important to recovery including:**
 - **Community Economic Development**
 - **Sustainable housing,**
 - **Financial management,**
 - **Agriculture (citrus, sugarcane and other severely affected crops),**
 - **Forestry,**
 - **Horticulture,**
 - **Coastal & wetland policy,**
 - **Salinity levels in soils,**
 - **Commercial and recreational fisheries,**
 - **Stress management,**
 - **Water resources (including agricultural irrigation)**
 - **Water Quality**
 - **Disaster program outreach,**
 - **Livestock production (led cattle rescue and recovery efforts in SW LA)**
 - **Cleaning mold and flooded homes**



Our Response

- **Assessment**
- **Coordination**
- **Rescue/Recovery**
- **Education**

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Assessment

- **ESF-11 calls for the LSU Agricultural Center to assess damage and report to (in our case) the United States Department of Agriculture**
- **Other important assessments are where help is needed and hopefully how to partition resources to meet needs**

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Coordination



- Although many entities are summoned to work at the point of a disaster. Communities often look to their county agent and staff for leadership.
- Staging Areas Established
- Interaction with other Agencies
- Planning of Meetings

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RESCUE AND RECOVERY



EDUCATION/PUBLICATION

- **Information is Vital**
 - **Arguably our greatest role**
- **Normal transfer techniques are typically not utilizable**
- **Getting the Word Out**

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Disaster Recovery Series

100,000 copies of *Disaster Recovery Series* and *Cleaning Flood-damaged Homes* have been printed and distributed to shelter volunteers, agents, and affected citizens. The Disaster recovery series combines 25 fact sheets into one publication that has six chapters.

They are:

- 1. Be Safe: Stay Healthy after a Disaster**
- 2. Surviving and Recovering from a Power Outage**
- 3. Restoring Storm-damaged Buildings**
- 4. Salvaging Water-damaged Belongings**
- 5. Lawn and Garden Losses**
- 6. Financial Recovery and Risk Management**

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Disaster Recovery



Available Recovery Assistance to Farmers and Ranchers

Louisiana's agriculture, fisheries and forestry industries have been severely affected by both Hurricane Katrina and Hurricane Rita. Flooding, rain and high winds, along with the resulting infrastructure damage and power outages, have caused considerable impacts to many industries. These impacts have been in lost revenue caused by loss of production, higher operating costs, storage and price impacts caused by disruptions in distribution channels, and additional costs associated with infrastructure damage.

Several USDA programs currently are in place that can help agricultural farmers and ranchers begin their recovery. These programs are administered through the Farm Service Agency (FSA) and the Natural Resources Conservation Service (NRCS). Additional assistance may be available through disaster packages approved in Congress. Brief descriptions of current programs and the types of assistance follow.

Emergency Conservation Funding

The USDA has made more than \$170 million available for assistance under the Emergency Conservation Program (ECP) and the Emergency Loan Program. Both programs are administered through the Farm Service Agency.

After Hurricane Katrina, the USDA made more than \$20 million in Emergency Conservation Program (ECP) funds available to help producers repair damage to their lands. It has since added another \$9 million in ECP funds to address the damage resulting from Hurricane Rita. ECP participants will receive cost-share assistance of up to 75 percent of the cost to implement approved emergency conservation practices such as debris removal and restoration of fences and conservation structures.

Approximately \$16.5 million is available to Louisiana in parishes: Acadia, Ascension, Cameron, East Baton Rouge, Iberville, Jefferson, Jefferson Lafourche, Livingston, Orleans, St. Bernard, St. Charles, St. James, St. John, St. Martin, Tangipahoa, Terrebonne, West Baton Rouge and West Avoyelles, Beauregard, Calcasieu.

A total of \$152 million for the Emergency Loan Program is available to producers who have a percent reduction in crop physical losses to building ranchers have eight month preferential or secretarial for these loans.

Marketing Assistance Loan Program

One of the impacts of Hurricane Katrina was the disruption of many of our agricultural products. This disruption has led to cost availability and its impact result. The USDA's Commodity Credit Corporation (CCC) is implementing the Assistance Loan Program for "on-farm" grain storage in addition to grain bins and structures. This action is expected to support local cash prices.



Disaster Recovery



Management Considerations for Agricultural Producers Dealing with Financial Difficulties

No one ever wants or even plans to face difficult financial situations; but, because of a variety of reasons, producers may find themselves facing cash flow shortages, escalating debt and diminishing equity. Given the production and price risks faced in agricultural production, producers understand that the financial situation of their operations can quickly deteriorate. Unfortunately, correcting the financial damage caused by periods of low prices, high costs or low production is often slow and prolonged. There is generally no quick fix to the situation, and producers must look for ways to slowly improve efficiency and profitability.

Producers often find themselves using existing equity in the operation to cover shortfalls; however, this situation cannot exist in the long run. As equity dwindles, the ability of the operation to sustain and withstand additional shortfalls will be limited. In times of financial difficulties, generally the most influential factor is the ability of the operation to meet all of its cash obligations. To obtain needed operating capital, the operation must be able to project a positive cash flow for the upcoming production cycle. Whether the financial shortfalls are caused by low commodity prices, high input costs, production shortfalls or a combination of these, there are several issues a producer should consider in developing future plans.

One of the first issues that a producer should consider is the availability of government assistance¹. In the case of natural disasters, several programs would be offered to producers coping with economic impacts.

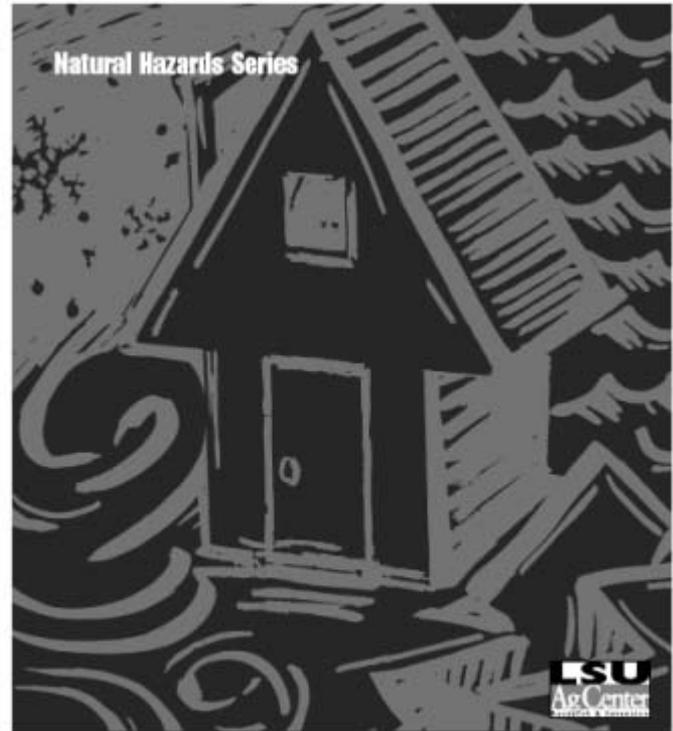
¹ Programs are available through the Farm Service Agency (FSA), the Natural Resources Conservation Service (NRCS) and the Small Business Administration (SBA). For more information on FSA programs and a list of local offices, go to <http://www.fsa.usda.gov>. For more information on NRCS programs and for a list of local offices, go to <http://www.nrcs.usda.gov>. For more information on SBA programs and for a list disaster recovery centers, go to <http://www.sba.gov>.

These may include cost-share production practices, emergency allowing producers to defer debt period. In addition, Congress has provided additional direct assistance in disasters and prolonged periods of prices. While the assistance will all, it may be part of an overall financial condition of the operation.

Producers should also be involved in the financial planning process as a lender, just as the producer, but success of the farming operation have open dialogue with lenders circumstances and should attend lenders toward solutions that are periodic. In some cases, the best deferral programs that allow postponing debt payments because of natural disasters.

For some producers, their standing may be strong enough periods of financial difficulties have enough stored cash reserves cover temporary shortfalls in certain cases, the need is to develop an operations that makes the most resources and safeguards against. For most producers, however, condition is one that seriously of the operation to obtain needed therefore, jeopardizes its ability cases, the producer must look requirements and increase the generate revenue.

Producers must thorough operations and look for ways to and eliminate waste. In times to agriculture, producers cannot



Storm Recovery Guide for Homeowners

Information Transfer

Volume 3 Issue 1

February 1, 2006

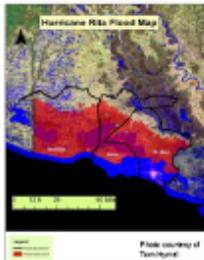
RICE RESEARCH STATION NEWS

Salt Contamination of Rice Soils Following Hurricane Rita



On Sept. 23-24, 2005, Hurricane Rita struck the coast of southwestern Louisiana and southeastern Texas. Following Rita's landfall, an unprecedented storm surge inundated the coastal parishes of southwestern Louisiana, including parts of Calcasieu, Cameron, Jefferson Davis, Vermilion and Iberia parishes. Some flooded areas were covered with freshwater from lakes and bayous pushed out of these bodies by the force of brackish and saltwater from coastal marshes and the Gulf of Mexico. Other areas were covered by concentrated saltwater from the Gulf of Mexico.

The flood persisted as long as three weeks in some areas. The storm surge affected agricultural lands, including the rice-growing region of southwestern Louisiana. The levels of soluble salts remaining after the floodwater receded are cause for major concern and has left the productivity of large tracts of rice soils in serious question for the 2006 crop year.



Efforts are underway to define the extent and severity of salt contamination, to interpret results of soil tests revealing levels of salt contamination, and to offer recommendations for remediation of the contaminated soils. Greenhouse research is ongoing at the Rice Research Station to address rice production issues associated with the storm surge. Soil from seven sites in the impacted areas was collected, and laboratory analyses determined that soluble salt levels in these soils were 590 ppm to 5,270 ppm.

A greenhouse bioassay showed that seedling emergence and plant dry weight 21 days after rice planting were not affected in soils with soluble salt levels <980 ppm, whereas seedling emergence was reduced at least 76% in soils with



>5,430 ppm soluble salts. Unfortunately, the impact on rice development of season-long exposure to these soluble salt levels is not clear. Furthermore, the negative effects of salt contamination were more pronounced when rice was water-seeded than when it was dry-seeded. Soil test results have shown, however, that soluble salt levels at the seven sites tested in greenhouse research decreased 40% to 60% from Oct. 25 to Dec. 12, 2005. However, more rainfall through the remainder of the winter months will be required for severely impacted fields to be productive in 2006.

Dr. Jason Bond
jbond@agcenter.lsu.edu

In this Issue:

Salt Contamination of Rice Soils Following Hurricane Rita	1
2006 Rice Cash Flow Model	2
Rice Variety Update	2
Section 15 Exemptions and the Rice Water Wheel	3
Pest of the Quarter-Sheath Blight	3
Rice CAP Project Update	4
Medium-grain Variety Development	5
Focus on Research Associates	6

Special Dates of Interest:

Rice Technical Working Group (RTWG)
February 26 — March 1, 2006
The Woodlands, Texas
http://beaumont.tamu.edu/RTWG2006/
Rice Research Station Field Day
Thursday, June 29, 2006

- Newsletters
 - Delivered copied to agents
- Fact Sheets
 - Disease
 - Handling stressed Livestock, etc
- Publication
 - University and National Press

Trained Faculty

- Over the past several months, the AgCenter offered the *Triumph over Tragedy* Disaster Recovery Program to all faculty and staff.
- This program was designed to help individuals cope in the aftermath of tragic disasters and how to understand and address the special needs of clientele who were affected by Hurricanes Katrina and Rita.
- It has been used successfully throughout the United States after disasters such as: flooding in the Midwest, 9/11 and last year's hurricanes in Florida.
- Triumph over Tragedy covers the following issues:
 - Individual responses to disaster (including post traumatic stress disorder)
 - Supporting individuals
 - Community responses to disaster
 - Training Extension faculty and staff and helping communities
 - Recovery (long-term) for communities

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Trained Faculty

- In the days and weeks following the storm Extension agents were testing water and soil for salt content.
- Soil tests are still being checked for salt residual that could affect whether or not rice can be planted this spring



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Katrina Recovery and Rita Recovery Task Forces

- Utilize our parish Extension Service faculty and staff resources to implement a fairly extensive strategic plan covering both hurricanes.
- Each task force has members with critical expertise that can be applied directly in the communities in most need of assistance.

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Disaster Recovery

- A disaster recovery Web portal is in place.

http://www.lsuagcenter.com/en/family_home/hazards_and_threats/recovery_assistance

family & home

Disaster Recovery & Assistance

more... > Hazards and Threats > Disaster Recovery & Assistance >

search

Go

LSU AgCenter

topics

- lawn & garden
- family & home
- crops & livestock
- money & business
- community
- food & health
- environment & natural resources
- kids, teens & 4-H

sub-topics

- Agriculture
- Children & Childcare
- Cleaning Up
- Disaster Information
- Essential Information
- Floods & Hurricanes
- Hazards in Louisiana
- Personal & Financial Recovery
- Photo Gallery
- Power Outage
- Public Service Announcements
- Publications
- Reducing Risk
- Volunteerism

DISASTER RECOVERY
Putting the Pieces Back Together *more...>>*

The LSU AgCenter has an array of information to help people in their recovery from the multiple problems caused by a hurricane. These problems include the danger of disease from insects, other pests and flood waters as well as illness from contamination by flood waters. Please heed the following advice. Much more information is available at this Web site and at parish extension offices.

Hurricane Katrina Information
The LSU AgCenter has compiled a list of links and contact

Disaster Information Series
These publications are designed to help Louisiana's

A new section was added to the news web site called storm and flood news. There are currently 27 news stories related to disaster recovery and new stories are added daily. These news stories will also be repurposed into a disaster recovery inserts to be distributed to the major newspapers in the state. A series of over 20 radio PSAs have been developed and distributed to radio stations across Louisiana and posted to the web

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New 1-800 Hotline

1-866-573-0178

Announcing the new, toll-free LSU AgCenter Disaster Recovery Hotline

The hotline provides hurricane victims much-needed information for cleanup and recovery. Callers can receive recorded "how to" information on avoiding mold hazards, what to do about home and garden damage and more. Callers can also choose to speak to an LSU AgCenter representative for more detailed information on these topics and others important to recovery efforts.

The hotline is staffed by LSU AgCenter personnel and is available to all areas of the state. **We encourage you to distribute the number in those areas affected by the recent hurricanes.**



- **Topics include:**
 - **Home and Garden Damage**
 - **Food and Water Safety**
 - **Fisheries, Crops and Livestock**
 - **Personal Finances**
- **Particularly valuable where people do not have Internet service due to Katrina and Rita**
- **Staffed by LSU AgCenter staff**
- **Setup at the Jefferson Parish Distance Education Site**

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Agriculture Loss Estimates

Commodity	Hurricane Katrina	Hurricane Rita	Combined
Total Forestry	\$612,866,563	\$227,066,661	\$839,933,224
Total Agronomic Crops	\$156,018,269	\$201,836,360	\$357,854,629
Total Fruits/Nuts/Vegetables/Honey	\$32,370,059	\$9,581,627	\$41,951,686
Total Livestock and Forage	\$23,841,946	\$51,738,689	\$75,580,644
Total Fisheries	\$142,189,733	\$34,090,892	\$176,280,625
Total Wildlife/Recreational	\$24,221,407	\$16,582,570	\$40,803,977
Total Estimated Economic Impact	\$1,000,660,068	\$590,074,832	\$1,590,734,900



Farm Financial Management

- Shortly after the storm, the LSU AgCenter began to develop assessments of the potential damage caused to the agricultural, fisheries, and forestry industries in the state.
- The AgCenter has conducted 5 farm financial workshops in the affected regions of south Louisiana to assist agricultural producers in gathering information on government assistance programs, recovery of operations, marketing, stress management and other topics.
 - These workshops included discussions from the LSU AgCenter, USDA – Farm Service Agency, USDA – Natural Resources Conservation Service, Farm Bureau and other agencies.

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Dairy Recovery

- The AgCenter estimated over \$1 million in economic losses in the Louisiana dairy industry.
 - Much of this loss is the result of the loss of milk that producers were forced to dump weekly because they were without enough electric power to operate their coolers.
 - The immediate concern is for the infrastructure – physical damage to facilities and no electricity for milking the cows and cooling milk.
- AgCenter specialists and agents formed the Dairy Recovery Team worked diligently to look for power supplies for dairy operations.
- Information on animal health and waste management will be available to affected producers.

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Cattle Recovery

- Southwest and south central Louisiana beef cattle producers have endured a devastating hit from Hurricane Rita and estimates show that more than 175,000 cows reside in the parishes that were hardest hit.
- Meetings were conducted to discuss salt residues on rice, pasture, sugarcane, and other land
- Education and outreach programs on disease potential and strategies to reduce disease

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- 175,000 Cows in Affected Area
- >50 Million in Damage
- Thousands of Miles of Fence
- 20,000 Dead?
- Many more liquidated

5000 cows

5000 cows

10000 cows



Cattle Recovery



- **Thousands of beef cattle lost or stranded without hay and fresh water.**

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Cattle Recovery



- **Agents from Vermilion Parish facilitated meetings to discuss the feed and hay situation, status of stranded cattle, and fuel situation with local producers.**

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Beef Cattle Recovery



- **Parish agents coordinated feed and hay stations at local extension offices and assisted with all aspects of cattle rescue**

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Forestry Recovery

- **Over 16,000 forest landowners representing an estimated 1.5 million acres of timberland were included in the 19 parishes stricken by Hurricane Katrina. Total timber damages are estimated to be over 2 billion board feet with a financial loss of \$630 million.**



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Damage Estimates for Katrina

Parish	Estimated Volume of Pine Damaged (million board feet)	Estimated Volume of Hardwood Damaged (million board feet)
St Tammany	735	671
Washington	472	258
Tangipahoa	341	278
St Helena	58.5	26
Livingston	60	50

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The Statistics for Rita (from LDAF)

	Major species group					
County code	Total	Softwoods	Hardwoods	% Damage	Softwoods Bd.Ft.	Hardwoods Bd. Ft.
22003 Allen	1,847,110,051	1,093,192,436	753,917,614	15.00%	163,978,865.40	113,087,642.10
22011 Beauregard	2,356,795,769	1,606,019,317	750,776,452	20.00%	321,203,863.40	150,155,290.40
22019 Calcasieu	1,252,498,409	844,674,566	407,823,843	50.00%	422,337,283.00	203,911,921.50
22053 Jeff Davis	281,230,005	212,381,949	68,848,056	25.00%	53,095,487.25	17,212,014.00
22079 Rapides	4,189,374,296	3,211,364,977	978,009,319	2.00%	64,227,299.54	19,560,186.38
22115 Vernon	3,612,113,732	2,885,697,218	726,416,514	4.00%	115,427,888.72	29,056,660.56
Total	13,539,122,263	9,853,330,463	3,685,791,799		1,140,270,687.31	532,983,714.94

To put some of this in perspective

- The total harvest of pine sawtimber for the state of La in 2004 was 1,614 million board feet.
- The total harvest of hardwood sawtimber for the state of La in 2004 was 158.8 million board feet.
- Therefore, Katrina and Rita wiped out the equivalent of **one and three quarter** years worth of pine sawtimber harvest and **eleven and one third** years worth of hardwood sawtimber harvest.
- In value terms, this equates (ballpark) into around 1.255 billion dollars of lost gross farm income (if no timber were salvaged) for pine sawtimber and 777 million dollars of hardwood sawtimber lost. With primary value added calculated in, that would equal around \$5.8 billion. Of course, some of this has been salvaged.

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Forestry Recovery

- **The AgCenter is deeply involved in forest recovery efforts through participation with the Louisiana Forest Restoration Task Force headed by the Louisiana Forestry Association and the Louisiana Department of Agriculture and Forestry.**
 - **The mission of the task force is to facilitate salvage efforts to maximize the recovery of timber damaged by the hurricane and to begin the process of renewing the forest. Also represented on the Task Force are timber companies, loggers, LA Logging Council, DOTD, consulting foresters, USFS, NRCS, FSA, and MS State logging specialists.**
 - **The AgCenter has representatives on the following committees: logging, wood utilization, communications, forest health and regeneration, governmental affairs, and data collection and reporting.**

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Forestry Recovery

- **LSU AgCenter provided a report on economic impact of hurricane Katrina to the Louisiana forest industry. At: Challenge to LA forestry in the aftermath of hurricane Katrina.**
- **AgCenter scientists developed a presentation called “What to do with all this wood. At: Tree management after the storm.”**
- **AgCenter scientists developed a publication encouraging people to rebuild using treated wood**

Use Preservative-treated Wood
When Rebuilding After a Hurricane

Large areas of land along the Gulf of Mexico have been flooded and destroyed by recent hurricanes. Many homes and other buildings are no longer habitable or will be demolished. Some of these structures will be rebuilt. With this rebuilding comes an opportunity to reduce the impact of a wide array of insects, wood decay and rot. The most serious pest in this area is the Formosan subterranean termite, now considered the most destructive insect in the Gulf South and causing millions of dollars in losses caused by treatments; repairs; defaults on loans; and collapse, demolition and rebuilding of structures. Your new home can be safeguarded by using preservative-treated wood and following an integrated pest management program at the time of construction.

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Horticulture

- **Developed materials to assist:**
 - affected residents and homeowners
 - businesses
 - nurserymen
 - general horticulture industry
 - arborists
 - golf course superintendents
 - parish public works personnel
- **Information includes:**
 - landscape salvage, repair, renovation, and pruning;
 - tree trimming, repair and renewal;
 - insurance claims for lost trees;
 - turf grass and soil repair/renovation;
 - approaches to dealing with soil salinity and contaminated, water-logged soils

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LSU AgCenter

Coastal Restoration Program

Current Programs:

- Wetlands plant research to develop better adapted native plants, through traditional breeding methods and molecular marker technology, for coastal habitats
- Coastal restoration research to develop technologies for coastal wetlands reclamation and preservation

Future Plans:

- Redirect segments of citrus research effort into enhanced research on coastal wetlands plants and restoration technology
- Use Citrus Research Station for enhanced coastal restoration projects

Fisheries Recovery

- The AgCenter in conjunction with Sea Grant developed post-event characterization of the commercial industry, post-event characterization of the commercial industry--displacements, relocations, impacts, outlook for the commercial industry, and event impact on recreational sector.



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Fisheries Recovery

- **The US Coast Guard and Navy contracted with Donjon Salvage Company to refloat commercial vessels stranded by Rita in Intracoastal City. Extension Agent Mark Shirley helped in locating the stranded vessels and arranged a meeting between boat owners and the Coast Guard to arrange for the salvage operations**



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Callegari Center

- **Can provide analytical testing of drinking water for safety purposes along with identifying contaminants in runoff water.**
- **The Center's faculty is able to help identify proper clean up and disposal options of solid waste to include downed trees and other foliage, feces, dead animals, spoiled food, and sludge.**

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Family Financial Management

- To assist affected residents in rebuilding their lives, the AgCenter is delivering programs to educate and empower citizens to identify and manage available financial, community and personal resources.
- Workshops are being conducted to educate citizens to:
 - Create and follow budgets
 - Use credit and financial institutions/products wisely
 - Make wise decisions
 - Set goals
 - Protect their identity
 - Improve employment skills
- Initial delivery was targeted to residents of shelters, particularly limited resource families and those who receive public assistance.
- The secondary audience is the working poor and families who are now receiving public assistance as a result of the impact of Hurricane Katrina.

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Rebuild Stronger, Safer, Smarter Initiative

To create more hazard-resistant and energy efficient homes that will help disaster victims take control of their future by the quality of housing they return to.

- Collaborate with top building scientists and national and regional organizations to develop guidance and curricula to provide training for home builders, designers, inspectors and affordable housing developers



Disaster Recovery

Mold Removal Guidelines For Your Flooded Home

A flood-damaged home needs special care to remove mold safely and effectively. Mold begins to grow on materials that stay wet longer than two or three days. The longer it grows, the greater the health hazard and the harder it is to control. So, as soon as it is safe to return, **don't delay cleanup and dry out.**

Take photographs before cleaning up for insurance purposes, and get started. Do not wait for the claims adjuster to see it before removing wet and moldy materials. Most homeowners' insurance policies do not cover mold damages or cleanup costs, but flood insurance may cover it.

Mold and Health

Some people are much more sensitive to mold than others, but long-term or heavy exposure is unhealthy for anyone. Mold can trigger allergic reactions and asthma attacks, may lower resistance to illness or have other effects. Young children, the elderly and the ill are most vulnerable. Some molds can make toxins that can be in live or dead spores and fragments. "Black mold" is a misleading term; many molds are black.

Mold testing is not usually needed and is rarely useful to answer health concerns. Some insurance companies and legal services may require sampling for evidence. Professional mold remediation contractors may test before and after cleanup to check the cleanup's effectiveness.

If you hire a contractor, seek a licensed mold remediation contractor with special training and equipment. Get in writing the cost, methods and steps to be used. Compare their procedures with the following guidelines.

Do-it-yourself Mold Cleanup Steps

To clean up safely and effectively, follow these steps and refer to EPA's *A Brief Guide To Mold, Moisture, and Your Home* or *Mold Remediation in Schools and Commercial Buildings* available online at www.epa.gov/mold or the CDC's *Mold Prevention Strategies and Possible Health Effects in the Aftermath of Hurricanes Katrina and Rita* available online at www.fda.cdc.gov/disasters/mold/report/.

- 1. Wear Protective Gear during Cleanup:** People are mainly exposed to mold by breathing spores and skin contact. Wear gloves, goggles and a respirator rated N-95 or higher. Some types have valves to make it easier to breathe.
- 2. Isolate Work Area and Ventilate to Outdoors:** Disturbing mold colonies during cleanup can cause a huge release of spores into the air, so seal off the moldy areas from the rest of the house. Open windows, and don't run the central air system during cleanup. Tape plastic over air grilles, and drape plastic in the stairwell if the second story is dry and clean. If power is on, put a fan in a window to blow out and exhaust mold-filled air to the outdoors.
- 3. Remove Moldy Porous Materials.** Porous moldy or sewage-contaminated materials should be removed, put in plastic bags if possible and thrown away. To reduce the release and spread of mold spores, it is helpful to cover moldy material with plastic sheeting before removing it.

- Remove all flooded carpeting, upholstery, fabrics and mattresses right away. It's best to discard them, but if you hope to salvage a valuable item, have it cleaned, disinfected

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Reconstruction

- **The number of homes destroyed by Andrew in 1992 was 28,000.**
- **The number of homes destroyed by Charley, Frances, Ivan, and Jeanne in 2004 was 27,500.**
- **The number of homes estimated to have been destroyed by Katrina is 275,000.**

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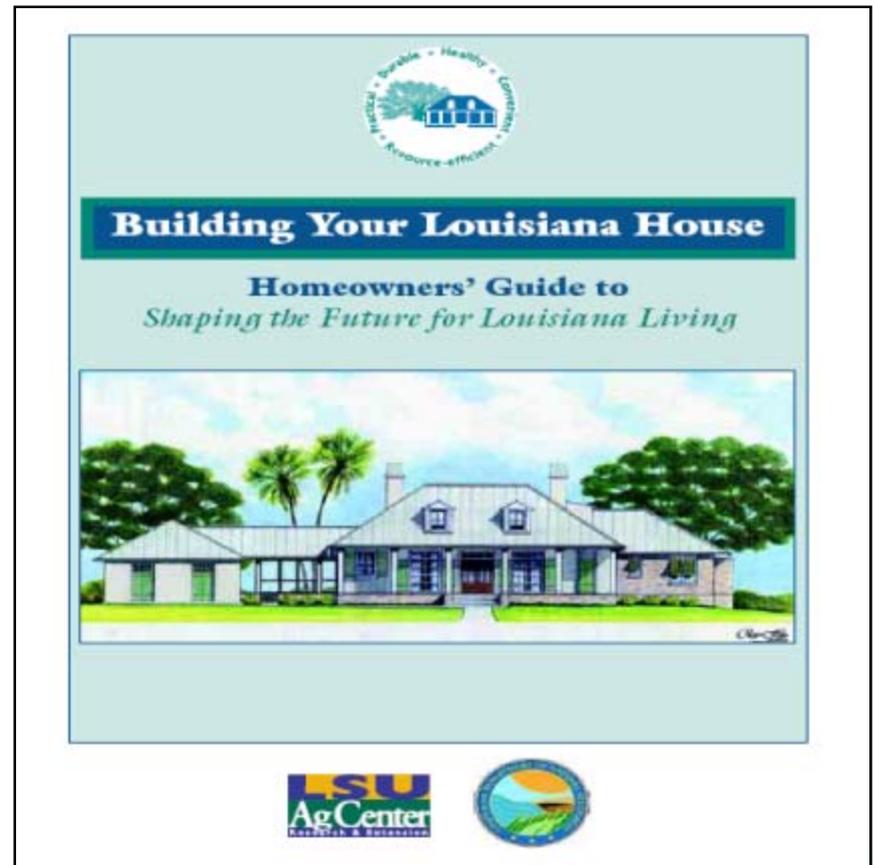
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Rebuild Stronger, Safer, Smarter Initiative

A publication has been developed to assist homeowners in repairing and rebuilding hurricane-damaged buildings. Some of the topics include:

- Do I need a permit to repair or rebuild?
- Do I have to elevate before I repair or rebuild?
- What is “substantial damage”?
- Who determines the market value?
- Can I just make minimal repairs or do the work myself, to keep the cost under 50%?
- What is the regulatory floodplain?



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LSU AgCenter Damage and Loss Estimates Due to Hurricanes Katrina and Rita

- Louisiana Agricultural Experiment Station
 - Almost \$7.5 million



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LSU AgCenter Damage and Loss Estimates Due to Hurricanes Katrina and Rita

- Louisiana Cooperative Extension Service
 - More than \$6.4 million



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LaHouse

- LaHouse is here to spur the rebuilding of safer, stronger, smarter homes and communities for Katrina storm victims through educational outreach and training on locally appropriate, hazard-resistant and energy efficient building science and technologies.
- The LaHouse will educate affected residents on how to have **MORE** comfort, durability, value, convenience, and better health with **LESS** energy, water, pollution, waste, and property damage.
- This initiative will specifically address that felt need and enable storm victims to take control of their future by the quality of housing they return to. See www.LouisianaHouse.org.



LaHouse

- **As an extension of our LaHouse Initiative, the AgCenter plans to rebuild our Cameron and Orleans parish extension offices using floor resistant and energy efficient technologies promoted by LaHouse. These offices will be used as a teaching model for home builders, construction companies and contractors, homeowners, business agencies and organizations who are considering restoration or rebuilding.**

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Youth Development

- The 4-H program can offer an opportunity for youth to reconnect to family and a new community in these settings. The program was implemented based on a needs assessment from shelter managers.
- Programs have been delivered in shelters in group settings in a hands-on experiential format. Evacuees in the schools are included in the regular delivery of 4-H in school clubs, school enrichment, and after-school programming.
- 4-H activities, lessons, games, and events focus on:
 - Character education (conflict resolution)
 - Team building
 - Leadership development
 - Healthy lifestyles (stress management and fitness/nutrition)
 - Homework and tutoring assistance.

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Cameron/Holly Beach

www.lsuagcenter.com/disasterrecovery

- In December, some of the students who attended Marsh Maneuvers during the summer went back to Cameron Parish and witnessed the devastation that mere words or pictures can not describe.
- Seeing the destruction in the town of Cameron and the absence of any structure in Holly Beach and the remnants of buildings at Rockefeller Refuge made a lasting impression on these young people.
- They returned to their home parishes with personal knowledge of the vulnerability of coastal communities and resources.



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Community Development

- Includes educational programming and assistance for rebuilding communities and businesses.
- AgCenter faculty conducted programs on minimizing disaster stress at the community level, communicating with disaster victims, leadership, entrepreneurship, workplace development.
- Regional economic analyses and strategic planning for systematic and sustainable redevelopment will be conducted

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Current population statistics

Parish	Pre – Hurricane	Post – Hurricane
Orleans	484,674	103,326
Jefferson	455,466	452,615
EBR	412,852	447,841
St. Tammany	191,268	221,521
St. Bernard	67,229	2,679

Population pressures continue to mount in rural SE La?



Outlook for the 2006 Hurricane Season (forecast)

	Average	2005	2006
Named Storms	9.6	26	17
Named Storm Days	49.1	115.5	85
Hurricanes	5.9	14	9
Intense Hurricanes	2.3	7	5
Intense Hurricane Days	2.3	7	5
Net Activity	100%	263%	195%

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Probability of Major Hurricane Landfall

	Average	2006
Entire US Coast	52%	81%
East Coast including Florida Panhandle	31%	64%
Gulf Coast	30%	47%



Quick Facts

- **State Mortgage delinquency rates are near 20% (30 d)**
- **Unemployment rates are near 10%**
- **Only 5% of Orleans Parish schools are open**
- **Louisiana personal income has dropped 25%**

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So the forecast risk is greater from hurricanes

- Does this lead to other problems (bugs, disease)? Will they increase too?
- Will urbanization pressures lead to selling of ag land and timberland for development?
- Will some people just become discouraged and simply not plant?

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Louisiana

- **Survive the winter**
- **Continue to rebuild**
- **Prepare for more storms**
- **Emergency Preparedness and Relief Plans**

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