

Hurricane Preparedness





Agenda



- Hurricane History
- Hurricane and Tropical Cyclone Categories
- Destructive Weather
- Personal/Family Preparation
- Evacuation Basics
- Additional Resources
- Contact Info



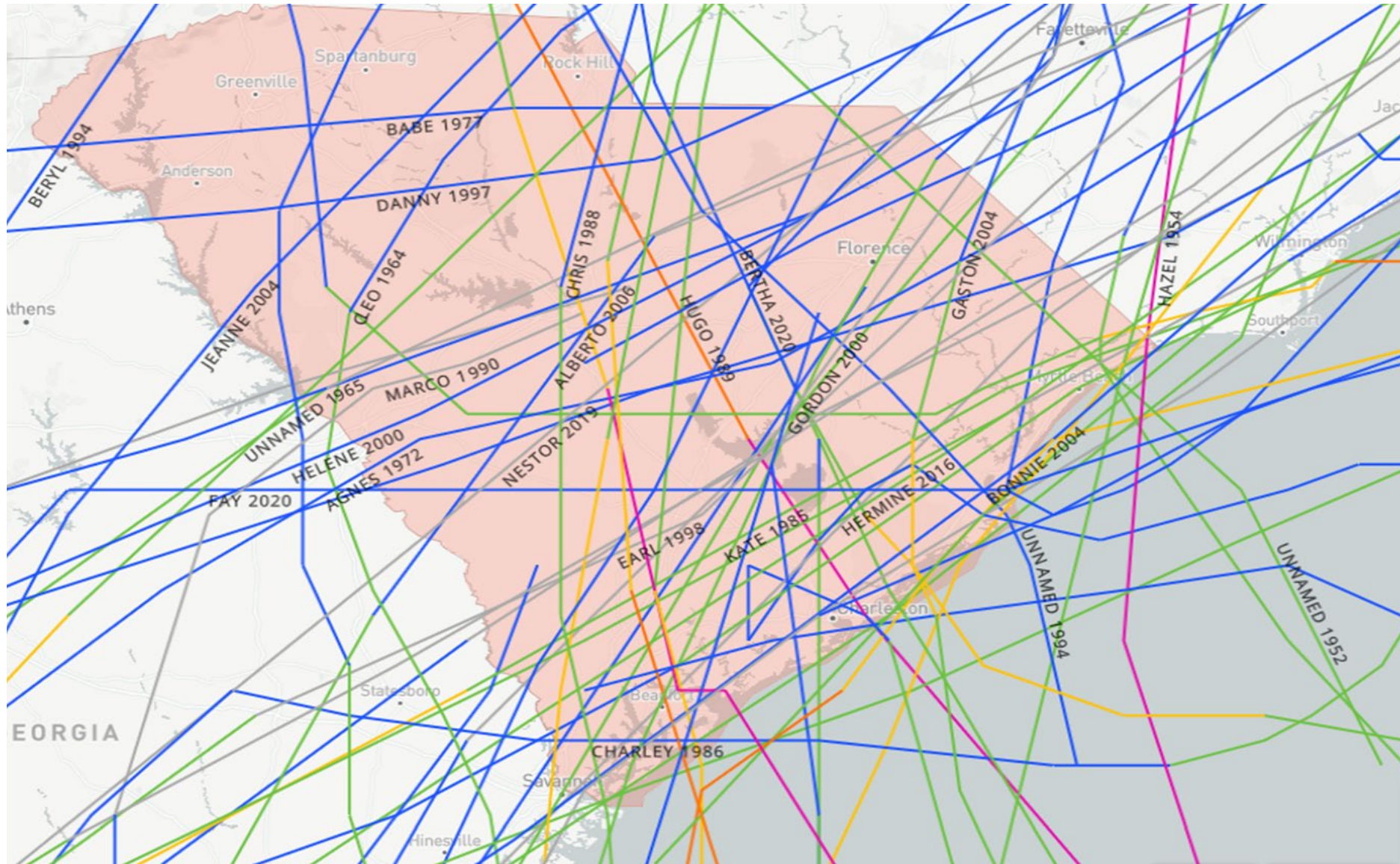
Low Country History



- **Landfalls:**
 - Great Storm of 1893 (19' storm surge)
 - 1940 Recruit Training moved to Quantico (2 months)
 - 1959 Gracie
 - 1979 David
 - 1989 Hugo
- **Near Misses**
 - 2009 TS Hanna (Almost Evacuated)
 - 2016 TS Hermine (Wind & Flooding Event)
 - 2016 Matthew (MCRD Evacuated to MCLB Albany)
 - 2017 TS Arlene (Before Hurricane Season Started)
 - 2017 Irma (Almost Evacuated – ordered busses)
 - 2018 Florence (Partial Evacuation)
 - 2019 Dorian (MCRD Evacuated to MCLB Albany)
 - 2020 TS Bertha (Before Hurricane Season Started)
 - 2020 Hurricane Isaias
 - 2022 Hurricane Ian

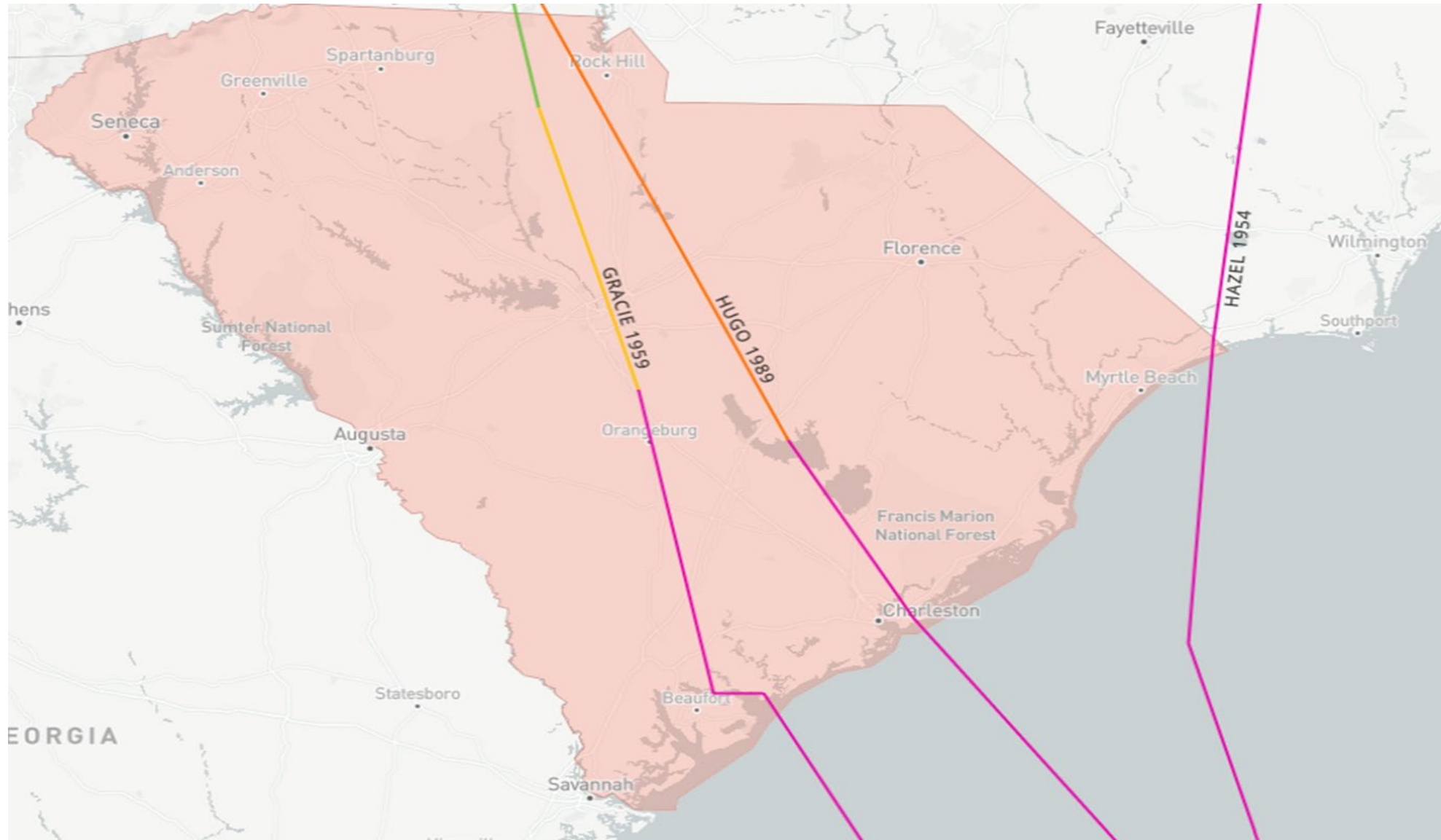


South Carolina History





Major Hurricanes in SC





Fun Facts



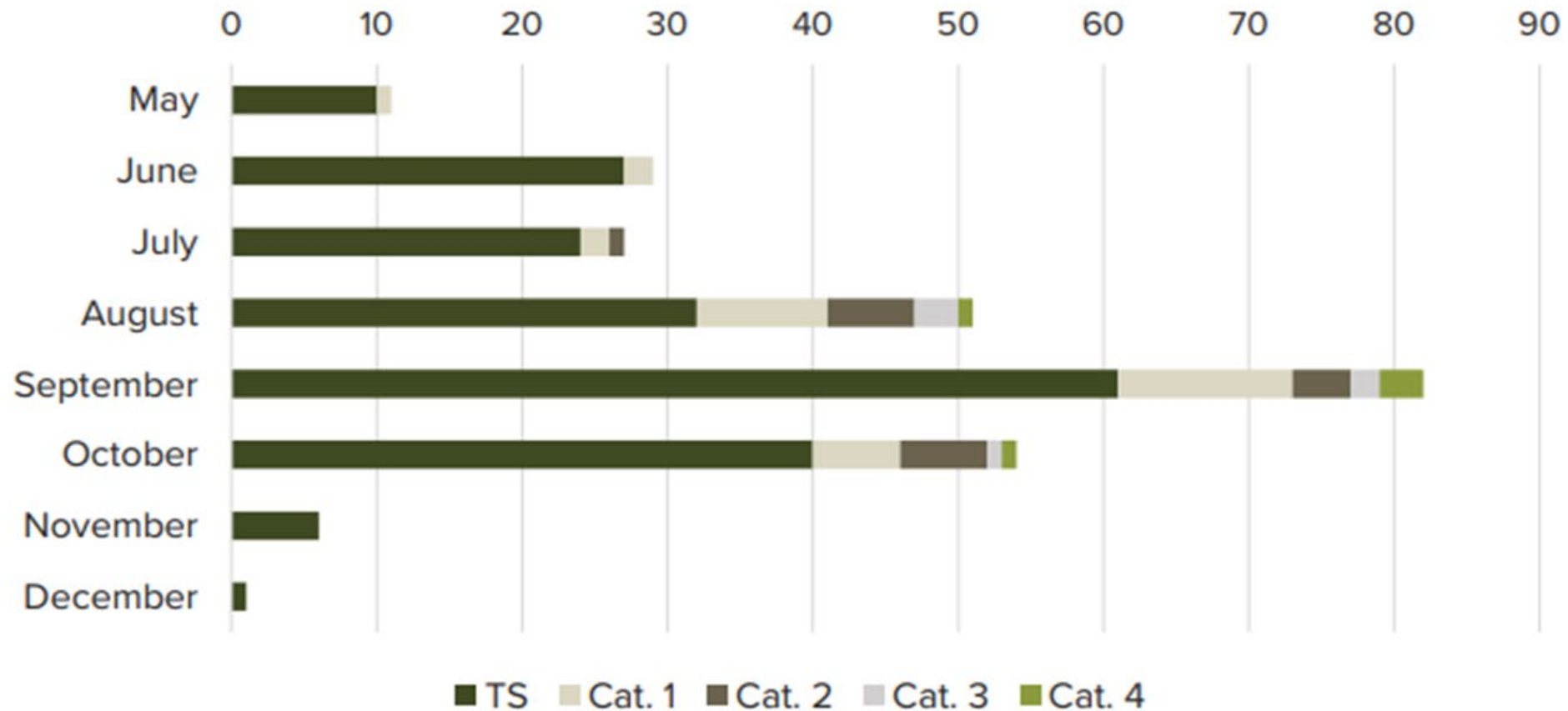
- 79.7% chance of being impacted by a tropical system each year
- 260 tropical cyclones have impacted SC
- 44 direct landfall tropical cyclones in recorded history
- Earliest Recorded Landfall: May 7 (TS Ana 2015)



Fun Facts

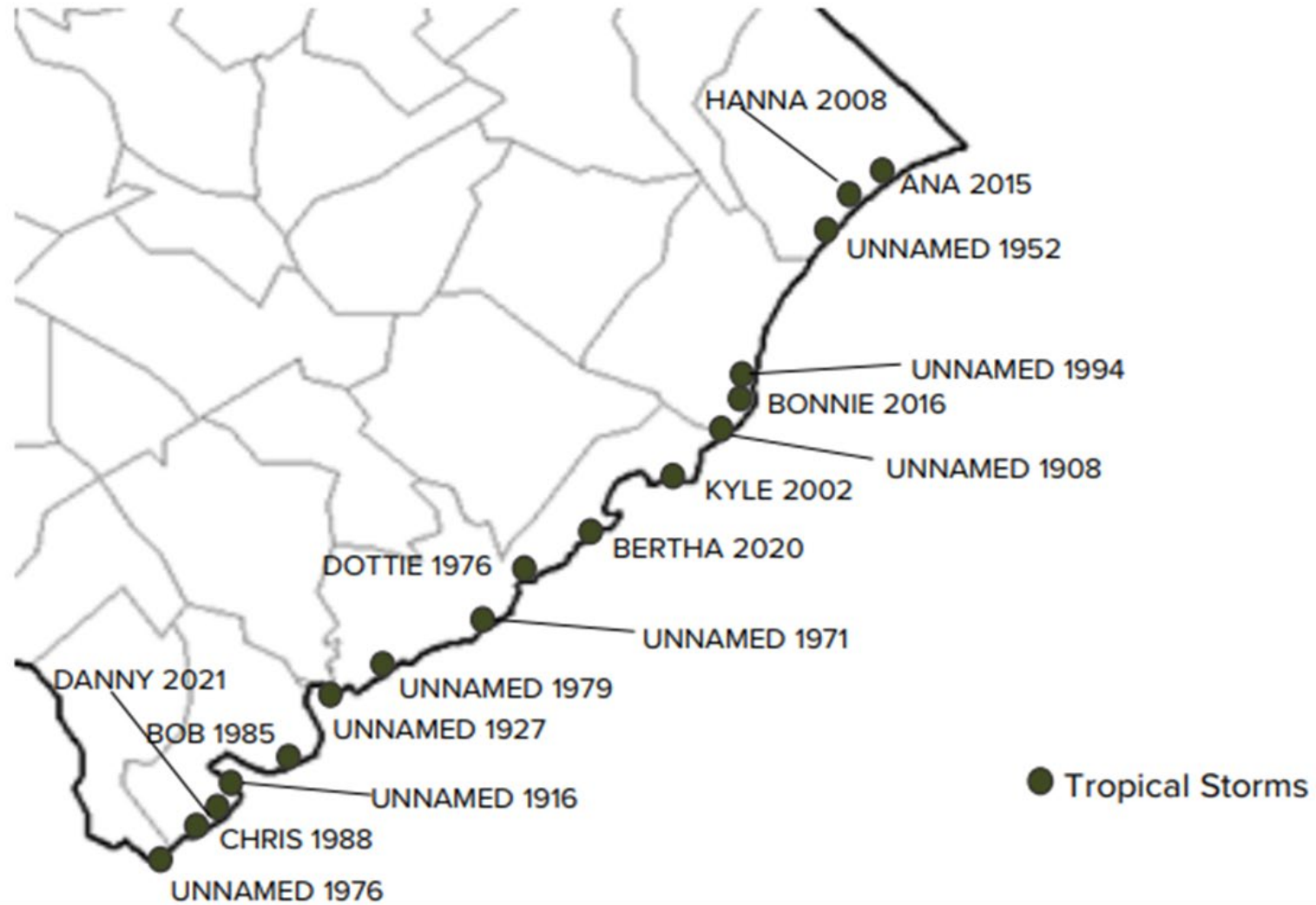


Category Breakdown of Impacts to South Carolina by Month (1851-2021)



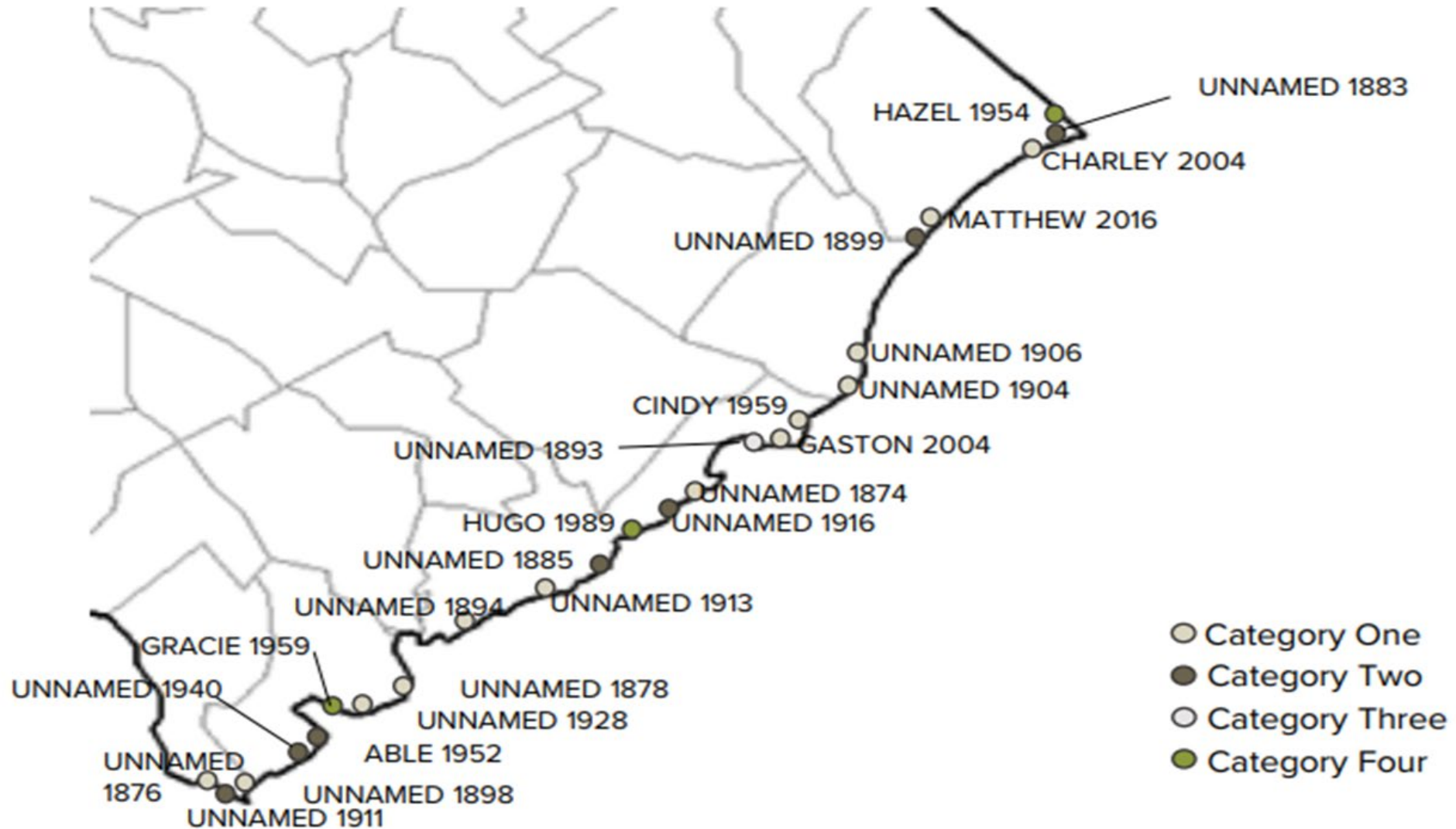


Fun Facts





Fun Facts

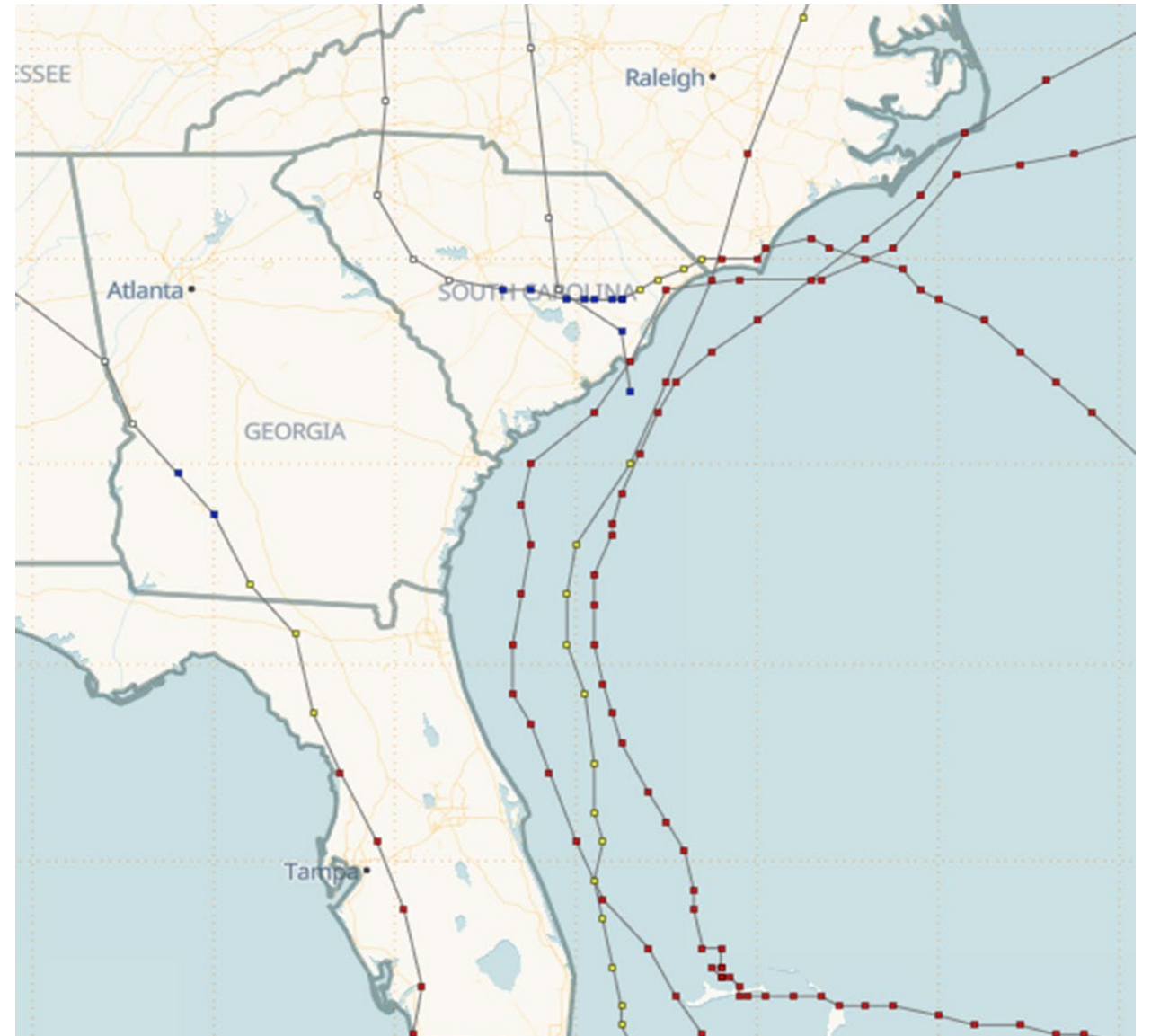




Fun Facts

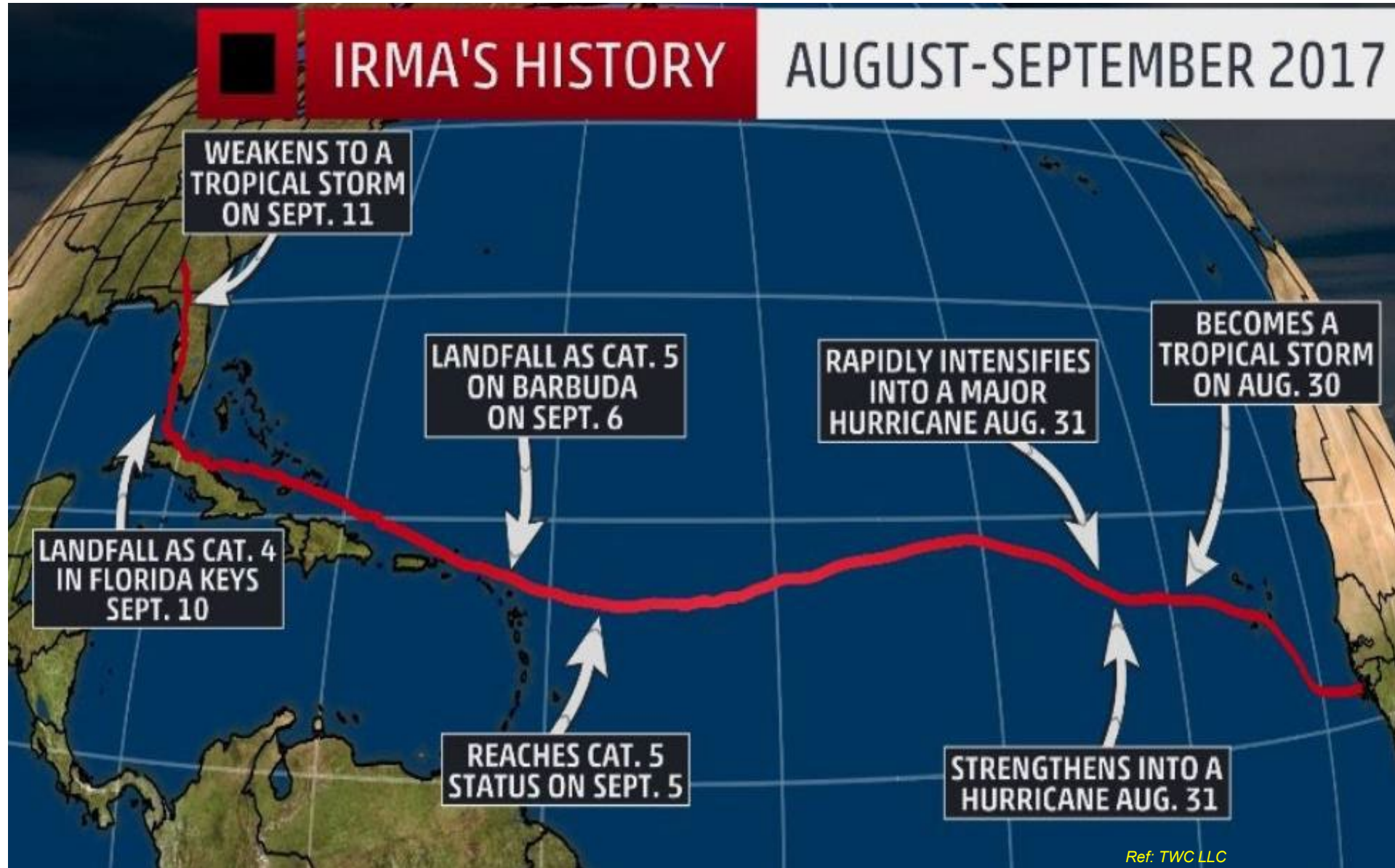


- 2016 Matthew
- 2017 Irma
- 2018 Florence
- 2019 Dorian
- 2020 Isaias
- 2022 Ian



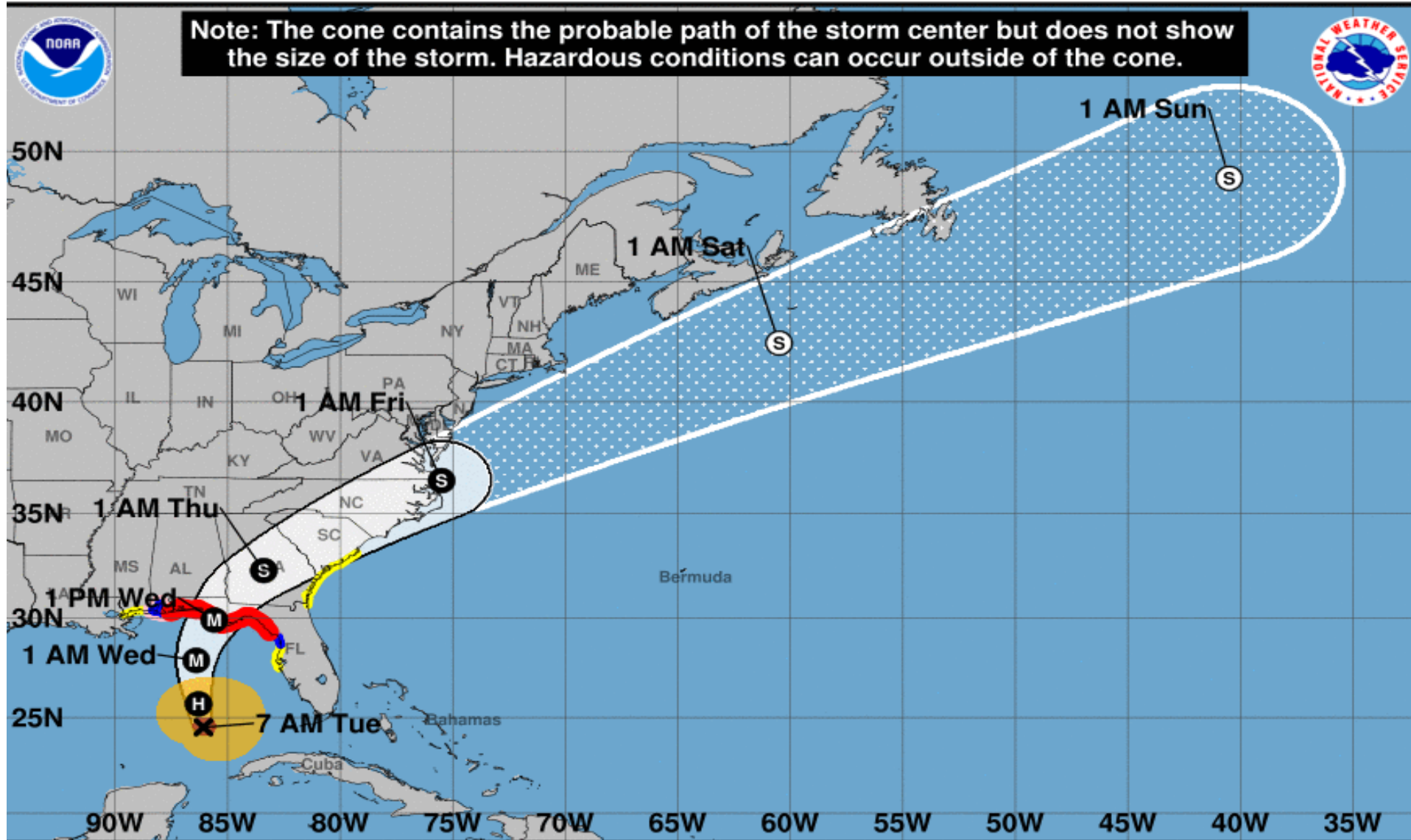


Typical Hurricane Track





But sometimes....



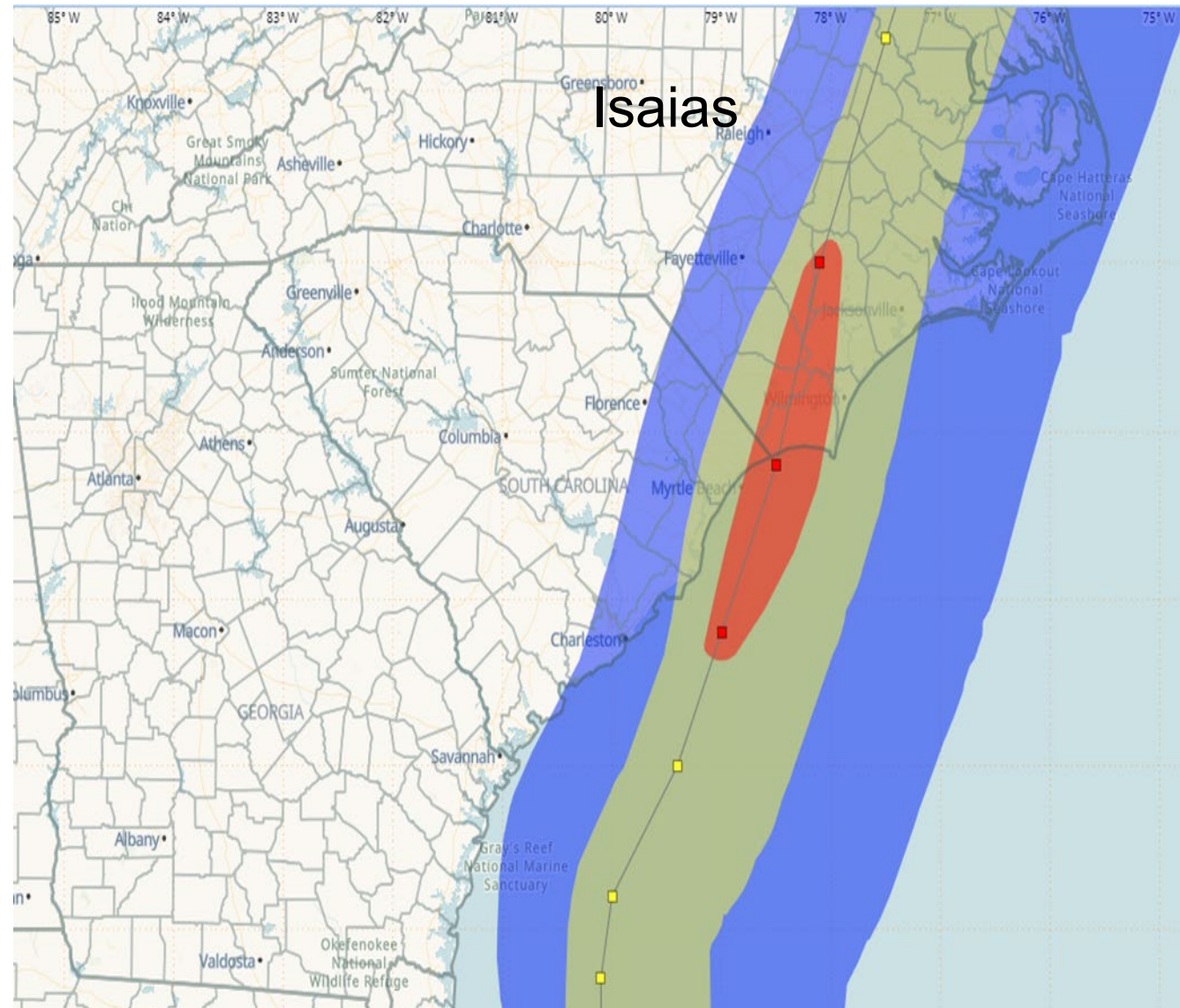
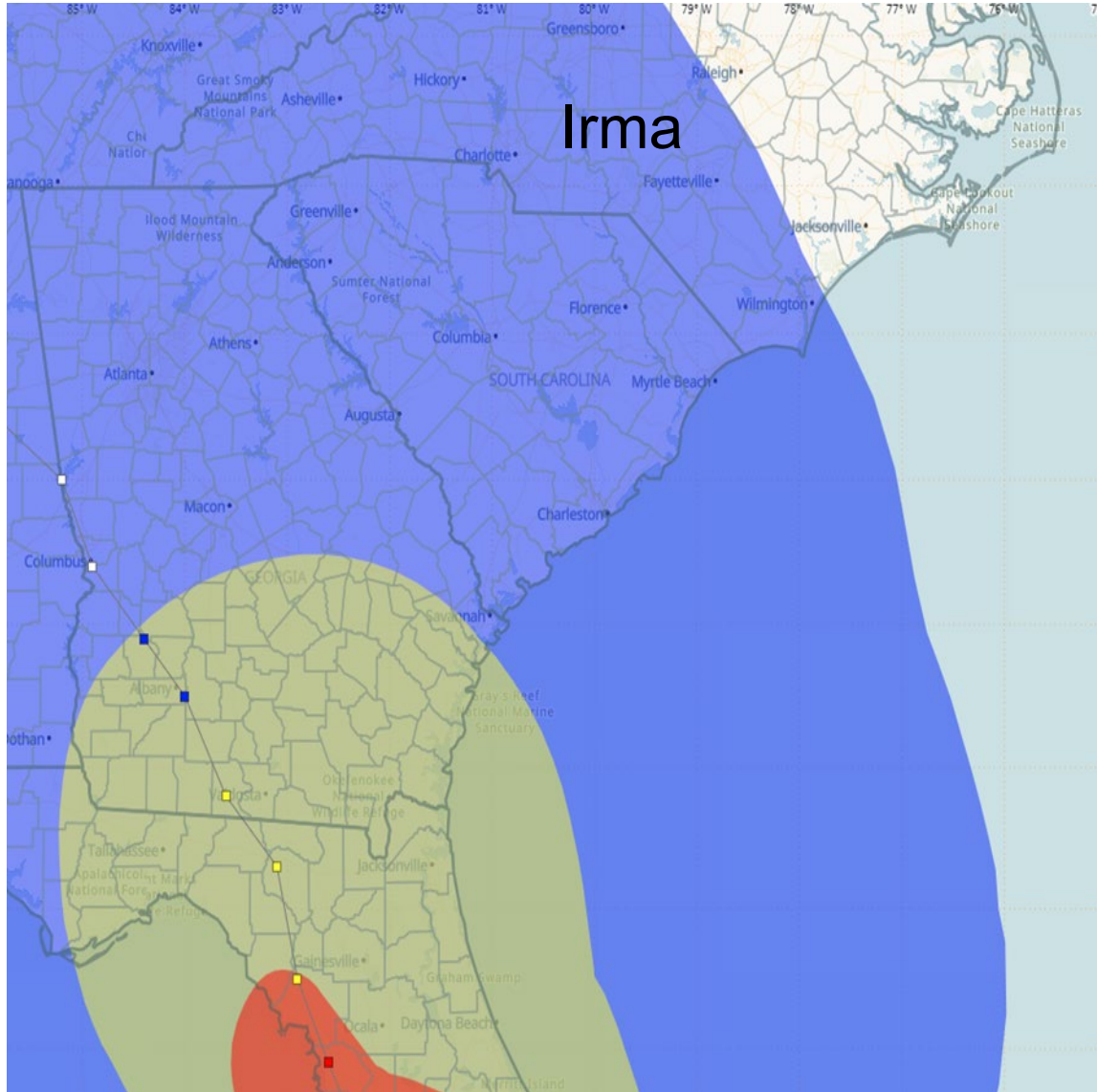
Hurricane Michael

Current information: x

Forecast positions:



Each Storm is Different...





2022 Atlantic Hurricane Season



2022 Pre-Season Forecast

- 19 Named Storms
- 9 Hurricanes
- 4 Major Hurricanes

2022 Actual

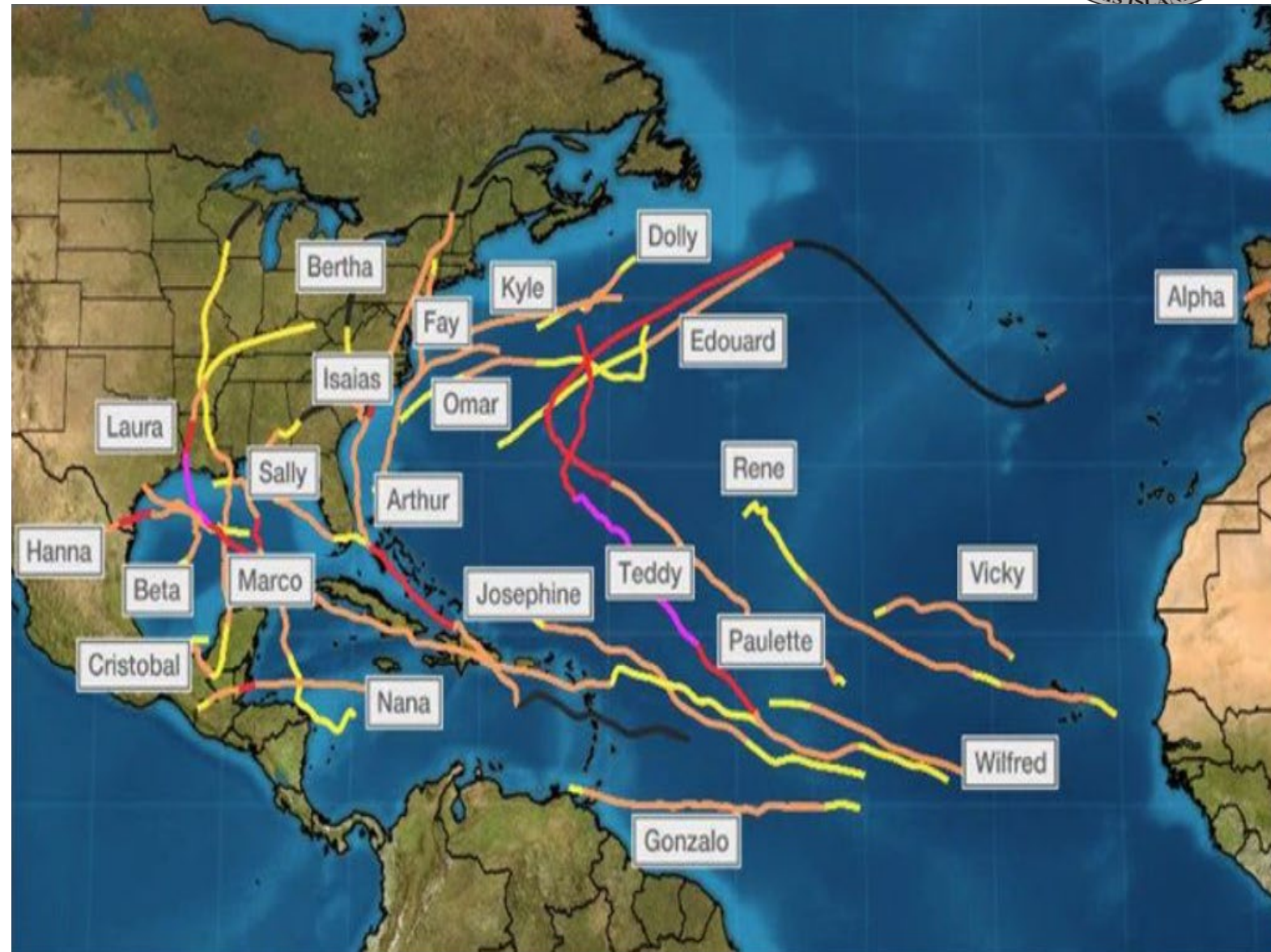
- 14 Named Storms
- 8 Hurricanes
- 2 Major Hurricanes

2023 Pre-Season Forecast

- 13 Named Storms
- 6 Hurricanes
- 2 Major Hurricanes

*1st season in 8 years w/ avg prediction

*2021 2nd consecutive season to exhaust names





Storm Names



Arlene

Harold

Ophelia

Bret

Idalia

Philippe

Cindy

Jose

Rina

Don

Katia

Sean

Emily

Lee

Tammy

Franklin

Margot

Vince

Gert

Nigel

Whitney



Tropical Cyclone Categories



Category	Wind Speed
Tropical Depression	Maximum sustained winds near the surface less than 39 mph
Tropical Storm (TS)	Winds of 39–73 mph > 1 min.
Hurricanes or Typhoons	Winds of 74 mph or more



Tropical Cyclone



- What is a Tropical Cyclone?
- Rapidly rotating storm system characterized by:
 - Low pressure center & atmospheric center
 - Strong winds
 - Spiral arrangement of T-storms that can produce heavy rains or squall
 - Typhoon, hurricane, tropical storm, tropical depression, cyclone.....



Hurricane Categories



Mandatory
Evacuation
Beaufort
County
(Zone A)

- **CAT I - 74-95 mph (sustained winds)**
 - **4-5 ft storm surge**, Low lying coastal roads flooded.
 - Minimal damage to trees, & unanchored mobile homes.
- **CAT II - 96 - 110 mph (sustained winds)**
 - **6 - 8 ft storm surge**
 - Moderate damage / Trees down, Major damage to exposed mobile homes.
 - Coastal roads flooded 2-4 hours before.
- **CAT III - 111 - 130 mph (sustained winds)**
 - **9 - 12 ft storm surge**, Significant flooding.
 - Extensive damage
 - Large trees blown down, damage to houses, Mobile homes destroyed
- **CAT IV - 131 - 155 mph (sustained winds)**
 - **13 - 18 ft storm surge, Inland flooding 6 miles in.**
 - Extreme damage, Complete failure of roofs, Major damage to lower floors.
 - Escape routes cut off 3-5 hours before eye arrival.
- **CAT V - 155 + mph (sustained winds)**
 - **20 + ft storm surge / Catastrophic damage**
 - Complete failure of roofs, home and commercial buildings
 - Extensive flooding.



Destructive Weather Hazards



- **Storm Surge**
- **Flooding**
- Rainfall
- Wind
- **Tornadoes**
- Waves/Rip Currents

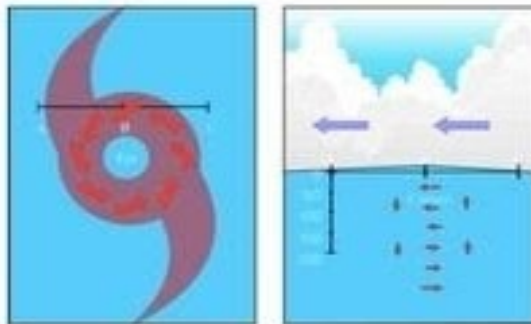


Storm Surge

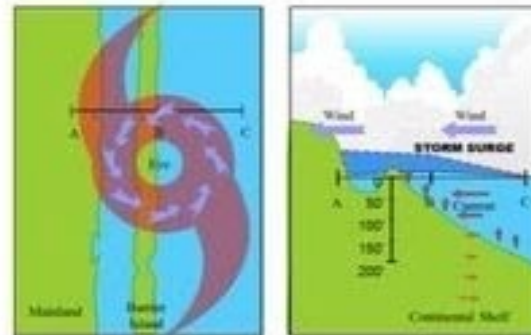


What causes Storm Surge?

Storm surge is caused primarily by the strong winds in a hurricane or tropical storm. The low pressure of the storm has minimal contribution!



The wind circulation around the eye of a hurricane (left above) blows on the ocean surface and produces a vertical circulation in the ocean (right above). In deep water, there is nothing to disturb this circulation and there is very little indication of storm surge.



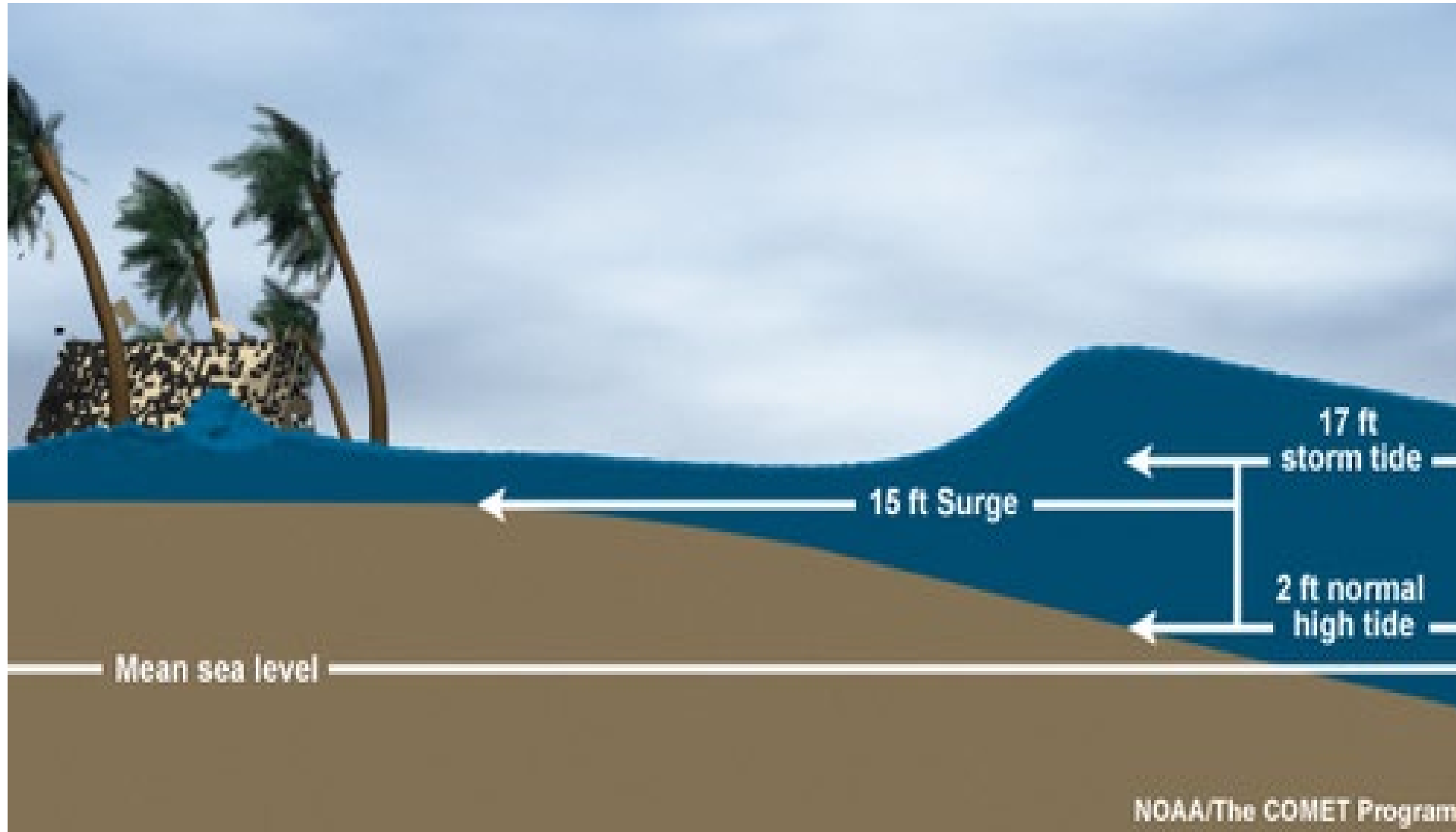
Once the hurricane reaches shallower waters near the coast, the vertical circulation in the ocean becomes disrupted by the ocean bottom. The water can no longer go down, so it has nowhere else to go but up and inland.



In general, storm surge occurs where winds are blowing onshore. The highest surge tends to occur near the "radius of maximum winds," or where the strongest winds of the hurricane occur.



Storm Surge

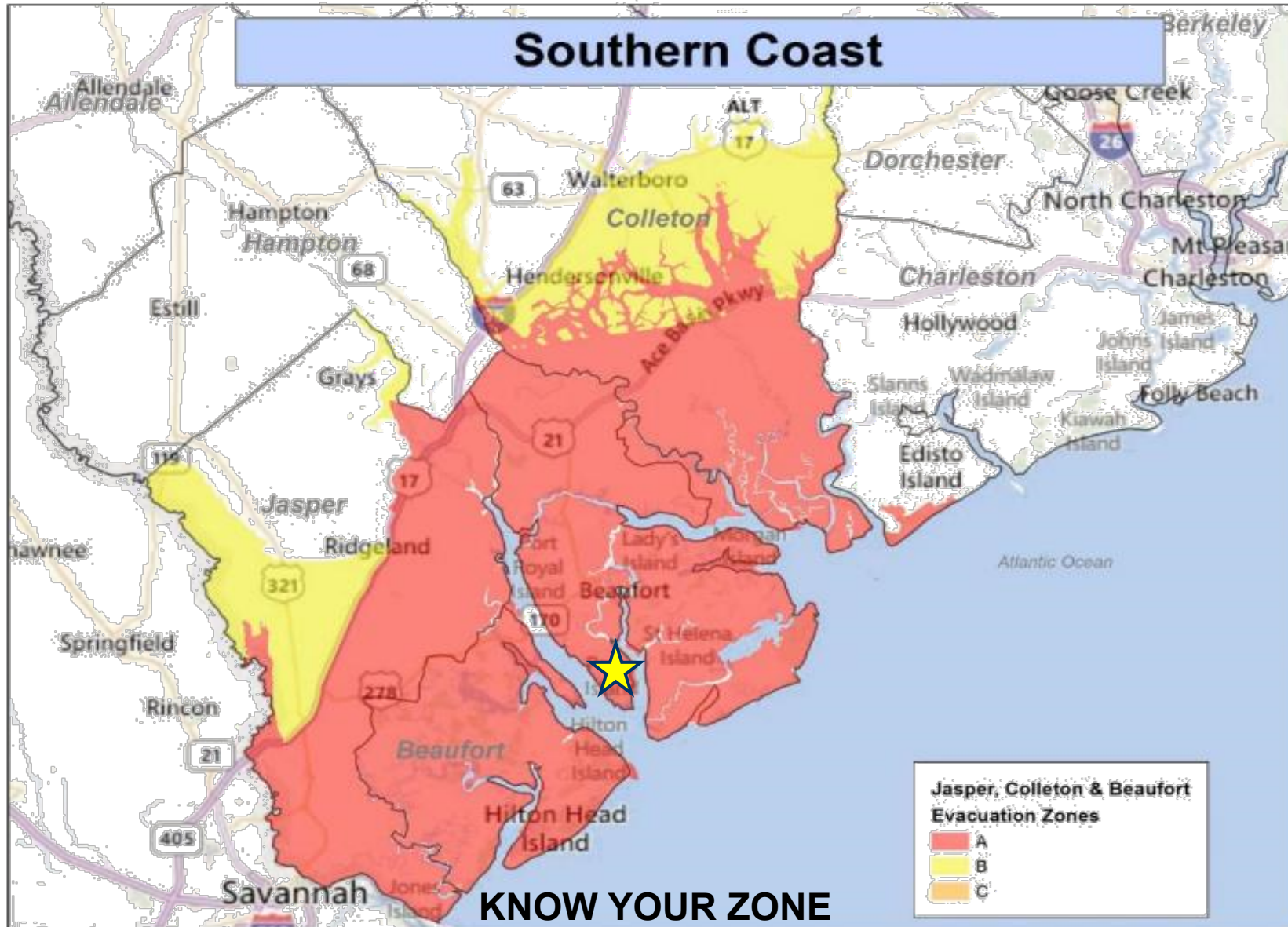


NOAA/The COMET Program

Ref: National Hurricane Center



Evacuation Zones





Evacuations



Mandatory Evacuation

- Governor of SC makes the evacuation decisions for South Carolina
- Always coordinated with MCRD Parris Island
- Beaufort County wants MCRD Parris Island evacuated first
- Our Commanding General makes the evacuation decisions for MCRD Parris Island
- Likely before Beaufort County
- Incurred Expenses as a result of Mandatory Evacuation will be reimbursed



Voluntary Evacuation

- Precautionary measure, some individuals may elect to depart the area before a Mandatory Evacuation Order is given.
- Reimbursement is not necessarily guaranteed (written order needed).

Any expenses incurred prior to or after a Mandatory or Voluntary Evacuation Order will not be reimbursed



Reimbursement



Mandatory Evacuation - Who

- Military Personnel & Dependents ordered to evacuate local area
- Appropriated Fund Civilian Employees ordered & Dependents ordered to evacuate local area
- Typically within 400 mile radius
- **NOT** Military or Civilian Personnel designated to travel to MCLB-A as essential personnel – TAD orders, Lodging and Meals provided, \$5 / day for incidental expenses

Example of Reimbursable Expenses

- Meals
- Mileage (up to 400 miles each way for 1 POV)
- Lodging and Taxes (Hotel)
- Tolls and Hotel Parking






Not Reimbursable

- Pet Fees
- Fees/taxes pertaining to Online Booking Lodging Receipts that are not itemized



Civilian Tier System



-  **Tier 1:** Mission Essential - Will remain at work throughout the closure of the Depot
-  **Tier 2:** Delayed Release / Early Return – Remain with work section to complete final preparations / possible return ahead of main body to prepare the Depot to re-open
-  **Tier 3:** No Special Requirement – leave and return when the CG announces dates / times of Depot closure and re-opening.
-  **Tier 4:** Mission Essential Teleworker – Have the ability to continue working remotely
-  Employees designated as Tiers 1, 2 and 4 will sign a letter informing them of their designation and expectations per legal statute



Case Study: Mexico Beach



Hurricane Michael October 2018

- Categorized as TS in SW Caribbean on 2 October
- Upgraded to Hurricane on 8 October
- Made landfall as Cat V storm on 10 October w 161 mph max sustained winds – max winds and storm surge at Mexico Beach
- Water inundation recorded at 14 ft above ground level
- Population 1200; ~33 % 65 and older; roughly 30% disregard evac order
- 50 deaths in Florida attributed to Hurricane Michael
- 80% structures destroyed; nearby Tyndall AFB total loss





Your Hurricane (Emergency) Plan



Three simple steps:

1. Choose your safe-haven wisely; know shelter locations as well as pet shelters (Beaufort County **DOES NOT** have hurricane shelters)
 - Consider Continuity of Ops (COOP) when choosing your safe-haven
 - Inland: Do not plan on going to Lejeune or other Southeast military bases
2. Have an Evacuation Plan and checklist; review w family
 - **Your family may have to evacuate before you!**
3. **Ensure your Command knows your plan**



Safe Haven



- **Initially, everyone goes to a place and waits out the storm**
- **Everyone must have one identified in advance**
 - Non-emergency safe haven: ≥ 100 miles inland (300 for Matthew)
 - Emergency personnel:
 - Albany, GA
 - MCRD Parris Island / Beaufort Naval Hospital
- **Safe haven period will end after base assessment**
 - Come back home, or...
 - Resume training off-site (“COOP”)
 - Or some combination



Property Considerations



- Place insurance policies and all important papers & documents such as passports, birth & marriage certificates, vehicle titles, big-ticket items / receipts in one safe, centrally located and easy to grab in case of evacuation
- Decide in advance what to do with valuable personal property such as collections of stamps, sports cards, coins, and expensive jewelry in case of evacuation
- If you recently PCS'd to MCRDPI, mail the pick-up household inventory to someone for safe keeping
- Make a video/ photographs of property and mail them to someone in a safe location



Family Preparation Disaster Kit



- Prescription Medications
- Food and Water (3 day supply)
- Flashlights / Batteries
- Valuables / Photos
- Blankets / Spare Clothing
- Portable Radio
- First Aid Kit
- Manual Can Opener
- Canned / Dry Foods
- Baby Items
- Important Documents / Cash
- Children's entertainment





Family Preparation Vehicles



- Pre-Storm
 - Gas up all vehicles in preparation of evacuation and ensure maintenance of the vehicle
 - Check brakes, tires, battery, fire extinguisher, windshield wipers, road side kit
 - Pack an on-the-road safety kit (flashlight, tools, water/food)
- Your Family Preparation Kit
- Also consider: cell phone and phone charger, reflective triangle, and baby formula and diapers if you have a small child

 Ref: <https://www.ready.marines.mil>



Vehicle Emergency Kit



- Food, water, flashlights and extra batteries, first aid kit and necessary medications, signal flares, repair tools, portable AM/FM radio, rain gear, engine fluids, comfortable/sturdy shoes, and blankets or sleeping bags
- Also consider: cell phone and phone charger, reflective triangle, and baby formula and diapers if you have a small child

Ref: <https://www.ready.marines.mil>



Preparing Your Children



- Talk about potential hazards.
- Designate a family meeting place.
- Know the school's plans for your child.
- Make a communication plan.
- Practice your family emergency plan with children.
- Have a current Family Care Plan.





Preparations for Pets



- Bring pets inside
- Check your pet's ID
- Ensure vet records are current and up-to-date
- Have a plan for shelter
- Make a pet emergency supplies kit

If you evacuate, take your pets with you!



HURRICANE SAFETY (Post-Storm)



- Post-Storm
 - Return when the area has been deemed safe by appropriate authorities
 - Be aware of electrical lines. Never attempt to move a downed power line
 - Use protective equipment such as gloves when cleaning up after the storm. Snakes, rats and other hazardous wildlife find debris piles to be a great place to live after storms
 - Many areas on base may be underwater
 - Avoid driving through or parking in low-lying areas
- Generator Safety
 - Never operate indoors
 - Includes: garages, basements, crawlspaces, sheds
 - Can cause Carbon Monoxide (CO) poisoning



Helpful Resources



**Department of
Homeland Security**



FEMA



NMCRS



**American
Red Cross**

American Red Cross



Military OneSource



Ready.gov
















[Ready America](#) | [Ready Business](#) | [Ready Kids](#) | [En Español](#)

Search:



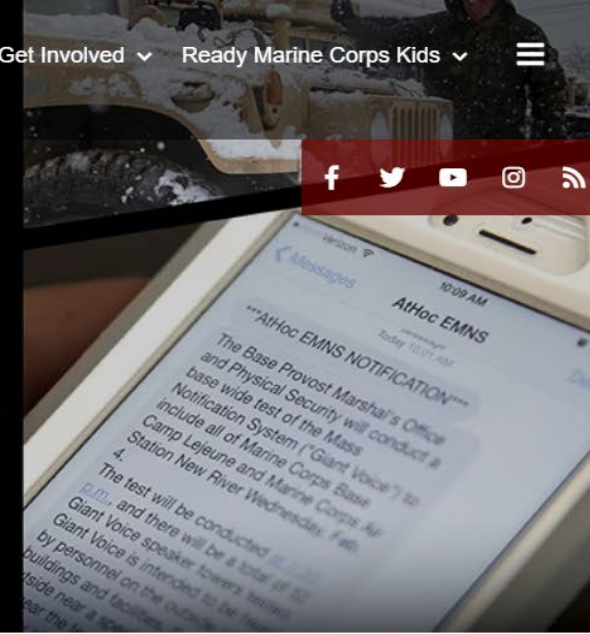
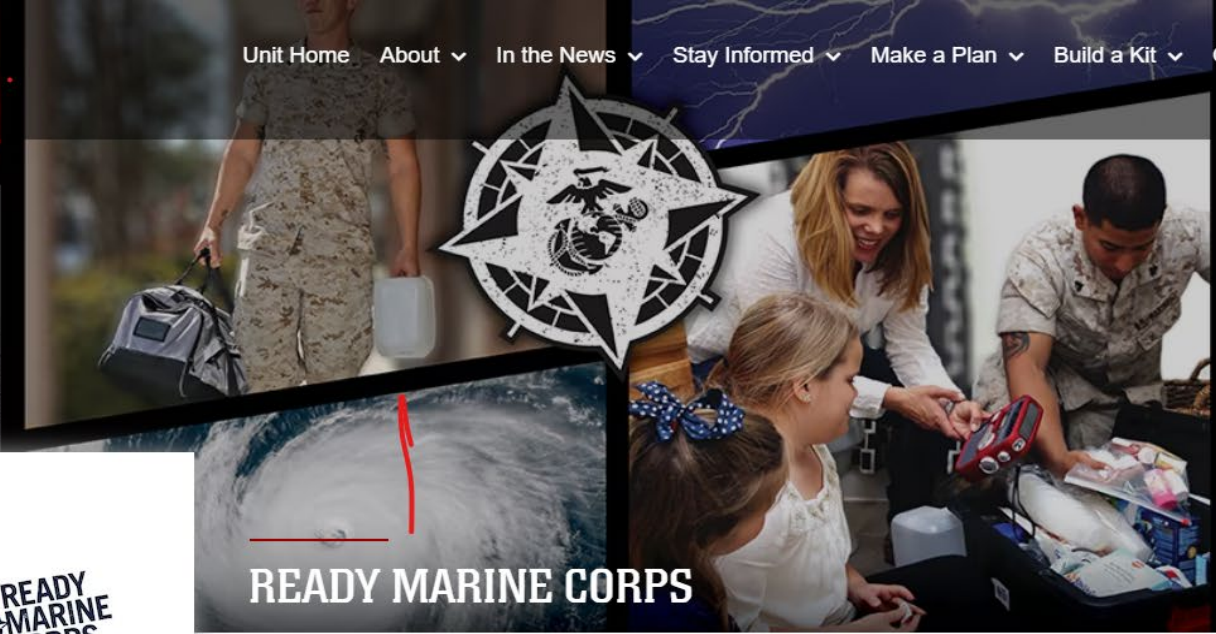
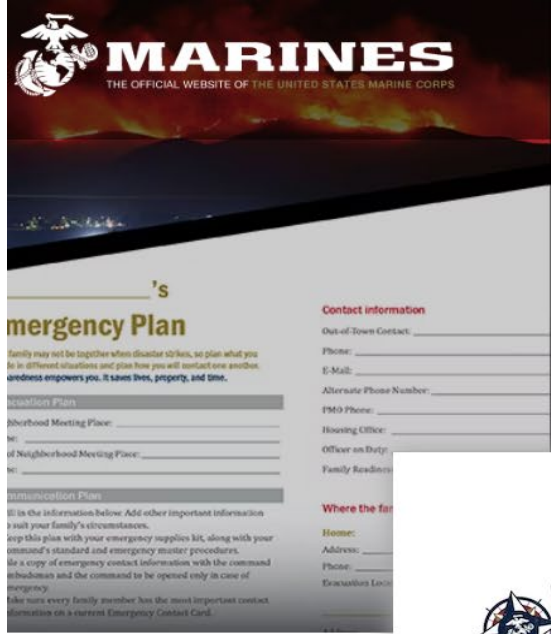
Homeland Security

<ol style="list-style-type: none"> 1 Get A Kit 2 Make A Plan 3 Be Informed 	<p>Emergencies can range from inconvenient to devastating.</p> 	 <p>Click Here to watch Ready's Instructional Videos.</p>
<p>Special Preparedness Information For</p> <ul style="list-style-type: none"> • National Preparedness Month 2008 • Hurricane Preparedness • New Testimonial • Minor League Baseball Partnership <p>Featured Ready Content</p> <p>Register to Become a NPM Coalition Member </p> <p>Older Americans </p> <p>People With Disabilities </p> <p>Pet Owners </p>	<p>Checklists and Downloads</p> <ul style="list-style-type: none"> • Downloading and Ordering all Ready Publications  <ul style="list-style-type: none"> • Get A Kit Checklist  • Ready Brochure  • Family Emergency Plan  <p> Adobe Acrobat Reader required.</p>	<p>Community and State Information</p> <p>Want to reach your state or local government to see how you can prepare for events that happen in your area?</p>  <p>Use the menu below or click here.</p> <p><input type="text" value="Jump to a state or territory..."/>  <input type="button" value="Go!"/></p>





Ready Marine Corps



EMERGENCY PREPAREDNESS PROGRAM

Brought to you by your Marine Corps Emergency Management Team

Go here for eMNS / AtHoc Registration!!!



THREE STEPS TO READINESS



<https://www.ready.marines.mil/>



















American Red Cross



Mobile Apps

 <h3>Wildfire</h3>	 <h3>Flood</h3>
<p>Get preparation tips, news and updates on active wildfires. Plus, let loved ones know you're safe even if the power is out.</p> <p>Disponible en español</p> <p>Download on the App Store</p> <p>GET IT ON Google Play</p>	<p>Learn and prepare your family and friends for flooding, evacuation and a safe return home.</p> <p>Disponible en español</p> <p>Download on the App Store</p> <p>GET IT ON Google Play</p> <p>Or text: "GETFLOOD" to 90999</p>

 <h3>Hero Care</h3> <p>Whether you're the parent of a child joining the military or a member of the military/veteran communities, Hero Care will connect you to important resources that can help you through both emergency and non-emergency situations.</p> <p>Download on the App Store</p> <p>GET IT ON Google Play</p> <p>Or text: "GETHEROCARE" to 90999</p> <p>App sponsored by:</p> 	 <h3>First Aid</h3> <p>Get instant access to information on handling the most common first aid emergencies.</p> <p>Download on the App Store</p> <p>GET IT ON Google Play</p> <p>Or text: "GETFIRST" to 90999</p> <p>App sponsored by:</p> 	 <h3>Blood</h3> <p>Schedule blood donation appointments, track total donations and earn rewards as you help us meet the constant need for blood.</p> <p>Download on the App Store</p> <p>GET IT ON Google Play</p> <p>Or text: "BLOODAPP" to 90999</p>	 <h3>Pet First Aid</h3> <p>Be prepared to help your furry friends with veterinary advice in everyday emergencies.</p> <p>Download on the App Store</p> <p>GET IT ON Google Play</p> <p>Or text: "GETPET" to 90999</p> <p>App sponsored by:</p>  
---	---	---	---

 <h3>Emergency</h3> <p>This all-inclusive app lets you monitor more than 35 different severe weather and emergency alerts, to help keep you and your loved ones safe.</p> <p>Disponible en español</p> <p>Download on the App Store</p> <p>GET IT ON Google Play</p> <p>Or text: "GETEMERGENCY" to 90999</p> <p>App sponsored by:</p> 	 <h3>Tornado</h3> <p>Receive weather alerts whenever the NOAA issues a tornado watch or warning for your community – or any location where you have loved ones.</p> <p>Disponible en español</p> <p>Download on the App Store</p> <p>GET IT ON Google Play</p> <p>Or text: "GETNADO" to 90999</p> <p>App sponsored by:</p> 	 <h3>Hurricane</h3> <p>Monitor hurricane conditions in your local area, throughout the storm track, and let others know you are safe even if the power is out.</p> <p>Disponible en español</p> <p>Download on the App Store</p> <p>GET IT ON Google Play</p> <p>Or text: "GETDANE" to 90999</p> <p>App sponsored by:</p> 	 <h3>Earthquake</h3> <p>Receive notification when an earthquake occurs, find help and let others know you're safe even if the power is out.</p> <p>Disponible en español</p> <p>Download on the App Store</p> <p>GET IT ON Google Play</p> <p>Or text: "GETQUAKE" to 90999</p> <p>App sponsored by:</p> 
--	---	--	--



Additional Sources of Info



- ❑ **Depot :**
 - 1-800-343-0639, Option #3
 - Facebook®
 - <https://www.facebook.com/parrisisland/>

- ❑ **County will control return to Beaufort Area:**
 - 1-800-963-5023
 - www.bcgov.net

- ❑ **South Carolina Emergency Management**
 - www.scemd.org
 - <http://scemd.org/stay-informed/publications/hurricane-guide/>
 - **SCEMD App – on iTunes® and Google Play® App Stores**



Hurricane Trivia



- Name a hurricane-related hazard.
- Name a Hurricane that made landfall in South Carolina.
- Name a hurricane that **DID NOT** make landfall in South Carolina but had impacts to the state and MCRDPI.



Be Ready:

Have a Family Emergency Plan!



Questions?

- ✓ Know what to do and where to meet in an emergency.
- ✓ Have contact information for all family members.
- ✓ Know your installation's evacuation procedures.
- ✓ Implement Family Care Plan if necessary and know your resources/shelters
- ✓ Recovery plan and coping



Contact Information



Installation Emergency Manager
843-228-2024

CBRNE / CIP Officer
843-228-4929

Antiterrorism Officer
843-228-4765