

# Hurricane Season 2022

Are you prepared?





# Atlantic Hurricane

June 1<sup>st</sup> – November 30<sup>th</sup>.

## ATLANTIC STORM NAMES

2022 HURRICANE SEASON

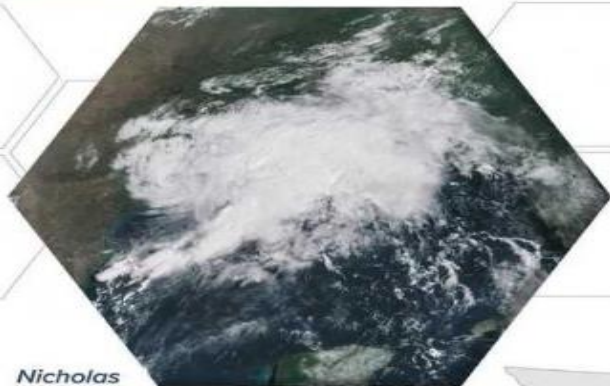
ALEX	HERMINE	OWEN
BONNIE	IAN	PAULA
COLIN	JULIA	RICHARD
DANIELLE	KARL	SHARY
EARL	LISA	TOBIAS
FIONA	MARTIN	VIRGINIE
GASTON	NICOLE	WALTER



# Continental United States Hurricane Strikes 1950–2021\*

The GOES-16 enhanced imagery shows 2021 Hurricanes Ida and Nicholas in detail.

The 2021 Atlantic hurricane season ranks as the third busiest season on record with 21 storms, which places it well behind the top-ranked 2020 season's 30 named storms. The 2005 season ranks second place with 28 storms. The most destructive storm of 2021 was Category-4 Hurricane Ida, which came ashore near Port Fourchon, Louisiana, on August 29. When Ida made landfall, maximum sustained winds were estimated around 150 mph and reconnaissance aircraft estimated its minimum central pressure as 931 mb. This ties the ranking as the second-most-intense hurricane to strike Louisiana on record, equaling the 1856 Last Island hurricane and 2020's Hurricane Laura with 150 mph. The other landfalling hurricane was Category-1 Nicholas, which came ashore near Sargent Beach, Texas, on September 14, with maximum sustained winds near 75 mph and a pressure estimated near 991 mb.



**Nicholas**  
GOES-16, September 14, 2021  
@ 1450 UTC (Geo-color)

### Hurricane Information

Due to coverage density of storms, actual strike locations are approximate.

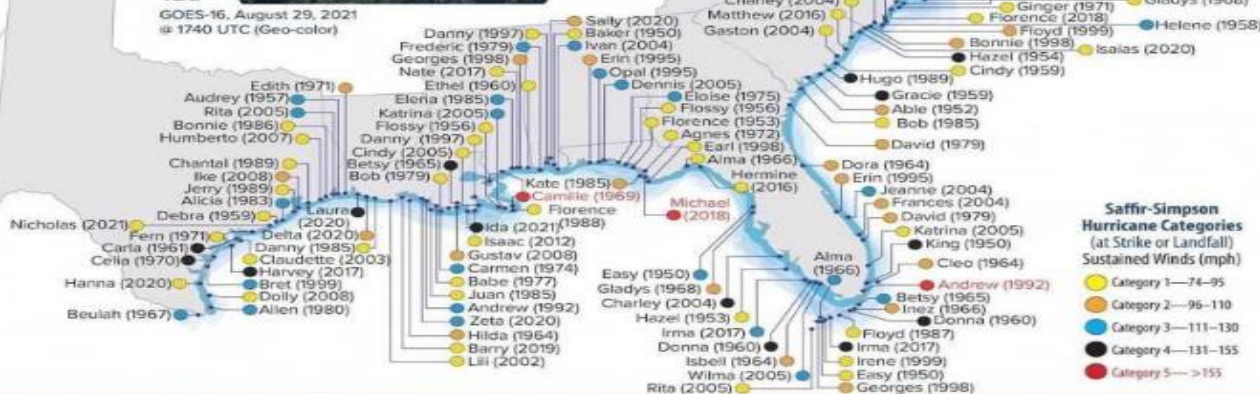
\*Strikes include hurricanes that did not make direct landfall but did produce hurricane force winds over land.

There were no hurricane strikes in the continental United States for the years 1951, 1962, 1963, 1973, 1978, 1981, 1982, 1990, 1994, 2000, 2001, 2006, 2009, 2010, 2013, and 2015.

Image source: NOAA/NESDIS



*Ida*  
GOES-16, August 29, 2021  
@ 1740 UTC (Geo-color)



**Saffir-Simpson  
Hurricane Categories  
(at Strike or Landfall)  
Sustained Winds (mph)**

- Category 1—74–95
- Category 2—96–110
- Category 3—111–130
- Category 4—131–155
- Category 5— $\geq 155$



**NOAA National Centers for Environmental Information**  
ncei.noaa.gov



Apr 6 2022



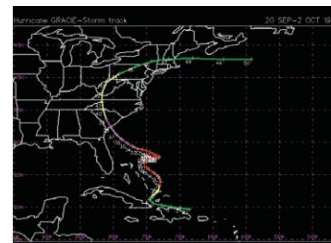
# Historical Hurricanes of South Carolina

Hurricane Hugo				September 10-22, 1989	
Time of Landfall:	12 a.m., 9/22/1989	Saffir/Simpson Scale Category:		Category 4	
Location of Landfall:	Sullivan's Island, SC	Estimated U.S. Damage Costs:		\$7 billion	
Maximum Winds at Landfall:	140 mph	Estimated U.S. Deaths:		49	
Minimum Pressure at Landfall:	27.58" (934 mb)	Estimated Storm Surge:		18-20 feet	
SUMMARY					
Hugo originated off the coast of western Africa near the Cape Verde Islands as a tropical disturbance on September 9th and quickly gained strength to a tropical storm on the 11th and hurricane on the 13th. Hugo reached maximum intensity at Category 5 on the 15th with winds estimated at 160 mph and a minimum pressure of 918 mb east of the Leeward Islands. The hurricane passed directly over the islands of Guadeloupe, St. Croix, and Puerto Rico over the next few days before heading northwestward toward the South Carolina coast. By 6 a.m. EDT on September 21, 1989, hurricane warnings were issued for coastal South Carolina and more than 250,000 people evacuated the coast. At midnight on September 22, 1989, the eye of Hurricane Hugo made its final landfall at Sullivan's Island near Charleston. The center moved far inland retaining hurricane status as it passed between Columbia and Sumter in the early morning hours. By daybreak on the 22nd, Hugo had weakened to a tropical storm as it neared Charlotte, NC, and exited the state.					

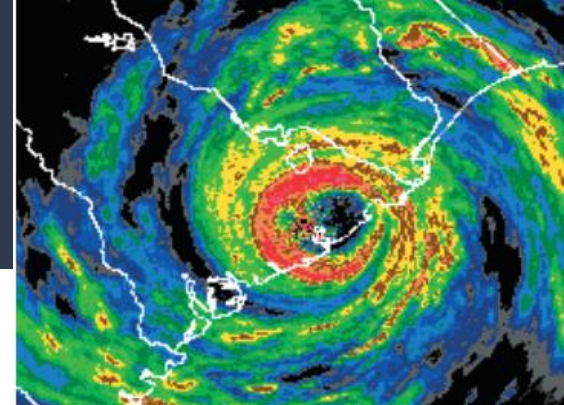
STORM TRIVIA					
<ul style="list-style-type: none"> <li>* Hugo made landfall at high tide during the autumnal equinox; Cape Romain reported a tidal surge of 19.8 feet.</li> <li>* Wind speeds of 120 mph reported in downtown Charleston with 138 mph reported by a Coast Guard cutter.</li> <li>* 82 deaths in the U.S. and Virgin Islands (26 in SC) and more than \$10 billion total property damages were attributed to Hugo.</li> <li>* The hurricane hunter aircraft nearly crashed because of reported winds of 190 mph in Hugo at a flight level of 500 meters. Because of damage to the plane, more than 50,000 pounds of fuel had to be dumped to save the lives of crewmen.</li> <li>* A week after Hugo hit, nearly 60,000 people were homeless because of 5,100 homes destroyed and 12,000 uninhabitable.</li> </ul>					

Hurricane Hazel				October 5-16, 1954	
Time of Landfall:	9:15 a.m., 10/15/1954	Saffir/Simpson Scale Category:		Category 4	
Location of Landfall:	Near Little River, SC	Estimated U.S. Damage Costs:		\$163 million	
Maximum Winds at Landfall:	140 mph	Estimated U.S. Deaths:		95	
Minimum Pressure at Landfall:	27.70" (938 mb)	Estimated Storm Surge:		17-18 feet	
SUMMARY					
Hurricane Hazel formed near the Windward Islands on October 5th with winds estimated near 100 mph. The hurricane continued to intensify as it moved west-northwest into the Caribbean Sea over the next few days. Hazel meandered northeastward then to the north-northwest from the 10th through the 15th when it made landfall near Little River at the border between North Carolina and South Carolina. Wind speeds were estimated at 130 to 150 mph between Myrtle Beach, SC, and Cape Fear, NC. Storm warnings were issued at 11:00 a.m. EST on October 14th from Charleston, SC, to the Virginia Capes giving 24 hours advance notice to people along the coastal Carolinas. Hurricane Hazel was extraordinary for retaining significant wind speeds well into Canada as it tracked northward over Washington, DC, and New York.					
STORM TRIVIA					
<ul style="list-style-type: none"> <li>* Hazel had a forward speed of more than 30 mph allowing places like Washington, DC, to report 78 mph wind gusts.</li> <li>* The total number of deaths may be more than 1,000 with 95 in the United States, 100 in Canada, and nearly 1,000 in Haiti.</li> <li>* Flooding from 11 inches of rainfall contributed to 20 drownings in the Carolinas and 78 deaths in Canada.</li> <li>* A hurricane hunter was injured when reconnaissance aircraft hit severe turbulence entering the eye wall of Hazel.</li> <li>* Every pier and lines of beach homes along 170 miles of beach from Myrtle Beach to Wilmington were demolished.</li> <li>* Of \$163 million in damages, \$63 million accounted for SC and NC beaches and \$100 million in property losses.</li> </ul>					

Hurricane Gracie				September 22 - October 2, 1959	
Time of Landfall:	Noon, 9/29/1959	Saffir/Simpson Scale Category:		Category 3	
Location of Landfall:	Beaufort, SC	Estimated U.S. Damage Costs:		\$14 million	
Maximum Winds at Landfall:	125 mph	Estimated U.S. Deaths:		22	
Minimum Pressure at Landfall:	28.05" (950 mb)	Estimated Storm Surge:		9-12 feet	
SUMMARY					
An easterly wave was closely monitored in the southwestern Atlantic Ocean for four days before a closed circulation and tropical depression formed on the 22nd near San Salvador in the Bahamas. Later the same day, Hurricane Gracie was born as winds increased rapidly to more than 85 mph and pressures fell to near 997 mb. The close watch on the storm continued through the 27th as Gracie erratically meandered in the western Atlantic Ocean under the influence of light steering conditions. Finally, Hurricane Gracie began moving to the west-northwest and intensified steadily as the storm took aim on South Carolina. Wind speeds reached Category 4 intensity of 140 mph as the pressure plummeted to 950 mb off the coast. Just before landfall, however, Gracie weakened to a Category 3 storm with winds of 125 mph. The remnants of the storm tracked inland to near Columbia then turned north into North Carolina, Virginia, and New England producing copious amounts of rain and tornadoes in the Mid-Atlantic region.					
STORM TRIVIA					
<ul style="list-style-type: none"> <li>* Rainfall of 3 to 8" in South Carolina from Gracie helped to alleviate drought conditions over the Carolinas and Virginia.</li> <li>* The Marine Auxiliary Air Station recorded the lowest pressure of 950 mb with 95 mph winds and gusts to 135 mph.</li> <li>* Wind gusts estimated at 170 mph created the worst wind damage in the history of the city of Beaufort.</li> <li>* Gracie made landfall within an hour of low tide in the Beaufort area, which reduced storm surge to less than 12 feet.</li> <li>* An F2 tornado in Ivy, VA, killed 12 people. Another 10 deaths resulted from falling objects and auto accidents.</li> <li>* Of \$14 million in damages, Charleston County exhibited the most widespread with more than 50% of the total estimate.</li> </ul>					



Hurricane Gracie, September 20-October 2, 1959 - Unisys Weather



Hurricane Hugo, September 22, 1989 – Charleston National Weather Service radar image



# Hurricanes Matthew & Florence







**Early predictions show  
an above average  
2022 Hurricane Season.**



Do you know  
the difference?

# Tropical Storm & Hurricanes

## *Watches Versus Warnings*

### ***WATCH***

Tropical storm and/or hurricane conditions are **POSSIBLE** in Watch area

Issued up to 48 hours in advance of tropical storm force winds

### ***WARNING***

Tropical storm and/or hurricane conditions are **EXPECTED** in Warning area

Issued up to 36 hours in advance of onset of tropical storm force winds

Hurricane preparedness activities become difficult once winds reach tropical storm force. **Watches & Warnings are issued in advance of onset of tropical storm force winds, 39-73mph**



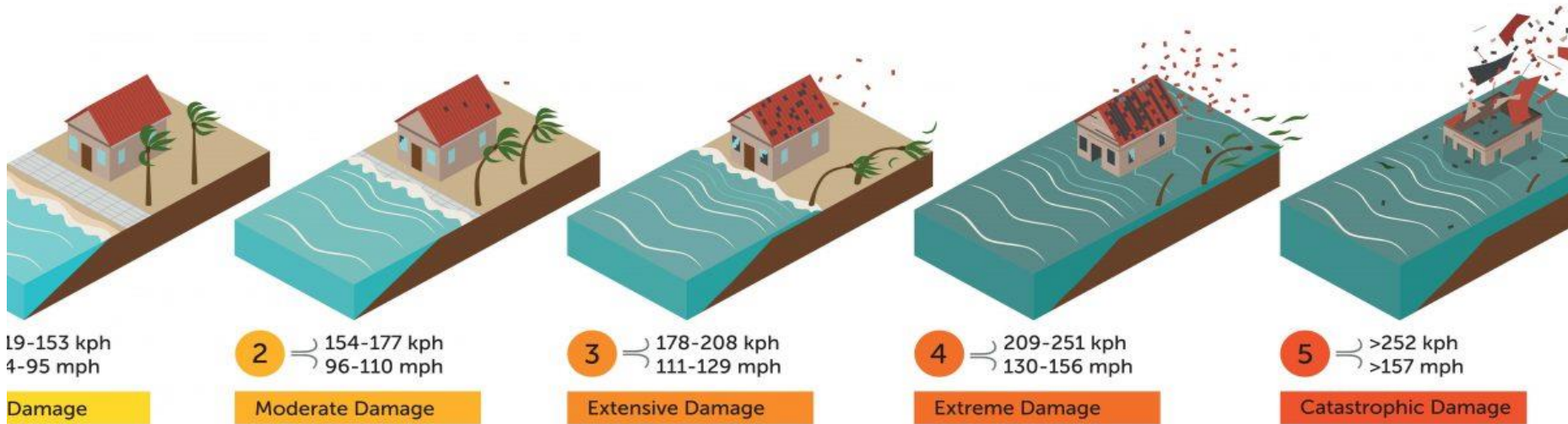
NWSMobile



[weather.gov/mob](https://weather.gov/mob)



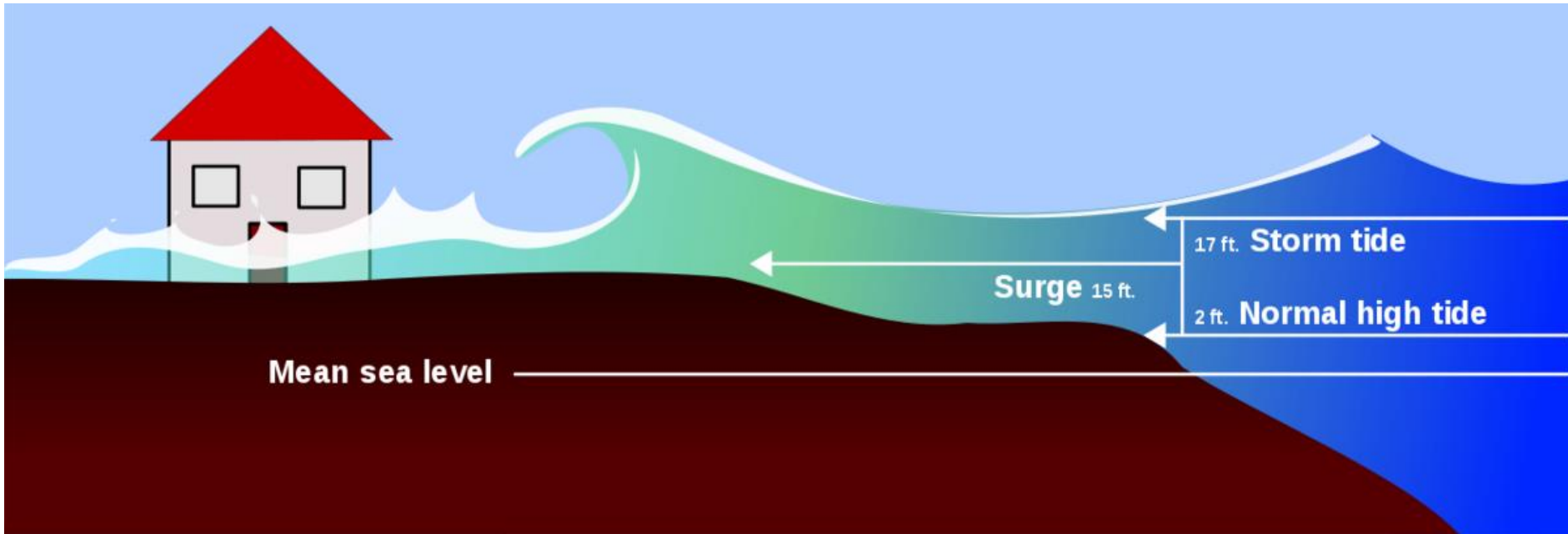
# Hurricane Category Wind Speeds



Saffir-Simpson Hurricane Wind Scale



# Don't Forget Storm Surge & Flooding!!!





# Don't get caught in the storm!



- ☁ Continuously evaluate your home's vulnerability to storm damages, and take steps to mitigate those hazards before a storm is imminent.
- ☁ Always keep a well-stocked emergency supply kit in your home and your vehicle.
- ☁ Have a plan AND a back up plan! Know your evacuation routes and pre-plan where your family will shelter during a storm if evacuations become necessary.
- ☁ Stay informed Before, During, and After a Storm!



Prevention is priceless!

Weatherproof your property now.

Thank yourself later.

- ✓ Trim any weak branches or trees that could be vulnerable in a storm.
- ✓ Assess your yard for any items that need to be secured prior to high winds.
- ✓ Install storm shutters to protect your windows, or fit your windows with plywood panels that can be secured to window frames. Label these panels and store them with the tools you'll need to hang them when a storm is approaching.
- ✓ Be sure all exterior doors to your home are sound and have at least 3 hinges and a deadbolt lock at least 1" in length.
- ✓ Sliding glass doors should be constructed of tempered glass.
- ✓ Inspect your roof and make any necessary repairs.
- ✓ Use a high quality urethane-based caulk to seal any outside wall openings such as vents, outdoor electrical outlets, waterspouts and areas where cables or pipes go through the wall.



# Hurricane Preparedness Checklist



## *Emergency Supplies Kit*

- ☐ Water - 2 gallons per person per day for 3 to 7 days. Sanitation water can be saved in bathtubs, but not used for drinking.
- ☐ Food - at least enough for 3 to 7 days
- ☐ non-perishable packaged or canned food
- ☐ Specific foods & sanitation items for infants and elderly family members
- ☐ Manual/non-electric can opener
- ☐ Cooking tools / fuel
- ☐ Fire extinguisher
- ☐ Paper plates / plastic utensils
- ☐ Warm Blankets/Sleeping Bags
- ☐ Clothing - seasonal/rain gear/sturdy shoes
- ☐ First Aid Kit / Medicines / Prescription Drugs
- ☐ Hygiene items, toilet paper, moist towelettes, garbage bags with plastic ties
- ☐ Basic Tool Kit - to include a wrench or pliers to turn off utilities
- ☐ Vehicle fuel tanks filled
- ☐ Flashlights with extra batteries - Ideally 1 per family member
- ☐ Radio - Battery operated and NOAA weather radio with extra batteries
- ☐ Fully charged cell phone with charger, car charger &/or solar charger.
- ☐ Cash - Banks and ATMs may not be open or available for extended periods.
- ☐ Important documents in a waterproof container - Proper identification, family emergency contact information, immunization & medical records, insurance policies, bank account numbers, Social Security card, etc.
- ☐ Video documentation valuables if possible
- ☐ Keys
- ☐ Special Items - for babies and the elderly
- ☐ Toys, Books and Games





What is common knowledge for you may not be for everyone.

Be sure anyone who may be responsible for operating a generator in your home knows the basics.

## HOME GENERATOR SAFETY TIPS:

**Know the risks of using a portable generator.**



- Generators should be used in well ventilated locations outside at least 5 feet away from all doors, windows, and vent openings. Measure the 5-foot distance from the generator exhaust system to the building.
- Never use a generator in an attached garage, even with the door open.
- Place generators so that exhaust fumes can't enter the home through windows, doors or other openings in the building. The exhaust must be directed away from the building
- Make sure to install carbon monoxide (CO) alarms in your home. Follow manufacturer's instructions for correct placement and mounting height.
- Turn off generators and let them cool down before refueling. Never refuel a generator while it is hot.
- Store fuel for the generator in a container that is intended for the purpose and is correctly labeled as such. Store the containers outside of living areas.



# Pets are family too!

## Be sure to include them in your Emergency Plan.

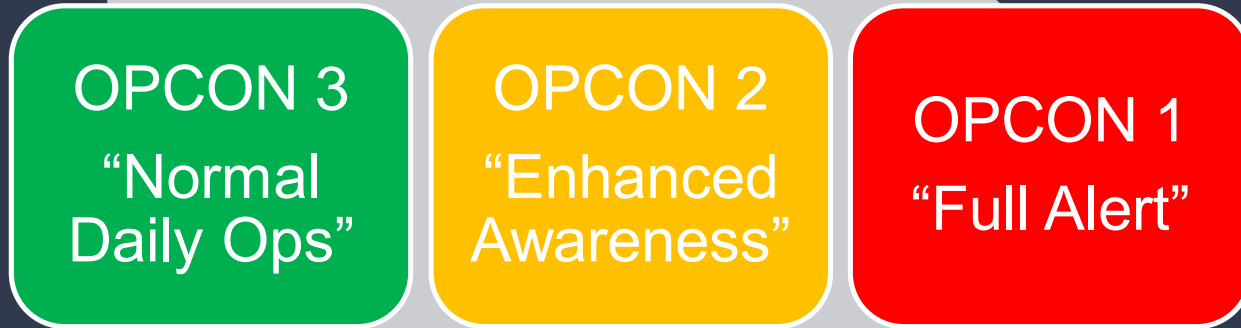
- ❑ When possible, families should evacuate with their pet(s). A temporary emergency shelter should be a last resort.
- ❑ Each pet should have their own cage/carrier that provides enough room for them to stand up and turn around in.
- ❑ Have a pet supply kit that includes: a 3 to 7 day supply of food and clean water, a leash, harness, any medications your pets require, litter/box and any clean-up necessities.
- ❑ Before a storm is imminent make arrangements with boarding facilities, veterinary clinics, pet-friendly hotels, etc.
- ❑ Be sure your animals' immunizations are up to date & have a copy of such records.
- ❑ Have your pets' microchip numbers, and be sure that all ID tags and collars have correct information listed.
- ❑ Have photos of yourself with your animals to prove ownership in the event that you become separated.





# Operational Condition Levels

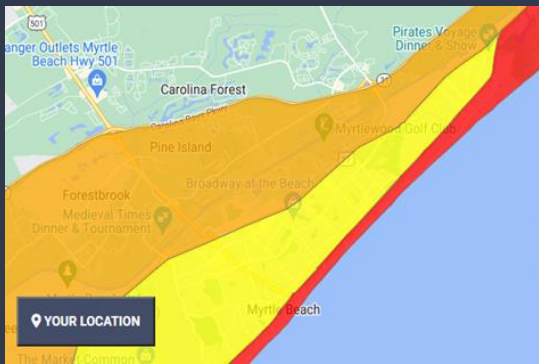
## “What they Mean”







Know Your Zone is a public education campaign used to inform Horry County residents & visitors of hurricane evacuation zones & vulnerability to storm surge.



To find out your zone go to:

**SCEMD.ORG**

## Surge Evacuation Zones

Evacuation Scenario	Description
A	Includes all areas east of US Business 17 (Kings Hwy) up to intersection with US 17 (Kings Hwy) and then all areas east of US 17 (Kings Hwy) to the northern county line. Also all flood prone areas along the Waccamaw River and the Great and Little Pee Dee Rivers and all mobile homes residents in the county.
B	Includes all areas south of Hwy 707 and Longwood Drive including all areas in Longwood Plantation (Blackmoor) to the Waccamaw River and all areas east of US 17 By-Pass (Mark Garner Hwy) to US 17 (N. Kings Hwy) and all areas east of US 17 (N. Kings Hwy) to the Northern county line. Also all flood prone areas along the Waccamaw River and the Great and Little Pee Dee Rivers and all mobile homes residents in the county.
C	Includes all areas between Hwy 701 and Hwy 544, south of Brown's Chapel Avenue and Hwy 814 plus all areas East of Highway 31 (Carolina Bays Pkwy) to Highway 90; and all areas East of Highway 90 to Highway 17 and all areas east of US 17 to the northern county Line. Also all flood prone areas along the Waccamaw River and the Great and Little Pee Dee Rivers and all mobile homes residents in the county.



# Stay Informed

## Useful Resources

- ☐ South Carolina Emergency Management Mobile App &/or [scemd.org](http://scemd.org)
- ☐ National Hurricane Center's Hurricane Tracker App
- ☐ FEMA Weather App
- ☐ The Weather Channel
- ☐ Local TV Stations:  
WMBF, WPDE, WBTW, Fox 43
- ☐ FM Radio Stations:  
WYAV 104.1 FM, WLFF 106.5 FM
- ☐ NOAA Weather Radio: 162.400 Frequency
- ☐ Be sure you are following relevant social media accounts to remain informed.

Sign up for Horry County's  
**CODE RED** mass notification  
system on [horrycounty.gov](http://horrycounty.gov)

City of Myrtle Beach Information Hotline is activated  
during times of emergency  
843-918-INFO



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