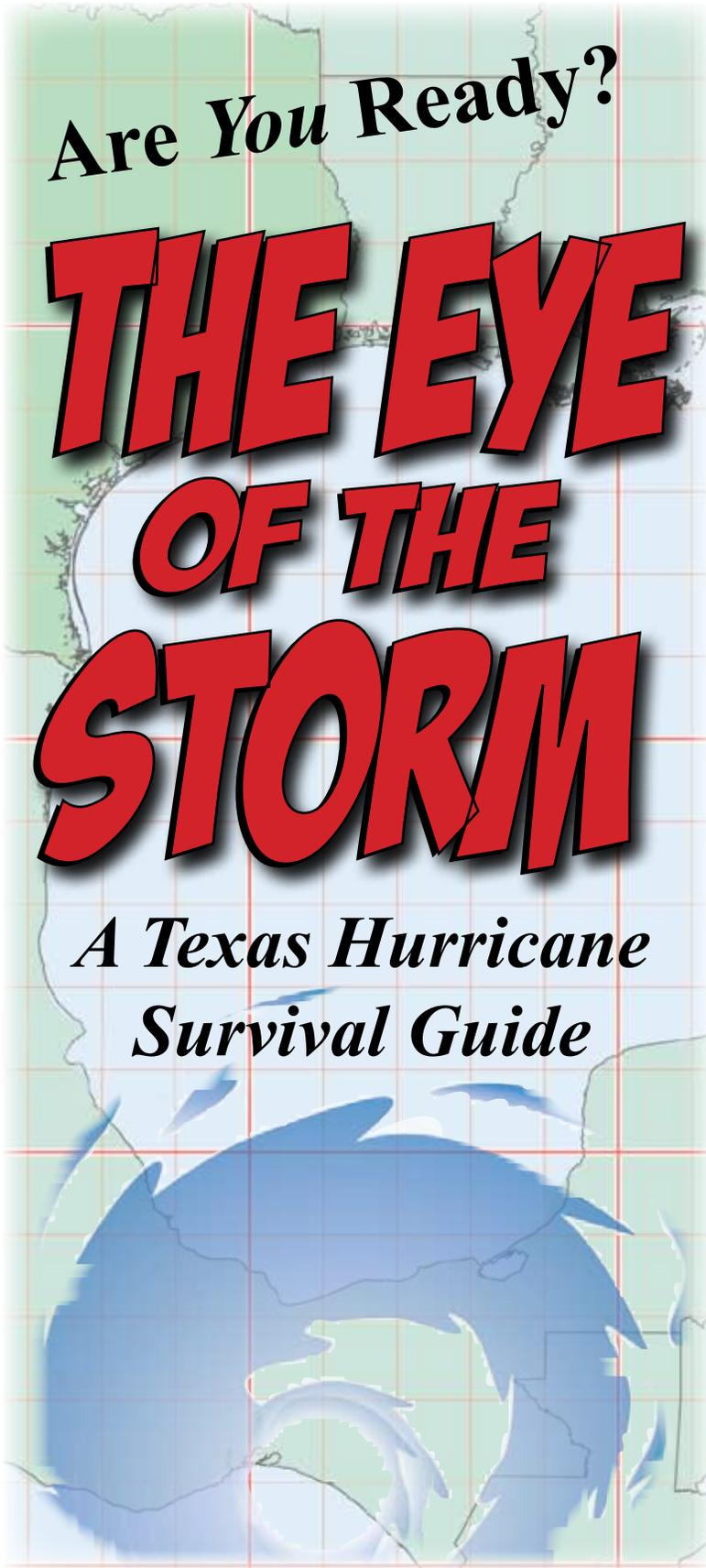


Are You Ready?

THE EYE OF THE STORM

*A Texas Hurricane
Survival Guide*



Hurricanes are powerful storms and have immense potential for loss of life and property. Tropical storms and tropical depressions, while generally less dangerous than hurricanes, still can be deadly, particularly from the heavy rains, flooding and tornadoes that accompany them. All three are tropical cyclones —

organized rotating weather systems that develop in the tropics. Every Texan living along our coast needs to be prepared for these storms.



The tips in this publication are designed to help residents stay safe before, during and after a major storm and to take steps to minimize the damage caused by the storm and its aftermath.

Tropical Disturbance: A moving area of thunderstorms of tropical origin that maintains its identity for 24 hours or more.

Tropical Depression: A tropical cyclone with sustained winds of 38 mph or less.

Tropical Storm: A tropical cyclone with sustained winds of 39-73 mph.

Hurricane: A tropical cyclone with sustained winds of 74 mph or more.

SAFFIR-SIMPSON HURRICANE SCALE

The Saffir-Simpson Hurricane Wind Scale is a 1 to 5 rating based on a hurricane's sustained wind speed. This scale estimates potential property damage. Hurricanes reaching Category 3 and higher are considered major hurricanes because of their potential for significant loss of life and damage. Category 1 and 2 storms are still dangerous, however, and require preventative measures.

Scale Number (Category)	Sustained Winds (mph)	Types of Damage Due to Hurricane Winds
CATEGORY 1	74-95	Very dangerous winds will produce some damage: Well-constructed frame homes could have damage to roof, shingles, vinyl siding and gutters. Large branches of trees will snap and shallowly rooted trees may be toppled. Extensive damage to power lines and poles likely will result in power outages that could last a few to several days.
CATEGORY 2	96-110	Extremely dangerous winds will cause extensive damage: Well-constructed frame homes could sustain major roof and siding damage. Many shallowly rooted trees will be snapped or uprooted and block numerous roads. Near-total power loss is expected with outages that could last from several days to weeks.

CATEGORY 3	111-129	Devastating damage will occur: Well-built framed homes may incur major damage or removal of roof decking and gable ends. Many trees will be snapped or uprooted, blocking numerous roads. Electricity and water will be unavailable for several days to weeks after the storm passes.
-------------------	---------	---

CATEGORY 4	130-156	Catastrophic damage will occur: Well-built framed homes can sustain severe damage with loss of most of the roof structure and/or some exterior walls. Most trees will be snapped or uprooted and power poles downed. Fallen trees and power poles will isolate residential areas. Power outages will last weeks to possibly months. Most of the area will be uninhabitable for weeks or months.
-------------------	---------	---

CATEGORY 5	157 or greater	Catastrophic damage will occur: A high percentage of framed homes will be destroyed, with total roof failure and wall collapse. Fallen trees and power poles will isolate residential areas. Power outages will last for weeks to possibly months. Most of the area will be uninhabitable for weeks or months.
-------------------	----------------	--

BEFORE THE STORM:

Hurricane season in the Gulf of Mexico is from June 1 through November 30, although major storms have been known to form earlier and later. Coastal Texans should be prepared *before* the first storm forms.

- Know the elevation of your home above sea level. This information is available from local Emergency Management officials. Your nearest Weather Service office can also supply flood-stage data for area streams and bayous and information about the potential for inland flooding and storm surge.
- Plan to relocate during a hurricane if you live near the seashore, near a river or flood plain, in a mobile or manufactured home, or in a high-rise.
- Plan your escape route early. Learn the evacuation routes from your portion of the coast. Decide where you will go, and tell your plans to family members or friends who live outside the hurricane zone.
- If you live in an evacuation zone and you require special assistance to evacuate during a storm — including the elderly, people with disabilities, or those who simply will need a ride — call 2-1-1 to register for a ride. Tell them if you will be bringing a pet. *Register well in advance of a storm.*
- Learn the locations of official shelters. Emergency Management or American Red Cross personnel can give you the location of the shelter nearest your home and explain what you should bring with you. Plan for your family's safety.
- Plan ahead for pets. Make sure they are current on vaccinations; have a copy of their vaccination and medical records. Collect emergency supplies — collar with ID and rabies tags, carrier and/or leash, 3-day supply of food and water, litter tray and litter, medications, a recent photo, feeding and/or medication instructions, and the contact

information of your vet. Identify a location where you can shelter your pet in case you must evacuate — a motel, the home of a friend or relative or a vet clinic or kennel outside the affected area, or a designated pet emergency shelter. Contact them early to make sure you can house your pet there. Have 24-hour phone numbers of these locations. Many disaster shelters, including those operated by the Red Cross, cannot accept pets because of states' health and safety regulations, but some may have affiliated pet shelters nearby.

- Learn how to turn off utilities — water, gas and electricity — at the main switches.
- Check emergency equipment — flashlights, generators, battery-powered NOAA Weather Radio, cell phones.
- Stock up on non-perishable food and store a plentiful supply of drinking water. (See list of Disaster Equipment and Supplies.)
- Buy plywood or other material to protect your home.
- Clear loose and clogged rain gutters and downspouts.
- Trim trees and shrubbery.
- Decide where to move your boat in an emergency.
- Review your insurance policy and inventory your personal property. Separate insurance policies are needed for protection against wind and flood damage. Do not wait until a hurricane is in the Gulf to get additional coverage — by then, it is too late. Inventory checklists are available from your insurance agent. Do not trust your memory; list descriptions and serial numbers and take pictures, and store these and other important insurance papers in waterproof containers and/or in your safety deposit box, or take them with you when evacuating.
- Never let your vehicle gas tank be less than half-full during hurricane season.





DURING A HURRICANE WARNING:

- Continue to monitor hurricane position, intensity and expected landfall.
- Prepare for high winds. Brace your garage door, lower antennas and be ready to make repairs.
- Confirm that outside objects are stored or anchored.
- Shutter or board up windows securely; tape does not prevent windows from breaking. Close windows tightly. Draw drapes across windows and close doors to protect against flying glass if shattering does occur.
- Move boats and trailers close to the house. Fill boats with water to weigh them down. Lash securely to the trailer and use tie-downs to anchor the trailer to the ground or house.
- Check the mooring lines of boats in the water – and then leave them.
- Put irreplaceable documents in waterproof containers and store in the highest possible spot. If you evacuate, be sure to take them with you.
- Fill water bottles while the water supply is still good.
- Prepare for storm surge, tornadoes and floods. They are the worst killers associated with a hurricane. During a tornado warning, seek shelter inside, below ground level if possible, or in an interior hallway, closet or bathroom on ground level. If outside, move away at right angles from the tornado; if escape is impossible, lie flat in a ditch or low spot. The surge of ocean water plus flash flooding of streams and rivers due to torrential rains combine to make drowning the greatest cause of hurricane deaths. If you live on the coastline, on an offshore island or near a river or flood plain, plan to evacuate.
- Re-check your survival supplies.

DURING A HURRICANE WATCH:

If you live in an area that has been issued a Hurricane Watch:

- Constantly monitor storm reports on radio, TV or NOAA Weather Radio. Track the storm's location and progress.
- Have a full tank of gas and service your vehicles if necessary. Fill the tank as soon as the Hurricane Watch is posted. Remember, when there is no electricity, gas pumps won't work.
- If you have pets and are planning to evacuate, call ahead to confirm emergency shelter arrangements for you and your pets. Bring pets inside so you won't have to search for them if you have to leave in a hurry. Double-check your pets' emergency supplies. Attach the phone number and address of your temporary shelter, or of a friend or relative outside the disaster area, to their collar ID tags.
- Refill prescriptions or other medications.
- Collect clean, unbreakable, air-tight containers to store sufficient drinking water for several days or stock up on bottled water. One gallon per person per day is the recommended minimum. Be prepared to store at least a three-day supply. The city supply may be interrupted or contaminated.
- Get cash from your bank, in case the power goes out and ATMs don't work.
- Check on your supplies and collect missing items. (See list of Disaster Equipment and Supplies.)
- Store lawn furniture and other loose, light-weight objects, such as garbage cans and garden tools, awnings and toys, which can become deadly missiles in high winds.
- Inspect and secure mobile home tie-downs.
- Have shutters or lumber to protect large windows and doors. Board up windows in case the storm moves quickly and you have to evacuate.



PLAN TO EVACUATE IF YOU:

- Live in a mobile home or manufactured home. They are unsafe in high winds no matter how well they are fastened to the ground.
- Live on the coastline, on an offshore island or near a river or flood plain. Risk areas for coastal Texas have been determined based on the category of hurricane. In addition to wind, flooding from storm surge waves is a major killer.
- Live in a high-rise. Hurricane winds can knock out electricity to elevators, break windows and more.

IF YOU ARE EVACUATING:

- Leave early, in daylight if possible.
- When the Hurricane Warning is issued, leave immediately for a safer place.
- Take your pets. Animals left behind can easily be lost, injured or killed.
- If you live in a mobile home, check tie-downs before leaving.
- Let someone else know where you are going. Notify neighbors and a family member outside of the warned area of your evacuation plans.
- Move your most valuable possessions that you can't take with you to higher points within your home.
- Turn off gas, water and electricity in your home. Ensure that you have done everything possible to protect your property from damage.
- Lock windows and doors.
- Have a map to your destination with the evacuation route marked.
- Take survival supplies with you:
 - first-aid kit,
 - flashlights,
 - radio,
 - extra batteries,
 - cell phone,
 - canned or dried provisions, can opener, spoons, etc.,
 - bottled water



- (minimum of 1 gallon per person per day),
- family medications, prescriptions,
- toiletries,
- cash, credit cards, and
- spare eyeglasses, hearing aids and batteries, if needed.
- Keep important papers with you at all times:
 - driver's license and other identification,
 - insurance policies and insurance inventory,
 - medic-alert or device to convey special medical information, and
 - maps to your destination.
- Take a minimum of one change of clothing and footwear per person.
- Don't travel farther than necessary. Roads may be jammed. Don't let your stranded vehicle put you in harm's way.

SHELTERS

Public shelters provide temporary housing for evacuees. Most shelters do not have beds or cots, so you will probably be sleeping on the floor. Pack as if you were going camping. Bring:

- one sleeping bag or blanket and one pillow per person,
- sleeping pads or air mattresses,
- special dietary foods,
- special items for infants, elderly or disabled family members,
- lightweight folding chairs,
- robe and/or shower shoes, and
- games, books, music players with headphones, and quiet toys for children.

Do not bring alcoholic beverages or weapons of any kind.

Many shelters will not allow pets. Contact the shelter in advance to see if they have an affiliated pet shelter nearby. If necessary, make other arrangements to house your pets.

Be prepared to offer assistance to shelter workers if necessary. Stress to all family members their obligations to keep the shelter clean and sanitary.

IF YOU STAY AT HOME:

Before the storm:

- Turn refrigerator and freezer settings to maximum cold. Turn off utilities if told to do so by authorities.
- Turn off propane tanks and unplug small appliances.
- Fill bathtub and large containers with water for sanitary purposes.
- Move furniture away from exposed doors and windows.

During the storm:

- Stay indoors in a small interior room, closet or hallway, away from doors and windows, even if they are covered. If you are in a two-story house, go to an interior first-floor room, such as a bathroom or closet. If you are in a multiple-story building and away from the water, go to the first or second floor and take refuge in the halls or other interior rooms. Stay away from windows and glass doors.
- Close all interior doors. Secure and brace external doors.
- *Don't go outside* in the brief calm during the passage of the eye of the storm – the lull ends suddenly as winds return from the opposite direction, and winds can increase in seconds to 75 mph or more.
- Remain calm. Your ability to cope with emergencies will help others.

AFTER THE STORM:

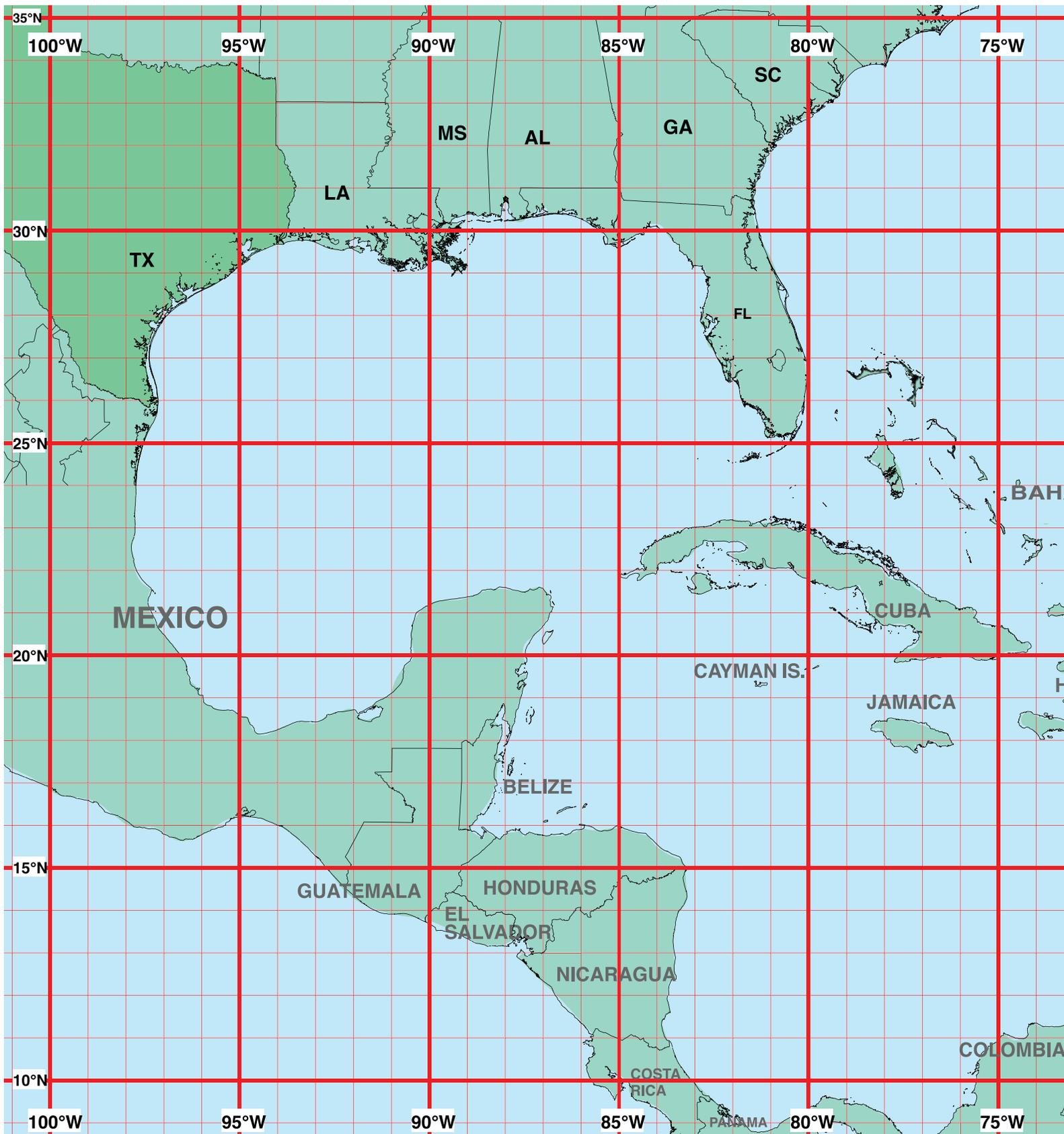
- Continue to listen to NOAA Weather Radio or local radio or TV stations for instructions.
- If you evacuated, delay your return until it is recommended or authorized by local authorities. The Texas Department of Transportation will post staggered re-entry maps on TexasOnline.com.
- Without taking any unnecessary risks, protect your property from damage. Temporary repairs can reduce your losses.
- Beware of outdoor hazards. Moving water only 6 inches deep can sweep you off your feet. Standing water may be electrically charged from underground or downed power lines.
- Report loose or dangling power lines immediately to the proper authorities. Many lives are lost through electrocution.
- Walk or drive cautiously. Debris-filled streets are dangerous. Poisonous snakes and insects will be a hazard. Washouts may weaken roads and bridges, which could collapse under

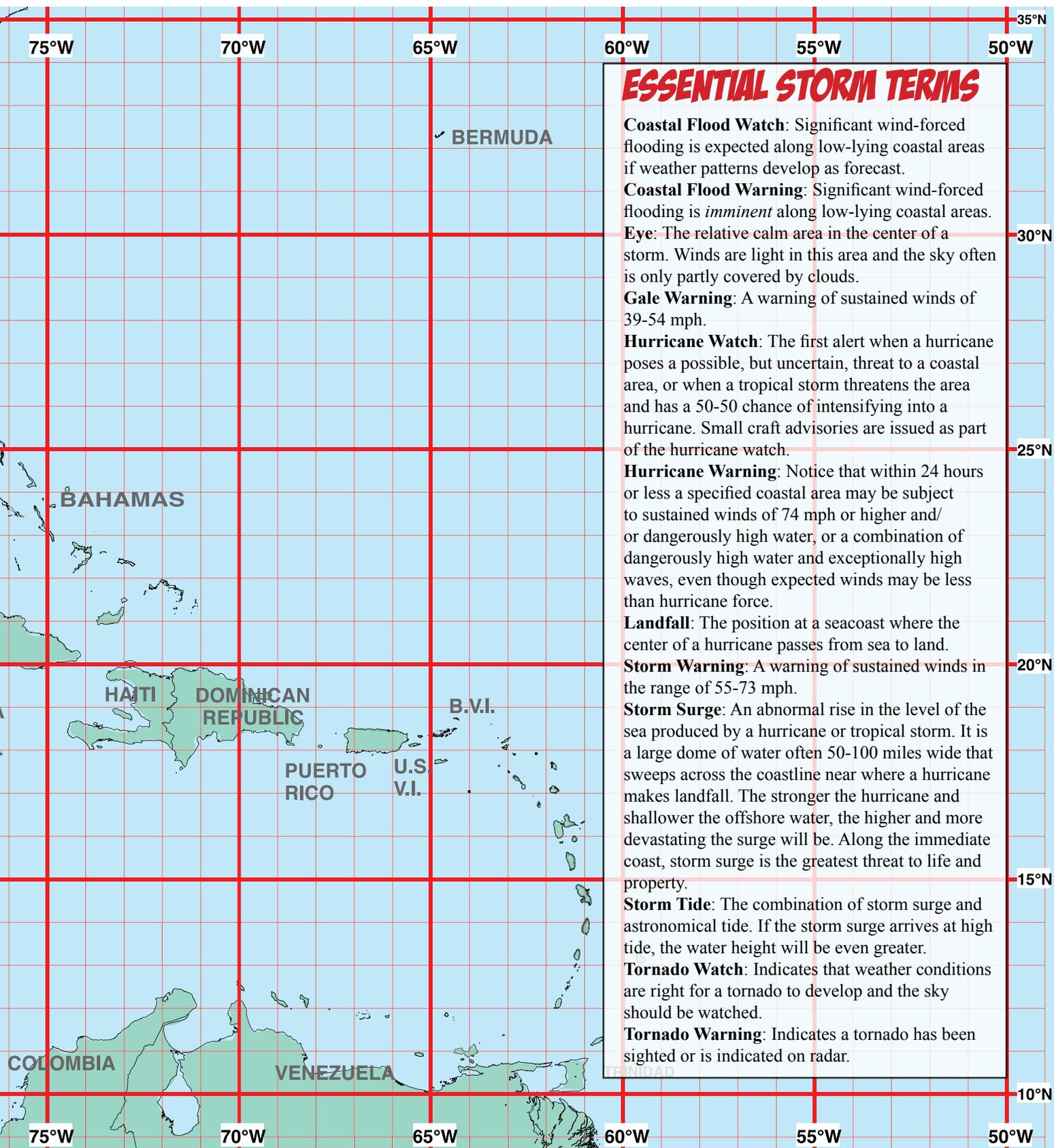
the weight of your vehicle. If you encounter a flooded road, turn around and go the other way. Many people have been killed driving through flooded roadways or around barricades. Roads are closed for your protection.

- Guard against spoiled food. Food may spoil if refrigerator power is off more than a few hours. Freezers will keep food for several days if doors are not opened after power failure, but do not refreeze food once it begins to thaw.
- Do not use water from the tap until you receive official word that the water is safe. Instead use your emergency supply or boil water before drinking. Report broken sewer or water mains to the proper authorities.
- Inspect around the inside of your home. Check gas, water and electrical lines and appliances for damage. Use the phone to report life-threatening emergencies only.
- Take extra precautions to prevent fire. Avoid using candles and other open flames indoors because of possible gas leaks. Use a flashlight to inspect damage. Keep in mind that lowered water pressure in city mains and the interruption of other services may make fire fighting extremely difficult after a hurricane.
- Have professionals check gas, water and electrical lines and appliances for damage.

DURING THE RECOVERY:

- Insurance representatives will be on the scene immediately following a major disaster to speed up the handling of claims. Notify your insurance agent or broker of any losses, and leave word where you can be contacted.
- Making temporary repairs can protect property from further damage or looting. Use only reputable contractors (sometimes in the chaotic days following a disaster, unscrupulous operators will prey on the unsuspecting). If possible, check contractors through the Better Business Bureau. Keep receipts for materials used.
- Be patient: hardship cases will be settled first by insurance representatives. Don't assume your settlement will be the same as your neighbor's. Policy forms differ and storm damage is often erratic. In a major catastrophe, the insurance industry will have emergency offices and extra manpower to expedite claim settlements and to speed recovery. Everyone cannot be first.
- Responsibility for the clean-up will fall to numerous local, state and federal agencies. A local Emergency Management Coordinator will be on hand to help residents in this effort.





ESSENTIAL STORM TERMS

Coastal Flood Watch: Significant wind-forced flooding is expected along low-lying coastal areas if weather patterns develop as forecast.

Coastal Flood Warning: Significant wind-forced flooding is *imminent* along low-lying coastal areas.

Eye: The relative calm area in the center of a storm. Winds are light in this area and the sky often is only partly covered by clouds.

Gale Warning: A warning of sustained winds of 39-54 mph.

Hurricane Watch: The first alert when a hurricane poses a possible, but uncertain, threat to a coastal area, or when a tropical storm threatens the area and has a 50-50 chance of intensifying into a hurricane. Small craft advisories are issued as part of the hurricane watch.

Hurricane Warning: Notice that within 24 hours or less a specified coastal area may be subject to sustained winds of 74 mph or higher and/or dangerously high water, or a combination of dangerously high water and exceptionally high waves, even though expected winds may be less than hurricane force.

Landfall: The position at a seacoast where the center of a hurricane passes from sea to land.

Storm Warning: A warning of sustained winds in the range of 55-73 mph.

Storm Surge: An abnormal rise in the level of the sea produced by a hurricane or tropical storm. It is a large dome of water often 50-100 miles wide that sweeps across the coastline near where a hurricane makes landfall. The stronger the hurricane and shallower the offshore water, the higher and more devastating the surge will be. Along the immediate coast, storm surge is the greatest threat to life and property.

Storm Tide: The combination of storm surge and astronomical tide. If the storm surge arrives at high tide, the water height will be even greater.

Tornado Watch: Indicates that weather conditions are right for a tornado to develop and the sky should be watched.

Tornado Warning: Indicates a tornado has been sighted or is indicated on radar.

DISASTER EQUIPMENT AND SUPPLIES CHECKLIST

- NOAA Weather Radio or transistor radio with spare batteries to last several days
- flashlights or battery-operated lanterns with spare batteries
- canned goods and other non-perishable foods that do not need to be cooked, 3-day supply
- manual can opener
- bottled water: at least 3 gallons per person
- prescription and nonprescription drugs
- pet supplies
- paper plates, plastic utensils and paper cups
- plastic garbage bags and ties
- liquid soap, detergent, disinfectant, household chlorine bleach
- first aid kit
- cash or travelers' checks
- special items that might be needed for infants, the elderly or disabled persons

EVACUATION INFORMATION

To find out road conditions on state highways, call 1-800-452-9292. For information on evacuation routes, shelters and special needs transportation, call 2-1-1.

FOR MORE INFORMATION

<http://texas-sea-grant.tamu.edu/OurPrograms/HurricanePreparedness.html>

Publication supported in part by Institutional Grant NA10OAR4170099 to Texas A&M University from the National Sea Grant Office, National Oceanic and Atmospheric Administration, U.S. Department of Commerce.

Texas Sea Grant College Program
4115 TAMU
College Station, Texas 77843-4115
<http://texas-sea-grant.tamu.edu>
(979) 862-3767



TAMU-SG-13-404
May 2013
NA10OAR4170099