

2020

SOUTHWEST LOUISIANA & SOUTHEAST TEXAS HURRICANE PREPAREDNESS GUIDE



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Fellow Citizens,

On behalf of the National Weather Service in Lake Charles, we are pleased to present the Southwest Louisiana & Southeast Texas Hurricane Guide. This guide will provide you with excellent resources as you prepare for the 2020 hurricane season.

Besides providing historical documentation on past hurricanes that have affected the region, information on the various hurricane hazards will be provided. Essential tracking charts and evacuation maps are also provided for your reference.

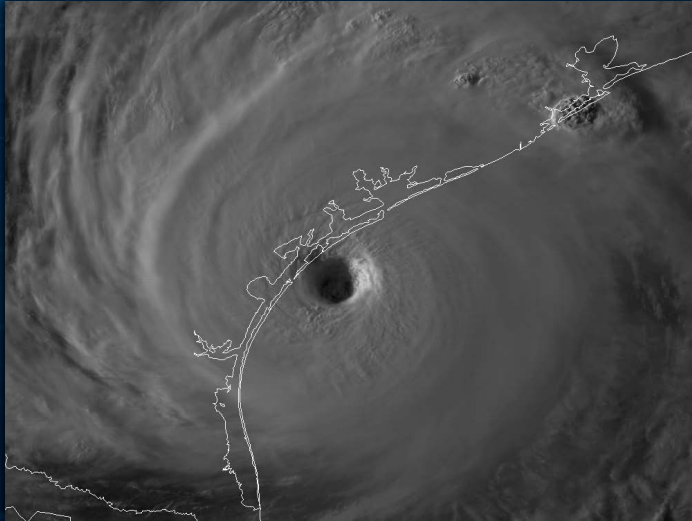
From August 25-31, 2017, Harvey moved very slowly from Central Texas to Western Louisiana. During this time, Harvey produced 30 to 50 inches of rain, with isolated amounts near 60 inches, over several counties in Southeast Texas to western Calcasieu and Cameron parishes in Southwest Louisiana, resulting in disastrous flooding. As we reflect on the impacts of Harvey, and past hurricanes like Rita and Ike, let us take this opportunity to develop our hurricane plan.

This collaborative Hurricane Guide will serve as your road-map for action before and during a hurricane and will also act as an instructional guide for recovery, continuity and resiliency after the storm passes. It is important to plan accordingly to meet your personal, family and business needs. In this manner, we are all working together for safer and better prepared communities. Working together, we can safeguard lives and protect property by taking the appropriate measures and precautions outlined in this Hurricane Guide.

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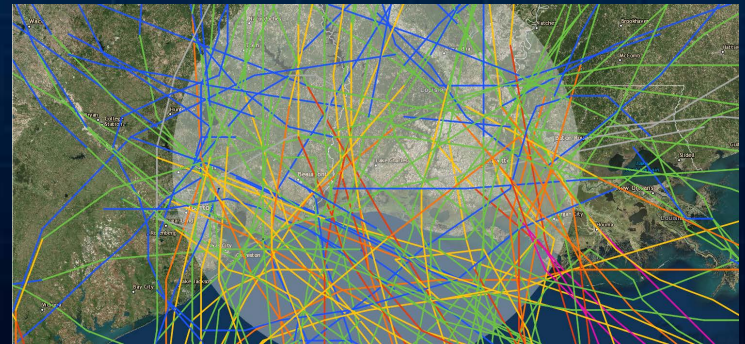
About the Hurricane



The Atlantic hurricane season begins June 1st, and lasts through November 30th. Tropical storm and hurricane formation increases significantly by August, with the peak of the season usually reached on September 10th. Activity begins to decline significantly towards the end of October. The peak threat for the Louisiana coast exists from August to the middle of October. The earliest tropical storm to strike the region was May 30, 1959, with the latest being Hurricane Juan on October 29, 1985; both coming ashore in South Central Louisiana.

Left: GOES-16 1/2 kilometer resolution visible satellite image of Hurricane Harvey prior to making landfall across Central Texas at 6:45 PM CDT August 25, 2017.

Since 1851, there have been 56 hurricanes to strike the Louisiana coast and 64 hurricanes to strike the Texas Coast. That is **one in every three years** on average.



Right: Historical perspective of all tropical storm and hurricane landfalls since 1851.



Definitions to Know



TROPICAL DEPRESSION: An organized system of persistent clouds and thunderstorms with a closed low-level circulation and maximum winds of 38 mph or less.

TROPICAL STORM: An organized system of strong thunderstorms with a well defined circulation and maximum sustained winds of 39 to 73 mph.

HURRICANE: An intense tropical weather system with a well defined circulation and sustained winds of 74 mph or higher.

TROPICAL CYCLONE: A general term used to describe a tropical depression, tropical storm, or hurricane.

HURRICANE/TROPICAL STORM WATCH: Hurricane or Tropical Storm conditions are possible in the watch area within 48 hours.

HURRICANE/TROPICAL STORM WARNING: Hurricane or Tropical Storm conditions are expected in the warning area within 36 hours.

Storm Surge

STORM SURGE is the abnormal rise in sea level above the predicted astronomical tides before, during, and even after a tropical storm or hurricane approaches and makes landfall.

Historically, storm surge used to claim 9 out of 10 lives. Over the last several decades, advancements in the science of hurricane forecasting and communications have led to a marked decrease in this number. However, Katrina was a grim reminder that certain areas are still very susceptible to storm surge fatalities.

Storm surge is extremely destructive to anything in its path, especially if the surge comes in with a significant speed. This is because water is extremely heavy. A cubic yard of water weighs nearly 1700 pounds! Remember, there is a reason why large steel ships and barges float.

The height of the storm surge depends on the size and strength of the tropical cyclone. The larger and/or stronger the storm, the higher the storm surge. However, this is not the only factor that affects the height of the storm surge. The shape and slope of the continental shelf across the coastal waters is another big factor in determining the height of the storm surge.

For example, a hurricane with 100 mph sustained winds (a category two) strikes the Southeast Florida Coast. Since this area of Florida has a steep continental shelf, the storm surge could be around 4-5 feet (illustrated in figures 1a & 1b below). Now if this hurricane with the exact same size and strength made landfall across the Louisiana or Upper Texas coast, the storm surge could be in the 9-10 foot range (illustrated in figures 2a & 2b below). This is due to the shallow continental shelf that extends over a hundred miles offshore, which typically piles the water higher and creates higher waves.

As the illustrations show below, this made the difference between very little surge entering the beach house across the Southeast Florida Coast and the complete destruction of the beach house across the Louisiana or Upper Texas coast.

1a



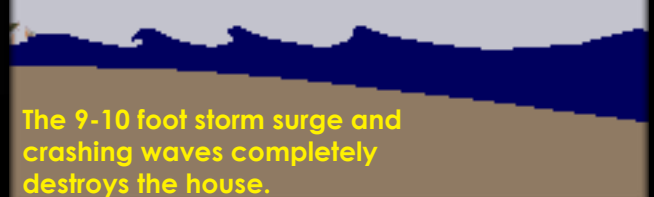
1b



2a



2b



Storm Surge

Here are 6 Tips to be Ready for STORM SURGE:

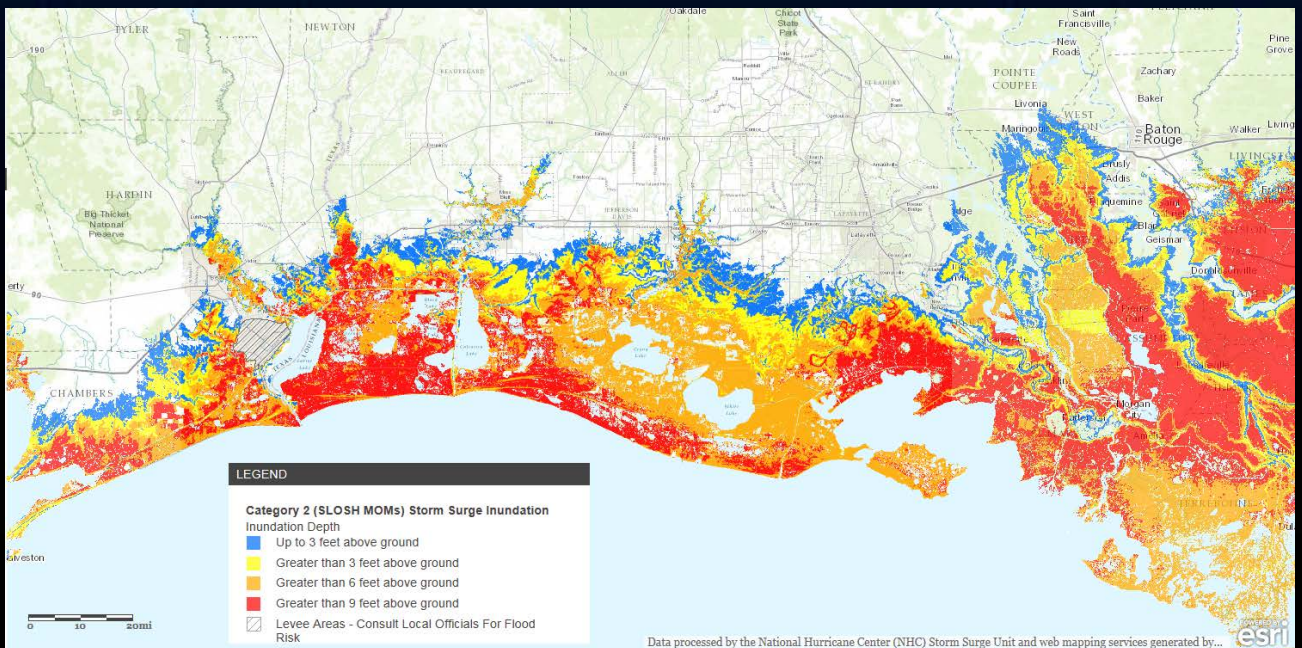
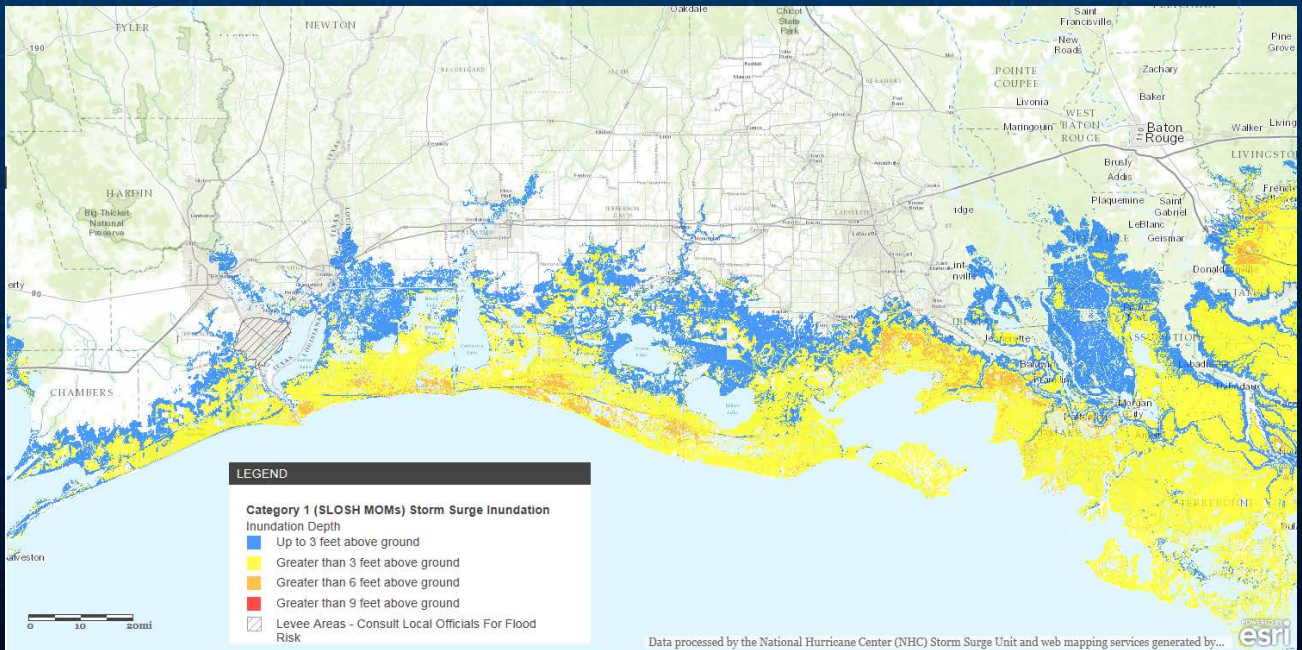
1. Storm surge flooding is often the greatest threat to life and property from a hurricane. It poses a significant threat for drowning. A mere six inches of fast-moving flood water can knock over an adult. It takes only two feet of rushing water to carry away most vehicles.
2. Storm surge can cause water levels to rise quickly and flood large areas in just minutes, and you could be left with no time to take action if you haven't already evacuated as instructed.
3. Storm surge is not dependent on the Saffir-Simpson Hurricane Wind Scale. Hurricane categories are based only on winds and do not account for storm surge. Any wind category can all cause life-threatening storm surge.
4. Many Gulf Coast areas are vulnerable to storm surge including areas many miles inland from the coastline depending on elevation of the coastal plain. Find out today if you live in an evacuation zone (see pages 6-7 in this guide).
5. Storm surge can occur before, during and after the center of the storm passes through an area, and can sometimes cutoff evacuation routes. The water can also rise well in advance of the coming storm, in some cases 36 hours or greater. When an evacuation is ordered, do not wait until the last minute to leave.
6. During the peak of a storm surge event, it is unlikely that emergency responders will be able to reach you if you are in danger.



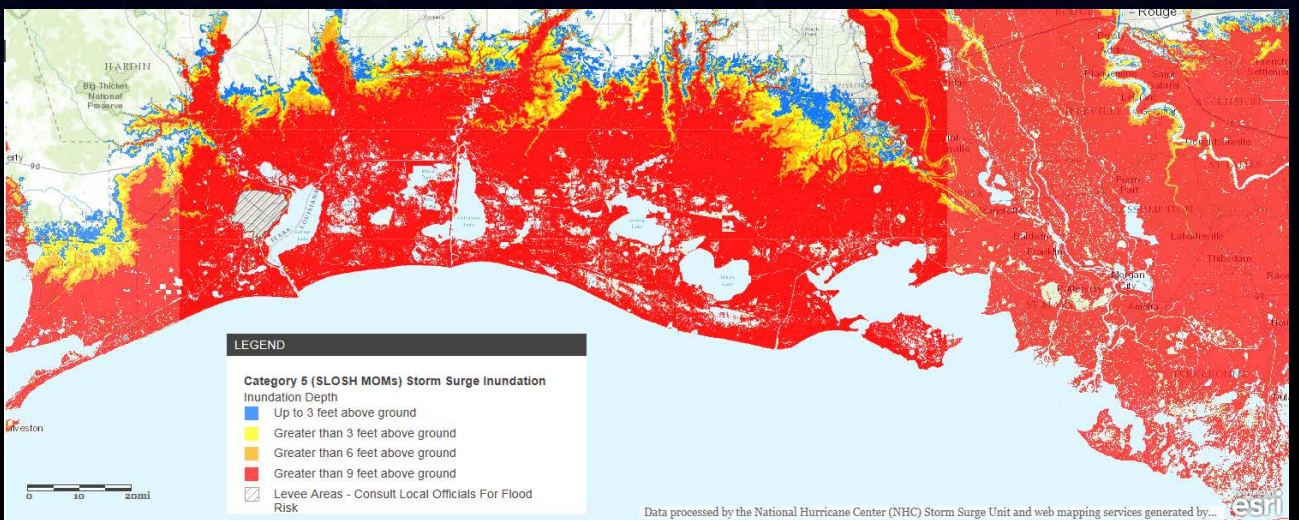
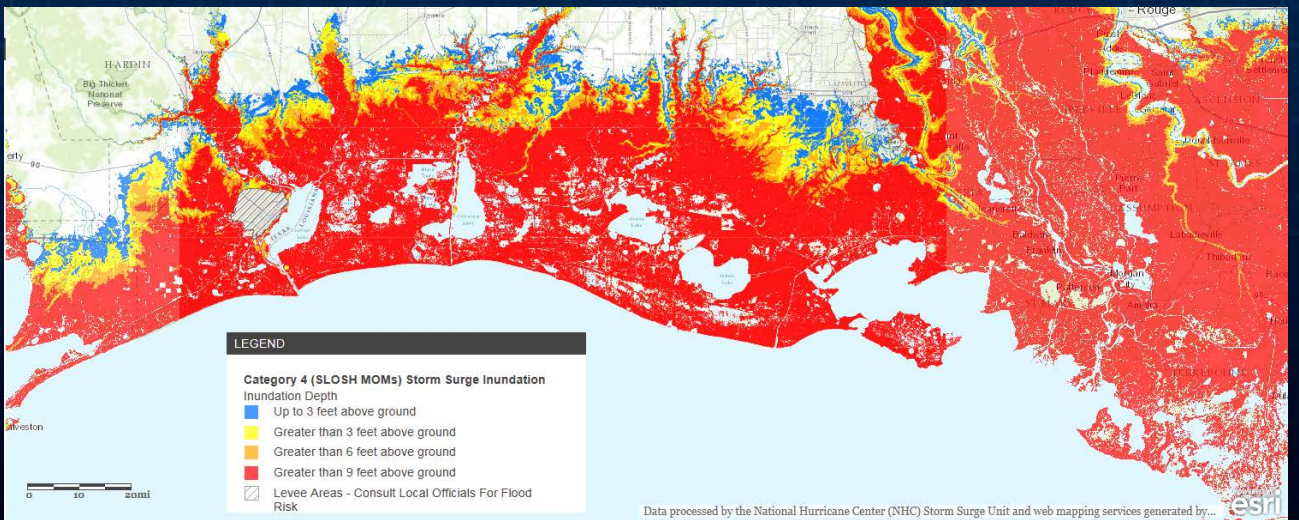
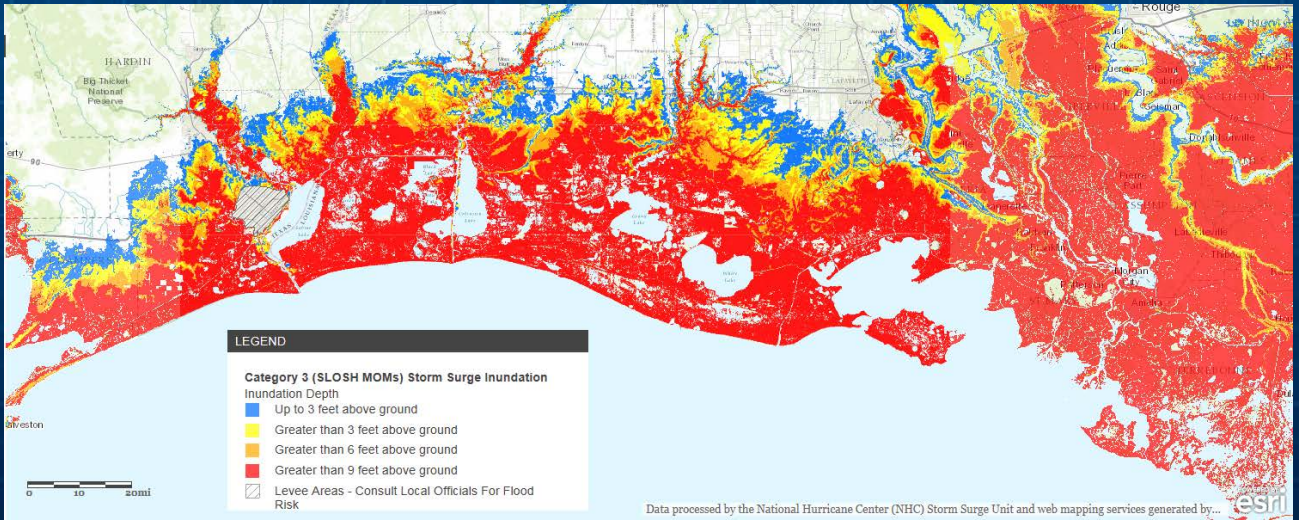
Inundation Maps

Storm Surge Inundation (SLOSH Maximum of Maximums)

The following maps display a seamless near worst case storm surge flooding (inundation) scenarios using the National Weather Service (NWS) SLOSH model maximum of maximums (MOMs) product for different hurricane wind categories at a high tide. Higher detailed information can be attained at: <http://noaa.maps.arcgis.com/apps/MapSeries/index.html?appid=d9ed7904dbec441a9c4dd7b277935fad&entry=1>

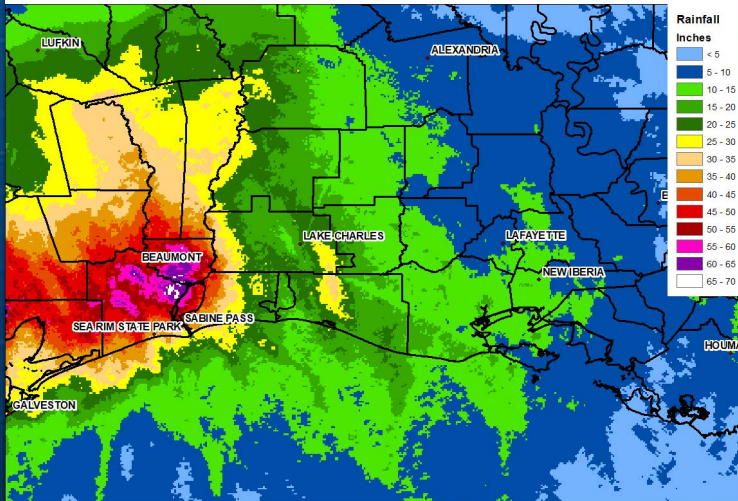


Inundation Maps



Flooding and Tornadoes

Harvey Radar Derived Storm Total Rainfall



Inland Flooding

Inland freshwater flooding from tropical cyclones is a major threat to people inland from the coast. Rainfall varies with tropical cyclones, mainly due to speed of movement, duration, and interaction with other meteorological features. Two extreme examples: In 2017, Harvey produced 30-50 inches of rain, with isolated amounts near 60 inches, over several counties in Southeast Texas to western Calcasieu and Cameron parishes in Southwest Louisiana, resulting in disastrous flooding. In 2019, Imelda produced 30 to 44 inches of rainfall over some of the same areas of Southeast Texas.

Left: Raw NOAA Multi-radar multi-sensor quantitative precipitation estimation (inches) for Harvey in southeastern Texas from August 25-September 1, 2017. Figure courtesy Jonathan Brazzell.

Harvey's rainfall was the most significant tropical cyclone rainfall event from Southeast Texas to Southwest Louisiana, and United States history since reliable rainfall records began in the 1880s. The highest storm total rainfall report from Harvey was 60.58 inches near Nederland, Texas, with another report of 60.54 inches near Groves, Texas. Both of these values (and from five other stations) exceed the previously accepted United States tropical cyclone storm total rainfall record of 52.00 inches at Kanalohuluhulu Ranger Station, Hawaii, in August of 1950 from Hurricane Hiki.

Tornadoes

Tropical cyclones also produce tornadoes. These Tornadoes most often occur in thunderstorms embedded in rain bands well away from the center of the hurricane; however, they can also occur near the eyewall.



Hurricane Hilda produced the deadliest tropical cyclone spawned tornado on October 3, 1964, killing 22 and injuring 165 others at Larose, LA.

Destructive Winds



Long stretch of downed power poles along highway 14 in Lake Charles, Louisiana from Hurricane Rita. September 2005.

Hurricane force winds of 74 mph or more can destroy buildings, mobile homes, trees and power poles. Debris such as signs, roofing material, siding, and small items left outside become flying missiles in a hurricane. The strongest winds occur in a region of the hurricane called the eyewall. Wind gusts in the right side of the eyewall are the most destructive. Hurricane force winds can be felt as far as 150 miles from the coast.

It is imperative to ensure your home or business is well constructed to minimize the damage from the wind. See the Planning and Preparing section in this guide for cost effective home improvement tips that can help you reduce your damage from a hurricane.



MOBILE HOME RESIDENTS MUST EVACUATE!

- No mobile home or manufactured home - no matter how new it is - can provide safe shelter from hurricane force winds.
- Straps or other tie-downs **will not** protect a mobile home from the high winds associated with a hurricane.
- Mobile home residents **must evacuate** when told to do so by local authorities.



Saffir Simpson Hurricane Wind Scale



- | | | | |
|--------------|----------------------|--------------|-------------------------|
| ● Category 1 | Winds 74 to 95 mph | ● Category 4 | Winds 130 to 156 mph |
| ● Category 2 | Winds 96 to 110 mph | ● Category 5 | Winds 157 mph or higher |
| ● Category 3 | Winds 111 to 129 mph | | |

Planning and Preparing

Preparing Your Home Before the Storm

Proper hurricane preparations made ahead of time will not completely protect your property from damage. However, following a few simple tips may greatly reduce the damage to your home and property.

Right: Hurricane clips attaching roof trusses to side walls.



Important Home Preparation Tips

Elevation Matters

- Know the elevation of your home! Are you in a flood and/or evacuation zone?

Mobile Homes

- Check tie-downs for rust or breakage.
- Residents of mobile homes must evacuate when told to do so!!

Landscaping

- Trim trees, shrubbery and dead limbs, especially ones close to your home.
- Repair or replace broken or damaged fences.
- Shredded bark is preferred instead of small gravel or stone bedding.

Roofing

- Inspect the roof for loose tiles, shingles or debris. Consider replacing old or damaged shingles with new ones rated for hurricane force winds.
- Check for and/or install hurricane clips to secure roof trusses to side walls.
- Clear loose and clogged rain gutters and downspouts.

Doors

- Reinforce garage doors and tracks or replace with a hurricane tested door. (See above image)
- Reinforce double entry doors with heavy duty foot and head bolts.
- Use a security dead bolt with a one inch minimum bolt length.
- Doors may be shuttered, but one entry must be left easily accessible.

Windows

- If possible, install tested/manufactured hurricane shutters.
- Inspect existing shutters to ensure they are in good working order.
- Alternative: Use 5/8" or greater exterior grade plywood secured by 2 1/2" screws and/or special clips. Obtain wood and fasteners, cut wood to size, pre-drill holes and place anchors on homes.
- Store shutters or plywood lying flat to avoid warping when not in use.

Planning and Preparing



Business and Employee Preparation



Tips for Businesses

- Establish a temporary location for business operations in case your facility is damaged.
- Give employees enough time to secure their homes and families.
- Consider paying employees before they leave to prepare their homes.
- Identify and protect vital records. Backup and store key files off site.
- Protect electronic equipment from possible water damage.
- Have extra cash and blank checks in case extra money is needed after the storm.
- Identify a safe room for employees who must remain in the building.
- Develop a 24-hour emergency contact with phone numbers of key employees.
- Set up telephone numbers for employees to check in and receive company information.

Protecting Your Boat - Marine Preparations



Tips for Boat Owners

- Purchase necessary hurricane materials such as additional mooring lines, crew anchors, fenders, fender boards, chafing gear, and anchors.
- Safe storm moorings should consist of good condition ropes of sufficient diameter and length, with at least three or four substantial anchor points.
- Do not moor parallel to bank. Receding tides often cause or capsize boats in this type of anchorage.
- Check your marina contract for policies and procedures for hurricanes.
- Check with the manufacturer for proper ways to secure your boat during a storm.
- Consider moving arrangements well in advance of an approaching storm.
- Trailer boats should be removed from the water and securely stored at least 48 hours before a hurricane is expected to make landfall.

Special Needs and Pets

General Preparations for People With Special Needs



FEMA News Photo

Preparation in advance of hurricane season is essential, especially for people with special needs. It is essential that a destination is identified ahead of time that can accommodate people with special needs. Shelters should be considered as a **last resort** when people with special needs evacuate because many shelters cannot provide the attention required. Assisting elderly neighbors and acquaintances with pre-hurricane preparations is encouraged.



Important Special Needs Tips

- Identify with whom you will stay in the event an evacuation becomes necessary.
- Make arrangements for transportation in the event you evacuate. Make sure your transportation can accommodate any equipment or other supplies that need to be taken with you.
- Make sure you have the following items that should be stored in advance:
 - ✓ Extra copies of your prescriptions in case your physician's office is damaged and not operational.
 - ✓ At least a 1 month supply of medications.
 - ✓ Identification.

Preparing for Your Pet's Safety

Your pet should be part of your overall hurricane preparation plans. Below are a few important things to help you prepare:

- Make sure your pet's vaccinations are current and have proof they are current. **DO NOT** assume that a public shelter or hotel will accept your pet.
- Be sure to have a current photo of your pet.
- Each animal should have a properly sized pet carrier. The carrier should be large enough for the animal to stand up and turn around.
- Make sure your pet has a proper ID collar.
- Pack enough food and bottled water for the duration of your evacuation. **DO NOT** let your pet eat food or drink water from outside that may have become contaminated.
- Be sure to pack all medications your pet may need along with a muzzle, collar, leash, paper towels, and trash bags.



Contact Info/Supply Kit

The American Red Cross of Southwest Louisiana recommends that you have the following items in your Hurricane Supply Kit. Do not forget to have a family meeting before hurricane season and review your communication information and evacuation plan. Make sure the contact information such as home, work, school, cell phone numbers, and your "Out of Town" contact person's information is current.



**American
Red Cross**

Emergency Contact Information

Out of Town Contact Address:

Out of Town Contact Phone Number:

Work Telephone Number:

Cell Number/Spouse Cell Number:

Children Cell Number:

School Telephone Number:

Doctor Telephone Number:

Bank/Credit Card Telephone Number:

Insurance Company Information:



HURRICANE SUPPLY KIT

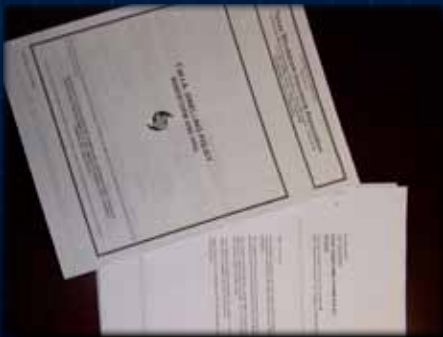


- At least a 7-day supply of non-perishable food and a manual can opener
- At least a 7-day supply of water. One gallon per person per day is recommended
- Battery powered portable television or radio with extra batteries
- Flashlight with extra batteries
- First Aid kit and manual
- Sanitation and hygiene items such as instant hand sanitizing gel, moist towelettes, toilet paper, and feminine hygiene products
- Matches in a waterproof container
- Whistle
- Kitchen accessories and cooking utensils
- Cash
- Extra clothing, blankets, and sleeping bags
- Photocopies of identification, insurance, prescriptions, household inventory, credit cards, and your latest utility bill
- CD or photocopies of important documents such as birth/marriage certificates and titles
- Prescription medications, eyeglasses, contact lens solution, and hearing aid batteries
- Formula, baby food, diapers, and pacifiers
- Pet carriers, leashes, shot records, and food for each animal evacuating with you
- A good map showing county roads and highways
- Tire repair kit, booster cables, pump, and flares
- White distress flag
- Toys and games for children
- List of family phone numbers and addresses outside the area

Insurance Tips

Insurance Tips - Before the Storm

- When shopping for insurance, get quotes from different companies and consider financial strength and history of complaints from each company.
- Ask agents for discounts if available.
- New and existing policies **will not be written or modified** when a storm nears the Gulf of Mexico.
- Make sure you fully understand what perils are covered and excluded in your policy.
- Make sure your coverage is adequate to replace your home and contents in today's dollar.
- Determine whether your policy covers additional living expenses for a temporary residence if you are unable to live in your home because of damage from a disaster.
- **DO NOT** cancel an old policy until you have a new policy in effect.
- Before hurricane season, prepare detailed written and/or photographic inventory of your home's contents and store it in a safe place with your policy.
- If you evacuate or choose to leave your home for safety, make sure to take the written and photo inventory with you, as well as all insurance policies (auto, home, life, etc.)
- If your insurance company does not cover flood or windstorm perils, ask about coverage through the Texas Windstorm Insurance Association or the National Flood Insurance Program.



Important Web Information

National Flood Insurance Program
<https://www.floodsmart.gov/>

Louisiana Department of Insurance
<http://www.lidi.louisiana.gov/>

Texas Department of Insurance
<https://www.tdi.texas.gov/consumer/>

Insurance Tips - After the Storm

- Give prompt written notice to your insurance company.
- If you cannot be easily contacted, give your insurance company the contact information of a trusted friend or relative who can reach you if necessary.
- Photograph or videotape damaged structures and all damaged property. Make a list of damaged or lost items.
- **DO NOT** throw out damaged property before your adjuster has inspected the debris unless it is a health hazard or impedes local cleanup.
- Protect your property from further damage.
- Keep an accurate record of temporary repair and living expenses if a loss of use is suffered.
- Along with insurance adjuster estimate for repairs to home, obtain two or more contractor estimates.
- Estimates must be broken down per line item.
- Payment advancements are made to policy holder for home repairs, personal property and living expenses. Final payments are made only after completed repairs and adjuster review.

Hurricane History

Tropical Storm Imelda (September 17-19, 2019): Minimal but slow moving tropical storm that created another catastrophic flood event in Southeast Texas with rainfall of 30-44 inches.

Hurricane Barry (July 13, 2019): Minimal but large category one hurricane made landfall just east of Pecan Island, Louisiana. Tides ranged from 3 to 6 feet above ground level across South Central Louisiana. Rainfall ranged from near zero to 12-23" across Southwest and Central Louisiana.

Hurricane Harvey (August 25-September 1, 2017): Category 4 landfall across Central Texas on August 26th and moved slowly for days before making a final landfall on August 30th near Cameron, Louisiana. The slow motion and repeated rain bands created a catastrophic flood event in Southeast Texas with rainfall of 40-60 inches.

Hurricane Isaac (August 29, 2012): Large category one hurricane made landfall just west of Port Fourchon, Louisiana.

Hurricane Ike (September 12-13, 2008): Very large category two hurricane that made landfall at Galveston Texas. Storm surge values were 12-16 feet across western Cameron parish, which was slightly higher than that observed during Rita only three years earlier. Across eastern Cameron, Vermilion, Iberia, and St. Mary parishes, storm surge values ranged between 8-12 feet.

Hurricane Gustav (September 1, 2008): Large category two hurricane that made landfall across Terrebonne parish in Southeast Louisiana, but continued northwest across the Atchafalaya Basin, spreading category one hurricane force winds across South Central Louisiana. Due to the storm making landfall east of the region, storm surge values were only 4-5 feet across St. Mary, Iberia, and Vermilion parishes.

Hurricane Humberto (September 12-13, 2007): Very small category one hurricane that made landfall between High Island and Sea Rim State Park in Jefferson county, Texas. Due to the small size, storm surge values were only 3-4 feet across central and western Cameron parish.

Hurricane Rita (September 23-24, 2005): Very large category three hurricane that made landfall between Johnson's Bayou and Sabine Pass, affected most of Southwest Louisiana and Southeast Texas with hurricane force winds. Storm surge values across Southwest Louisiana were 12-18 feet across most of Cameron parish, and 10-12 feet across most of Vermilion parish, which was the worst storm surge flooding recorded during the last 150+ years of record keeping.

Hurricane Lili (October 3, 2002): Category one hurricane that made landfall at Intracoastal City in Vermilion Parish. Storm surge values were 10-12 feet across Iberia and St. Mary parishes.

Hurricane Andrew (August 26, 1992): Category three hurricane that made landfall west-southwest of Morgan City in St. Mary parish. Storm surge values were around 8 feet across Iberia and St. Mary parishes, which were lower than expected due to Andrew paralleling the coast at landfall.

Hurricane Bonnie (June 26, 1986): Very small category one hurricane that made landfall between High Island and Sea Rim State Park in Jefferson County. Storm surge values were 3-4 feet across central and western Cameron Parish.

Hurricane Juan (October 28-30, 1985): Very large hybrid-type category one hurricane which approached Vermilion parish on the 28th but stayed offshore to make a cyclonic loop, eventually making landfall in St. Mary parish. Juan made another cyclonic loop inland across South Central Louisiana, moving offshore to affect Southeast Louisiana and the Florida Panhandle. Storm surge values fluctuated between 3-6 feet across Vermilion, Iberia, and St. Mary parishes.

Hurricane Danny (August 15, 1985): Category one hurricane that made landfall between Grand Chenier in Cameron parish and Pecan Island in Vermilion parish. Storm surge values ranged 5-8 feet across Vermilion, Iberia, and St. Mary parishes.

Hurricane Carmen (September 8, 1974): Category three hurricane that made landfall across St. Mary parish, spread category two conditions across Iberia parish, with category one conditions across Vermilion, Lafayette and Acadia parishes. Storm surge ranged 4-6 feet across Iberia and St. Mary parishes.

Hurricane Edith (September 16, 1971): Category two hurricane at landfall across Cameron and Vermilion parishes, and spread category one conditions across Iberia, St. Mary, Lafayette, Acadia, and St. Martin Parishes. Storm surge values of 6 feet at Sabine Pass, with 8+ feet across Cameron and Vermilion parishes.

Hurricane Hilda (October 3-4, 1964): Category three hurricane at landfall across St. Mary parish, where 6+ foot storm surge occurred at the Atchafalaya River. Farther west, storm surge ranged between 3-5 feet across Iberia and Vermilion parishes.

Hurricane Carla (September 10-12, 1961): Extremely large category four hurricane (circulation covered the entire Gulf of Mexico at one point) made landfall across the central Texas coast. Due to the large size of the storm, storm surge values of 7-8 feet were common across Southwest Louisiana.

Hurricane Audrey (June 26-27, 1957): Very large and deadly category three hurricane, with a 40 mile wide eye, made landfall from Sabine Pass to Cameron, and affected most of Southwest Louisiana and Southeast Texas with hurricane force winds. Storm surge values of 10-14 feet occurred across most of Cameron Parish, and 7-10 feet across Vermilion, Iberia, and St. Mary Parishes. Unfortunately, over 500 direct fatalities was attributed to Audrey, mainly across Cameron and Vermilion parishes due to storm surge.

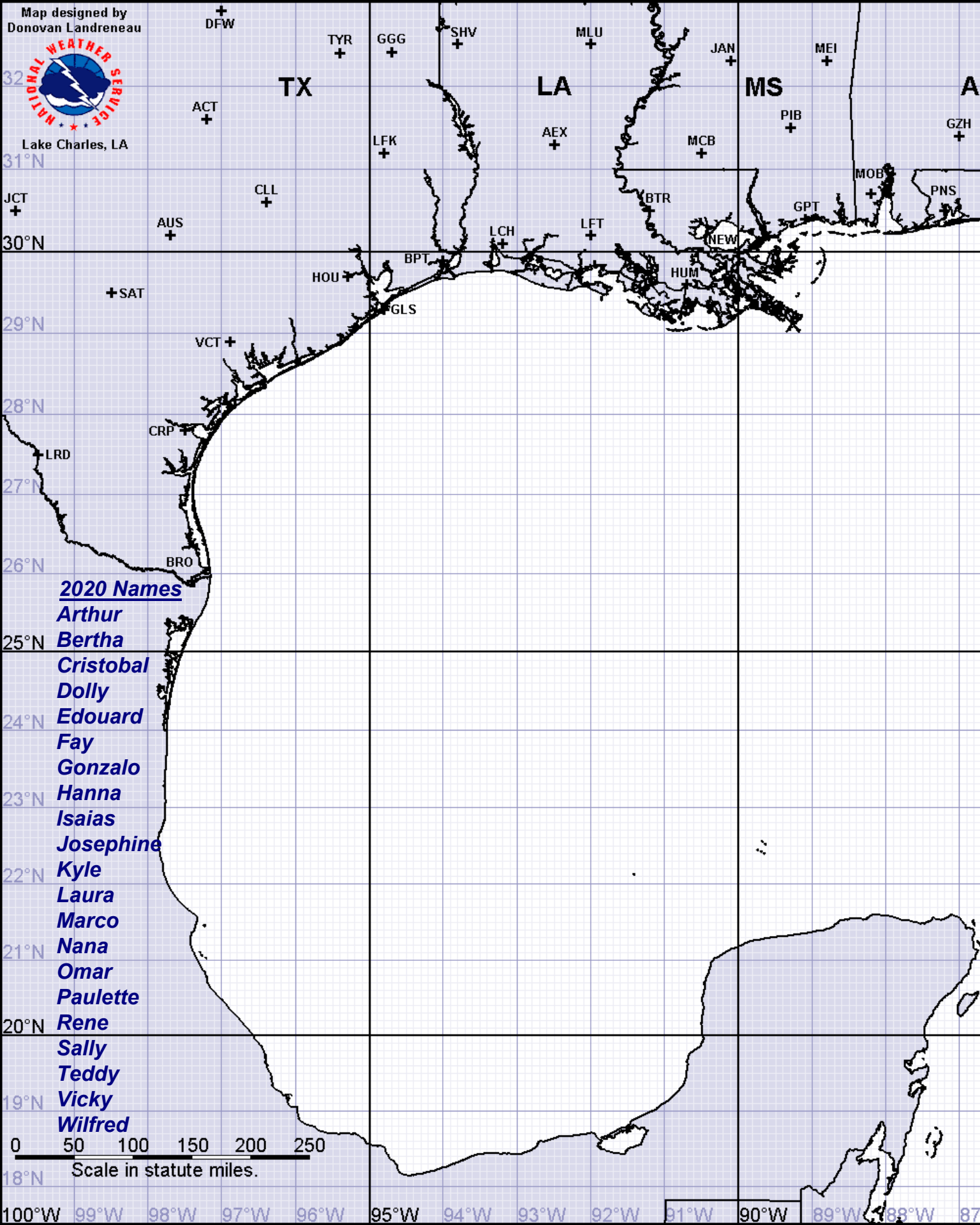
Additional hurricane history can be obtained at:

<https://www.weather.gov/lch/tropic>

<https://www.weather.gov/lch/events>



Lake Charles, LA



2020 Names

- Arthur**
- Bertha**
- Cristobal**
- Dolly**
- Edouard**
- Fay**
- Gonzalo**
- Hanna**
- Isaias**
- Josephine**
- Kyle**
- Laura**
- Marco**
- Nana**
- Omar**
- Paulette**
- Rene**
- Sally**
- Teddy**
- Vicky**
- Wilfred**

0 50 100 150 200 250

Scale in statute miles.

100°W 99°W 98°W 97°W 96°W 95°W 94°W 93°W 92°W 91°W 90°W 89°W 88°W 87°W

Hurricane Forecasts

Latest Weather Information

National Weather Service
<https://www.weather.gov/lch/>
377-477-5285

National Hurricane Center
<https://www.nhc.noaa.gov/>



@NWSLakeCharles

The National Hurricane Center (NHC) in Miami, FL is the official source for tropical cyclone advisories and forecasts and is responsible for issuing tropical cyclone watches and warnings for the United States.

Graphical Tropical Weather Outlook

- NHC product provides an overview of all tropical cyclone activity, indicates areas of interest that have potential for tropical cyclone development.

NHC Forecast Advisory

- Most recent position for a storm along with all coastline watches and warnings. Includes a 3 or 5 day track with error cone.
- The error cone represents two-thirds of the historical forecast error over the previous five-year period. The cone becomes wider over time as the forecast uncertainty increases.
- DO NOT focus too closely on the exact track forecast - the little black line.

Potential Storm Surge Flooding

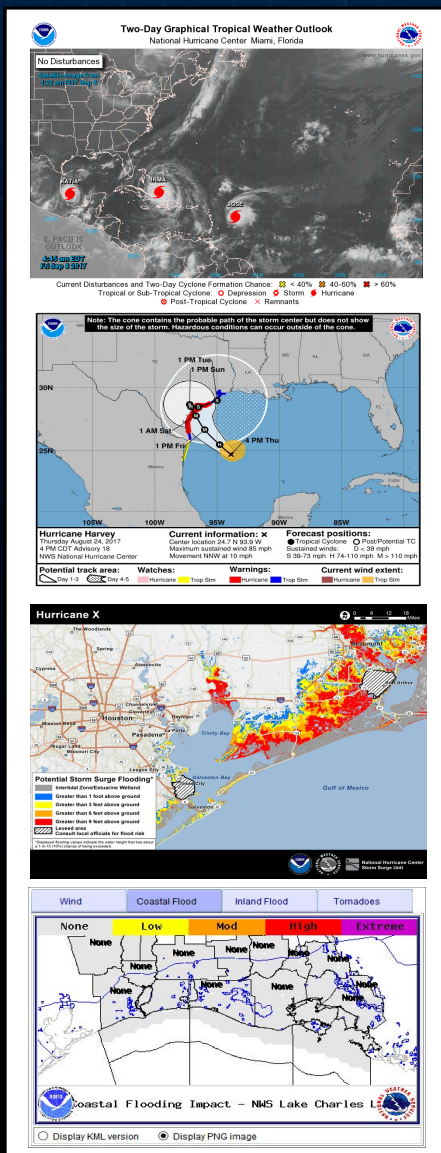
- If a tropical storm or hurricane is threatening your community, go to www.nhc.noaa.gov/ to see a map like this, which will show potential storm surge flooding for your area.
- Storm Surge Watch/Warning graphic will highlight threatened areas.

Hurricane Threats and Impacts

- Issued by local NWS offices to summarize potential impacts expected from the tropical cyclone.
- Click on each colored area to pop up text that describes potential impact.

National Weather Service Tropical Webpage

- <https://www.weather.gov/srh/tropical?office=lch>



Final Checklists

Actions to Take When a Storm is in the Gulf

- Listen frequently to radio, TV, or NOAA weather radio for bulletins and forecasts of the storm's progress.
- Double check items in your emergency supply kit.
- Fuel and service your vehicles.
- Inspect and secure mobile home tie-downs.
- Make sure you have supplies to survive on your own for at least one week if you plan on staying.
- Board up windows (if shutters do not exist) in case storm moves quickly and you have to leave.
TAPE PROVIDES NO PROTECTION!
- Store lawn furniture and other loose, light weight objects, such as garbage cans and garden tools.
- Get plenty of extra cash in case power goes out and ATMs do not work.
- Garage or store vehicles that are not being used.
- Follow instructions issued by local officials. **EVACUATE IMMEDIATELY IF ORDERED TO DO SO!**

Final Actions to Take if Leaving

- Turn off propane tanks.
- Unplug small appliances.
- Empty refrigerator and freezer.
- Turn off utilities if ordered to do so.
- Notify family members of your evacuation plans.
- Lower water level in swimming pool by one foot.
- Lock home securely.
- Board up remaining doors and brace garage door.
- Take pets with you.



Final Actions to Take if Staying

- Close storm shutters.
- Turn refrigerator or freezer to coldest setting and open only if necessary.
(25 pounds of dry ice will keep a 10-cubic foot freezer below freezing for 3-4 days.)
- Follow instructions from emergency managers and be prepared to turn off utilities if ordered to do so.
- Board up remaining doors, brace garage door, and remain inside. Stay away from boarded up windows.
- Take refuge in a predetermined safe room, such as an interior closet, bathroom, or hallway.
- Beware of the calm winds in the eye of the storm and do not venture outside. Some of the strongest winds may occur shortly after the eye passes.
- **DO NOT EXPECT EMERGENCY RESPONDERS TO BE OF ANY ASSISTANCE DURING A LANDFALLING HURRICANE!**

Hurricane Rita

Hurricane Rita formed on September 18, 2005 west of the southeastern Bahamas, where Rita moved over the following day. Heading westward, Rita attained hurricane strength on September 20th while passing between the Florida Keys and Cuba. After entering the Gulf of Mexico, Rita rapidly intensified over the very warm waters of the loop current and within an environment of very weak vertical wind shear. Rita reached a peak intensity of category 5 with sustained winds of 155 knots (180 mph) and a minimum pressure of 895 mb (26.43 inches of mercury) at 10 PM CDT September 21st. This low pressure makes Rita the strongest hurricane ever recorded in the Gulf of Mexico, and 4th strongest in the Atlantic Basin.

By September 22nd, the inner eyewall of Rita deteriorated and the system weakened to a category 4 with sustained winds of 125 knots (145 mph) by 1 PM CDT. By early on September 23rd, a new outer eyewall had consolidated and the hurricane had grown in size, but weakened a bit further to a Category 3 with sustained winds of 110 knots (125 mph) by 1 PM CDT. Due to increasing southwesterly wind shear and slightly cooler waters, steady weakening continued for the remainder of the day.

Rita made landfall across western Cameron Parish just east of the Texas and Louisiana border around 2:40 AM CDT Saturday September 24, 2005 as a category 3 hurricane with sustained winds of 100 knots (115 mph) and a minimum pressure of 937 mb (27.67 inches of mercury). Rita was the strongest hurricane to strike Southeast Texas and Southwest Louisiana since Hurricane Audrey on June 27, 1957. Preliminary information suggests that Rita was comparable to Audrey in many ways and perhaps worse in that the effects were felt across a larger area.



Above Left: Hurricane Rita Track.



Above Right: Hurricane Rita Wind Gusts

Hurricane Rita caused seven direct United States fatalities, one in the WFO Lake Charles county warning area. Over a hundred indirect fatalities were associated with the evacuation and aftermath of Hurricane Rita within the United States. Six individuals in Beaumont, Texas succumbed to carbon monoxide poisoning when they used a generator inside their building. Although any loss of life is tragic, these numbers stand in stark contrast to the hundreds of lives lost due to Hurricane Audrey. Clearly, the improvements made to emergency preparedness and response to warnings has made a difference.

Hurricane Rita

Storm surge values of 12 to 18 feet across most of Cameron parish, and 10 to 12 feet across most of Vermilion parish devastated these areas, with Holly Beach, LA completely leveled to the ground. Storm surge values of 8 to 10 feet across eastern Jefferson and Orange counties in Southeast Texas caused considerable damage to Sabine Pass and Bridge City.

After making landfall across western Cameron parish, the eye of Rita passed over a majority of Southeast Texas from Sabine Lake to Sam Rayburn Reservoir. In fact, the eye of Rita passed over Southeast Texas Region Airport south of Beaumont, TX, producing a record lowest pressure reading of 952.3 mb (28.12 inches) at 3:09 AM CDT September 24, 2005.

Wind damage was extensive across Southwest Louisiana and Southeast Texas as well, with a large area receiving category 1-2 hurricane force winds (see estimated wind gust graphic). Exact measurements were not possible in some areas due to power outages and failures of automated weather observing sites, and coastal tide gauges being washed away by the storm surge.



HOLLY BEACH, LA, BEFORE HURRICANE RITA



HOLLY BEACH, LA, AFTER HURRICANE RITA

Above: Holly Beach, LA aerial photo showing the town before and after Hurricane Rita. Not a single building was left standing. Photo from USGS.

Rip Current Safety

Hurricane Surf

Hurricanes bring large waves to nearby beaches that are dangerous for beach goers. High waves, when combined with the high tide, storm surge, and wind and wave setup, can create a serious threat to both lives and property. Jetties and piers typically amplify the size of the waves, causing an even more dangerous situation. Hurricane waves can injure or drown those who enter the water, so **remember: If in doubt, don't go out!**

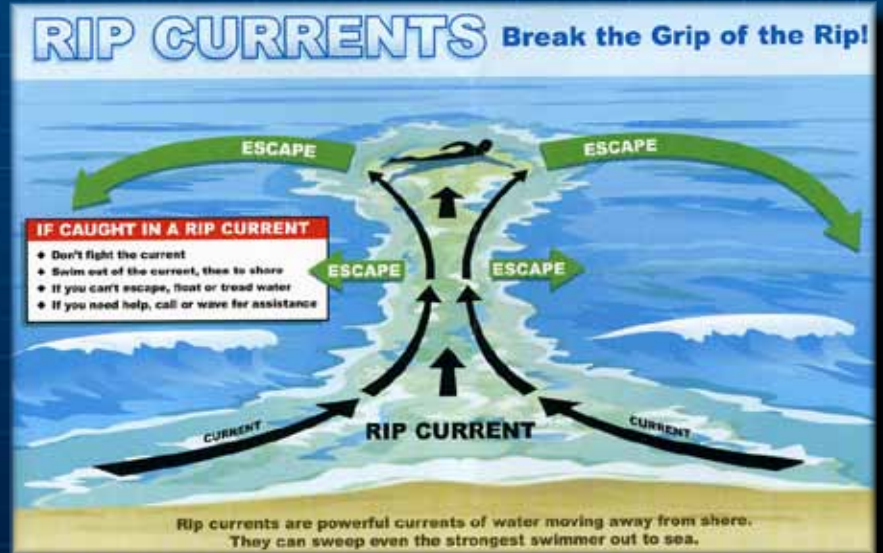
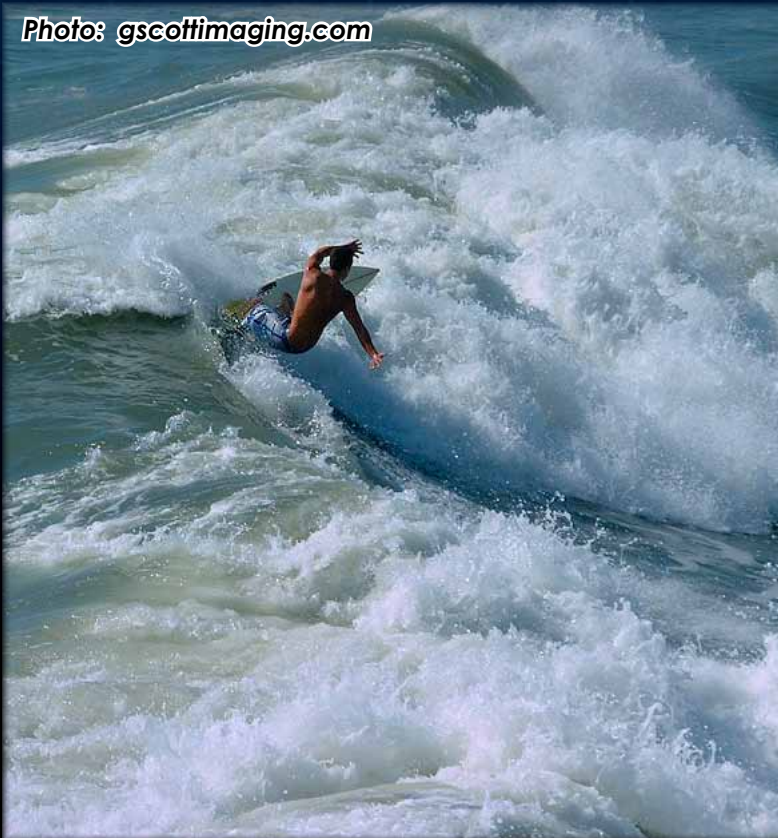


Photo: gscottimaging.com



Rip Currents

Along with big surf come strong rip currents. Rip currents are the leading surf hazard for all beach goers and result in over 100 drownings every year in the United States. The strength and size of rip currents are related to the size of the surf and wave period. Rip currents typically form at the low spots in the surf, at the breaks in the sandbars, and near jetties and piers.

If caught in a rip current, don't panic, but swim parallel to the shore. The current is usually only about 50 feet wide and you should be able to swim out of it. At that point, you can swim back to shore. If you are still unable to reach the shore, draw attention to yourself: face the shore, wave your arms, and yell for help.

College Student Preparation

Student Information Checklist

- Assure that all contact information and emergency contact information is accurate with your campus's registrar's office.
- If your campus offers an emergency management communication system, register as a user of the system.
- Plan your method of evacuation and your destination before a storm enters the gulf.
- Monitor local radio and TV stations for updates.
- Contact your campus Student Affairs Office if you need assistance with evacuation.
- If you require any assistance due to a disability-related accommodation, please contact your campus Disability Services Office to make necessary arrangements.
- Communicate with your family regarding status and location
- If your campus is evacuating, you will not be allowed to remain on-campus and it is highly recommended that you leave the city. Do not go to a coastal location.
- Take your driver's license, student I.D. card, and a copy of your housing lease as well as medical insurance cards and other important documents when you evacuate.
- If you bank with a local bank or credit union whose infrastructure may be damaged by the storm, withdraw some funds as you may not have access to them once you leave the area.
- International students must take passports with US student visa inside, I-20, I-94, student I.D. and class schedule.
- If using personal transportation, take as many of your valuable or irreplaceable items as you are able.
- If driving, make sure all roads that you are driving are open and safe. You can call the Department of Transportation at 1-888-762-3511 or check Louisiana road conditions at www.dotd.state.la.us
- Follow baggage limits if participating in an assisted evacuation program.
- Take a 30-day supply of medications in original pharmacy containers.
- Make a record of any valuables left behind (description, serial numbers, etc). Take pictures of all belongings.
- If you are evacuating to a shelter, make appropriate arrangements for pets. Most shelters do not accept pets.
- Do not plan to return to campus until an all-clear is given (monitor media and campus web-site).

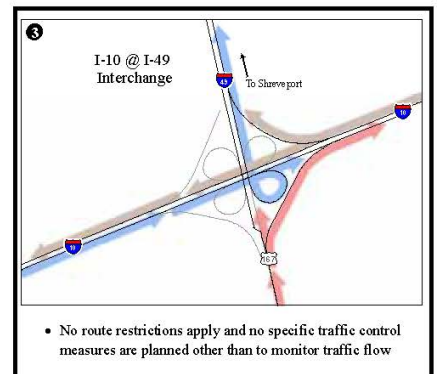
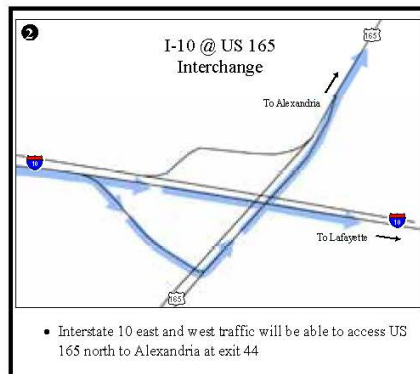
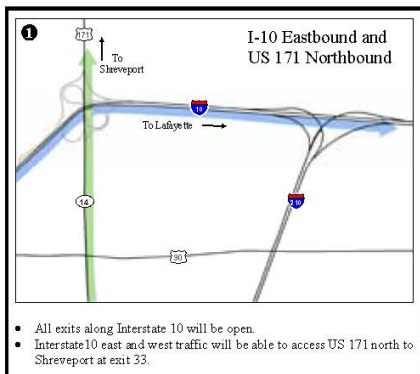
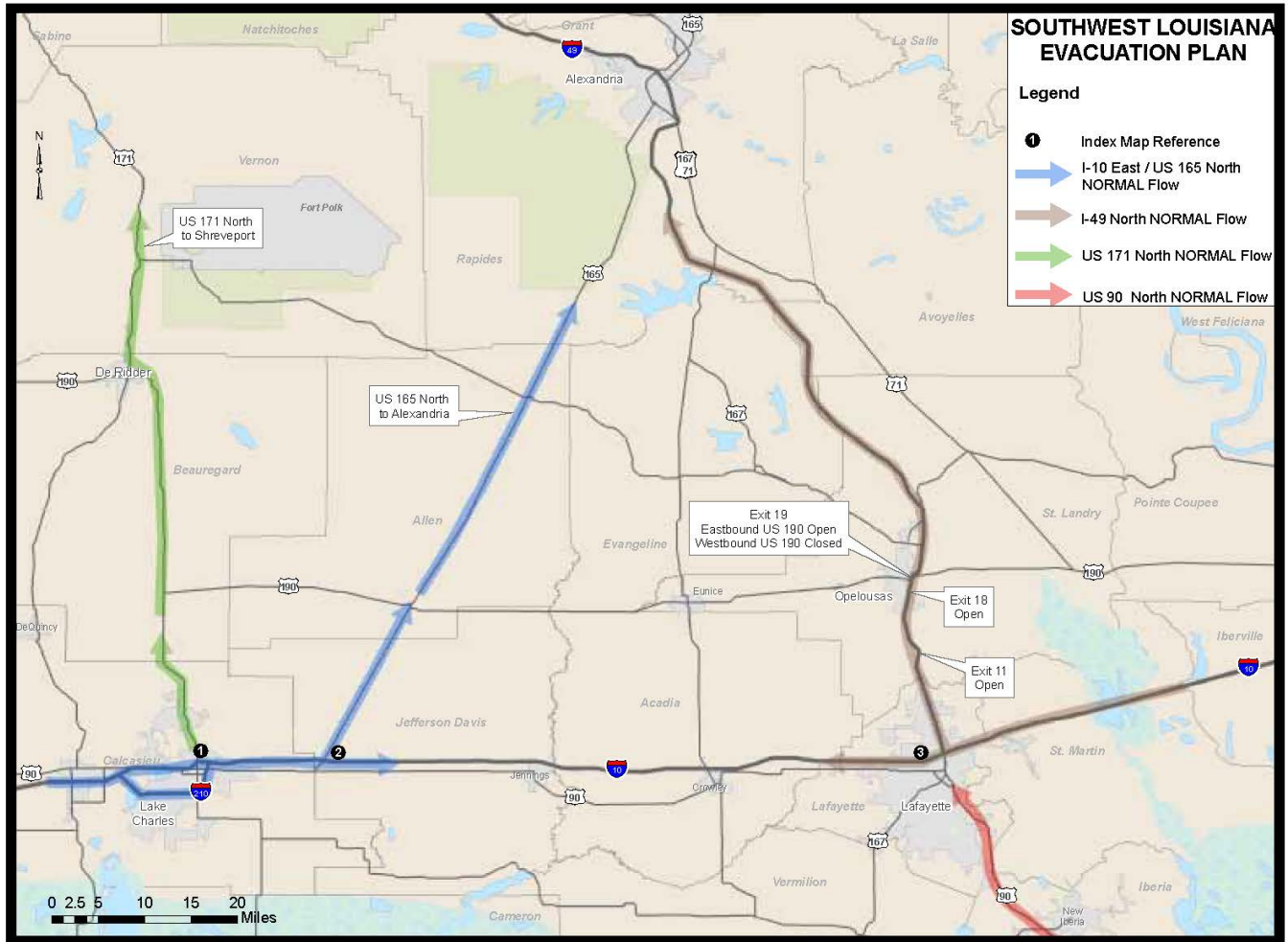


Preparing Your Room

- ✓ Unplug all electronics and cover them in plastic
- ✓ Shut and lock your window and close your blinds
- ✓ Store items off the floor and away from windows
- ✓ Take all items off balconies and out of yards
- ✓ Follow any additional instructions by your landlord
- ✓ Empty refrigerator
- ✓ Take valuables



Evacuation



Evacuation





National Weather Service Lake Charles, LA

www.weather.gov/lakecharles
(337) 477-5285



NATIONAL WEATHER SERVICE

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

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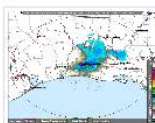
[Flood Warning](#)



[Beach Hazards Statement](#)



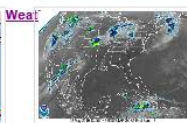
[Hazardous Weather Outlook](#)



Radar



Map



Satellite

Latest Text Product Selector

Choose a Text Product

Hourly Weather Roundup

Location	Sky/Weather	Temp	Dewpt	RH	Wind	Baro	Remarks
Lake Charles	FAIR	77 °F	73 °F	87 %	CALM	30.11R	N/A
Alexandria	CLOUDY	75 °F	72 °F	90 %	CALM	30.12R	N/A
Beaumont	N/A	N/A	N/A	N/A	N/A	N/A	N/A
De Quincy	FAIR	72 °F	71 °F	95 %	CALM	30.12R	N/A
De Ridder	FAIR	73 °F	72 °F	95 %	CALM	30.14S	N/A
Fort Polk	FAIR	74 °F	72 °F	92 %	CALM	30.12S	N/A
Jasper**	FAIR	64 °F	64 °F	98 %	E3	30.12S	N/A
Jennings	FAIR	75 °F	73 °F	92 %	SE3	30.12R	N/A
Lafayette	FAIR	76 °F	74 °F	93 %	NE3	30.12R	N/A
Nederland/Port Arthur	FAIR	77 °F	72 °F	84 %	SE3	30.09R	N/A
New Iberia	FAIR	77 °F	74 °F	90 %	E3	30.13R	N/A
Opelousas	FAIR	74 °F	73 °F	95 %	E3	30.13R	N/A
Orange	CLOUDY	80 °F	77 °F	90 %	SE5	30.11S	N/A
Patterson	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pineville	CLOUDY	72 °F	71 °F	97 %	CALM	30.15R	FOG

Note: Temperatures (and thus relative humidity values as well) for Jasper may be inaccurate.

"N/A" or "MISC" will be displayed if values are not available. In the LOCATION column, click on links for a list of recent observations at sites of interest. In the WIND column, VRB is "variable" and G is "gust". Wind speeds are in MPH. In the BARO (pressure) column, values are in inches. In the REMARKS column, HX is "heat index", WCI is "wind chill index", and VSB is "visibility" (if shown).

Serving and Protecting our area since 1893

Emergency Information

NATIONAL WEATHER SERVICE LAKE CHARLES

337-477-5285 <https://www.weather.gov/lch/>

NATIONAL HURRICANE CENTER

<https://www.nhc.noaa.gov/>

FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA)

800-621-FEMA <https://www.fema.gov/>

NOAA EXTREME WEATHER INFORMATION SHEETS

<https://www.ngdc.noaa.gov/newis/>

NATIONAL FLOOD INSURANCE PROGRAM

888-379-9531 <https://www.floodsmart.gov/>

LOUISIANA HOMELAND SECURITY AND EMERGENCY PREPAREDNESS

225-925-7500 <http://gohsep.la.gov/>

TEXAS DIVISION OF EMERGENCY MANAGEMENT

512-424-2000 <http://www.dps.texas.gov/dem/index.htm>

LOUISIANA ROAD CONDITIONS

1-888-762-3511 <https://www.511la.org/>

TEXAS ROAD CONDITIONS

1-800-452-9292 <http://conditions.drivetexas.org/current/>

AMERICAN RED CROSS

<https://www.redcross.org/>

Louisiana Emergency Management Parish Contacts

ACADIA

337-783-4357

BEAUREGARD

337-460-5442

EVANGELINE

337-363-3267

LAFAYETTE

337-291-5075

ST. MARTIN

337-394-3071

ALLEN

337-639-4326

CALCASIEU

337-721-3800

IBERIA

337-369-4427

RAPIDES

318-445-0396

ST. MARY

337-828-4100

VERNON

337-238-7225

AVOUELLES

318-240-9160

CAMERON

337-775-7048

JEFF DAVIS

337-821-2100

ST. LANDRY

337-948-7177

VERMILLION

337-898-4308

Texas Emergency Management County Contacts

HARDIN

409-246-5200

ORANGE

409-882-7895

JASPER

409-384-6226

NEWTON

409-379-5691

JEFFERSON

409-835-8757

TYLER

409-331-0874

Returning Home



IF YOU EVACUATED THE AREA, WAIT FOR AN ALL CLEAR FROM THE CITY OR COUNTY BEFORE ATTEMPTING TO RETURN TO YOUR HOME. BE PREPARED TO SHOW PROOF OF RESIDENCE BY HAVING A COPY OF YOUR LATEST UTILITY BILL.



FEMA News Photo



Debris Cleanup

- Cities and counties will publish a schedule for debris pick-up and removal. Debris cannot be removed from private property.
- Construction materials, vegetative debris, household hazardous waste and household appliances will need to be placed into separate piles and moved to the curbside for pick-up.

FEMA News Photo



General Cleanup

- Be cautious of structural damage and downed power lines. Do not attempt to move structural supports or large pieces of debris.
- DO NOT run power generators indoors. Inhalation of carbon monoxide from the exhaust can cause death. Ensure exhaust is well ventilated.
- DO NOT use open flames indoors.
- Restrict your driving to emergency use only. Road conditions may not be safe until road debris is cleared.

FEMA News Photo



Water

- Listen for instructions regarding public water supply. Use only bottled, boiled or treated water until you know that your water supply is safe.
- You can use household chlorine bleach to treat water for drinking or cleaning. Add 1/8 teaspoon of bleach per gallon of clear water or 1/4 teaspoon of bleach per gallon if water is cloudy. Allow water to stand for 30 minutes before using.

Returning Home

Utility Cleanup

FEMA News Photo



- Check for gas leaks. If you smell or hear gas leaking, leave immediately. DO NOT use the phone or turn on lights in your home. Call the gas company from a neighbor's phone.
- Report any visible damage of power lines to the electric company. Turn off power at main breaker if any electrical equipment or circuits have been exposed to water.
- DO NOT connect generators to your home's electrical circuits. If a generator is on line when electrical service is restored, it can become a major fire hazard. Also, lineworkers working to restore power will be endangered if a generator is hooked up to the home's circuits.
- It is likely that an electric company other than your own will reconnect the lines to your home; however, they can not turn the service back on. Only your electric company can actually turn the power back on to your house.

Sewage Cleanup

- If you suspect water or sewage lines are damaged, do not use your plumbing (toilets, sinks, etc.). Contact the water company or a plumber for repairs.
- A chemical portable commode can be created by the following:
 - ✓ Use 5 gallon buckets with tight lids, lined with heavy duty plastic garbage bags.
 - ✓ Add kitty litter to the bucket as a disinfectant and deodorizer. Keep lids on firmly.
 - ✓ Keep buckets in a cool, dark place. Clean and disinfect buckets immediately.
- Your toilet can also be used by flushing until the bowl has no water. Then, line with heavy duty trash bags and disinfect with chlorine bleach after each use. Remove waste to an outside location.
- If significant sewer outages have occurred, instructions for disposal of human wastes will be announced.
- DO NOT dispose of human waste through your regular trash!

Interior Cleanup

- Disinfect and dry interior buildings and items inside. This will prevent growth of some bacteria, viruses, mold, and mildew that can cause illness.
- Clean walls, floors, and counter tops with soap and water. Disinfect them with a solution of 1 cup of bleach to 5 gallons of water.
- Wash all clothes and linens in hot water. Air dry and spray all unwashable items with disinfectant. Steam clean carpets. Throw away all items touched by water that cannot be disinfected.