

# Hurricane Preparedness 2021

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Coordinator

# Hurricane 2020 – Public Information Meetings

- Who am I?
- Why plan for a Hurricane?
- Town actions in the event of a Hurricane
- Individual planning

# My qualifications

- Lifelong resident of Kure Beach –
  - family has been in Kure Beach through all Hurricanes since 1948 and supported town recoveries (Grandfather, Grandmother, Father and Uncle stayed through Hurricane Hazel)
- Active KB Fireman since 1996
  - Participated in response or recovery for Hurricanes Bertha(96), Fran(96), Bonnie(98), Dennis(99), Floyd(99), Isabel (03), Charlie (04), Ophelia(05), Ernesto(06), Florence (18), Isaias (20)
- CAPTAIN, USN (ret)
  - Served as Rapid Response member for Navy Reserve – 2002-2004 – to the 1<sup>st</sup> and 5<sup>th</sup> Army responsible for disaster response in the Continental United States
  - Training plan focused on the National Response Plan and interagency response
- Emergency Response Co-Ordinator/Emergency Manager – Kure Beach
  - 2000-2007, 2008-current

# My qualifications

- Training background
  - Emergency Management Institute courses
    - IS-1 Emergency Manager: An Orientation
    - IS-3 Radiological Emergency Management
    - IS-100, 200, 300, 400 Incident Command System
    - IS-700 National Incident Management Systems
    - IS-800 National Response Plan
    - And others
  - Cape Fear Community College
    - Hazardous Material Operator – 24 hr course
    - Certified Fire Fighter 1/2 North Carolina
  - US Navy
    - Firefighting, Hazardous Material, Nuclear Incident Management

# Kure Pier – Hurricane Hazel



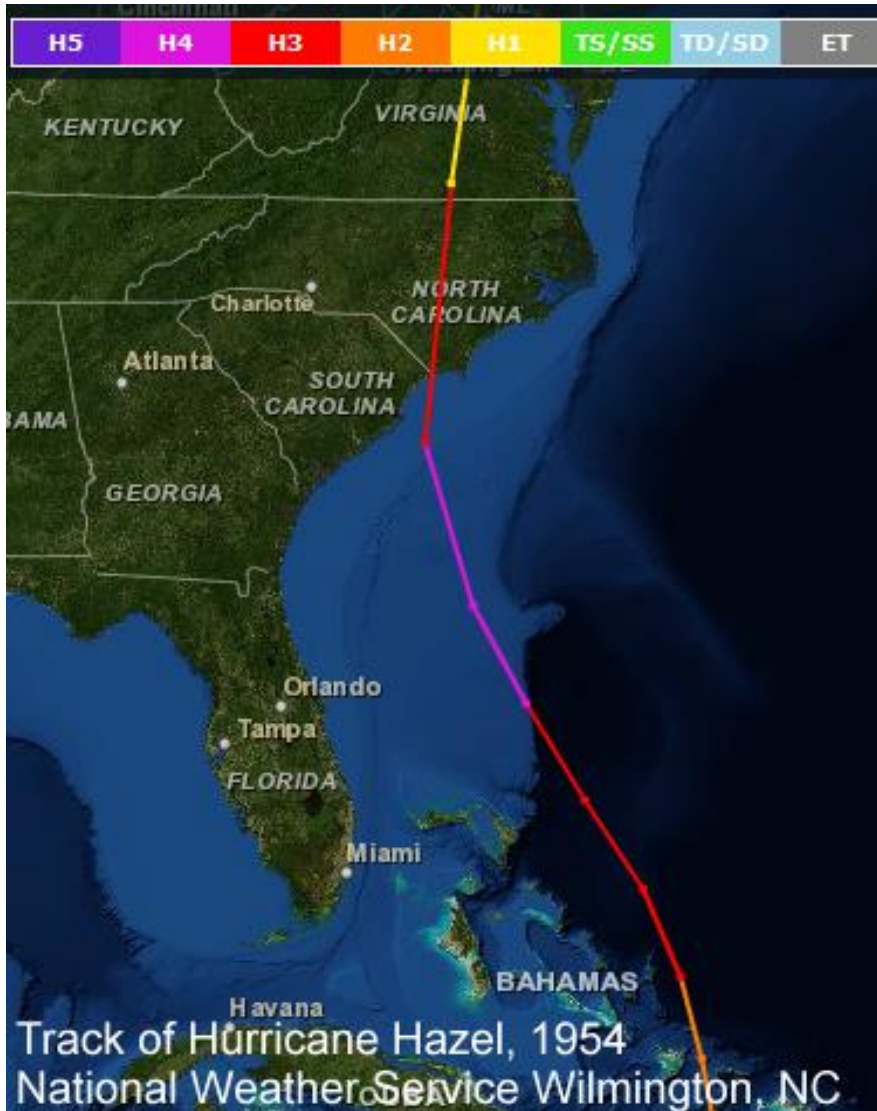
# Hurricane Fran



# Hurricane Fran



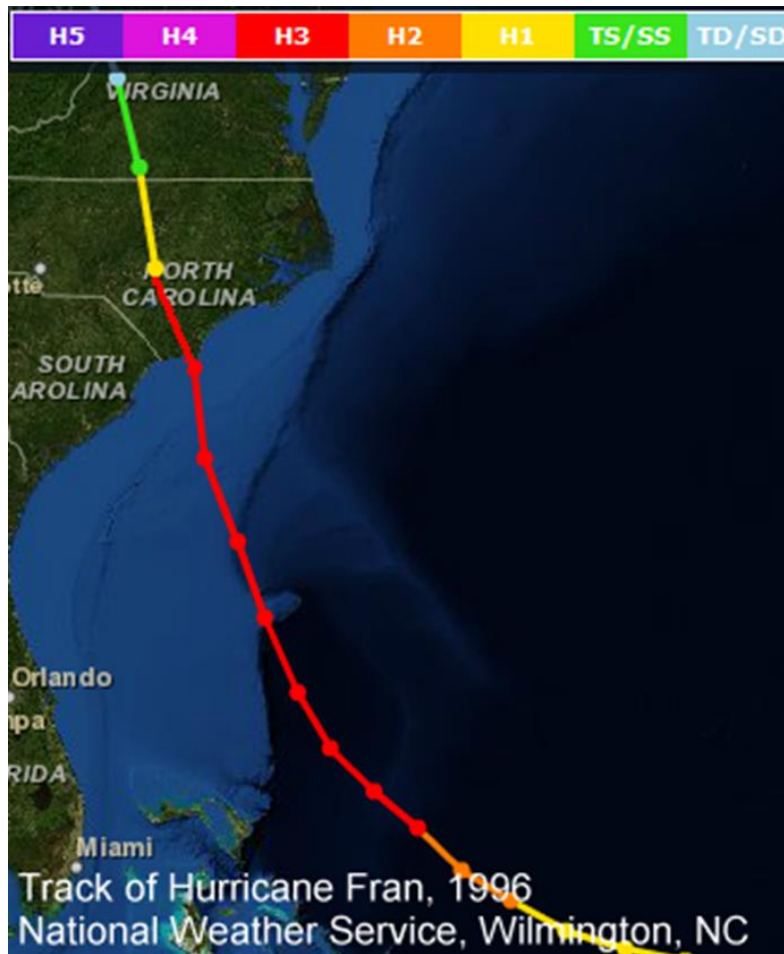
# Hazel - 1954



- In terms of destruction, it is hard to find a hurricane in the Carolina's history to match Hazel. On October 15, 1954 the center of this legendary hurricane slammed ashore near the NC/SC state line causing a level of devastation virtually unmatched in the local historic record.



# Fran - 1996



- Fran killed 22 people and produced over \$1.6 billion in insured property damage in the United States, the vast majority of that in North Carolina. New Hanover County officials estimated Fran generated four times as much storm debris as Bertha did. In Kure Beach, Bertha destroyed the fishing pier, then Fran damaged the tackle shop that remained – as well as totally destroying over 40 homes.

# Hurricane Florence



# Hurricane Florence



# Hurricane Isaias



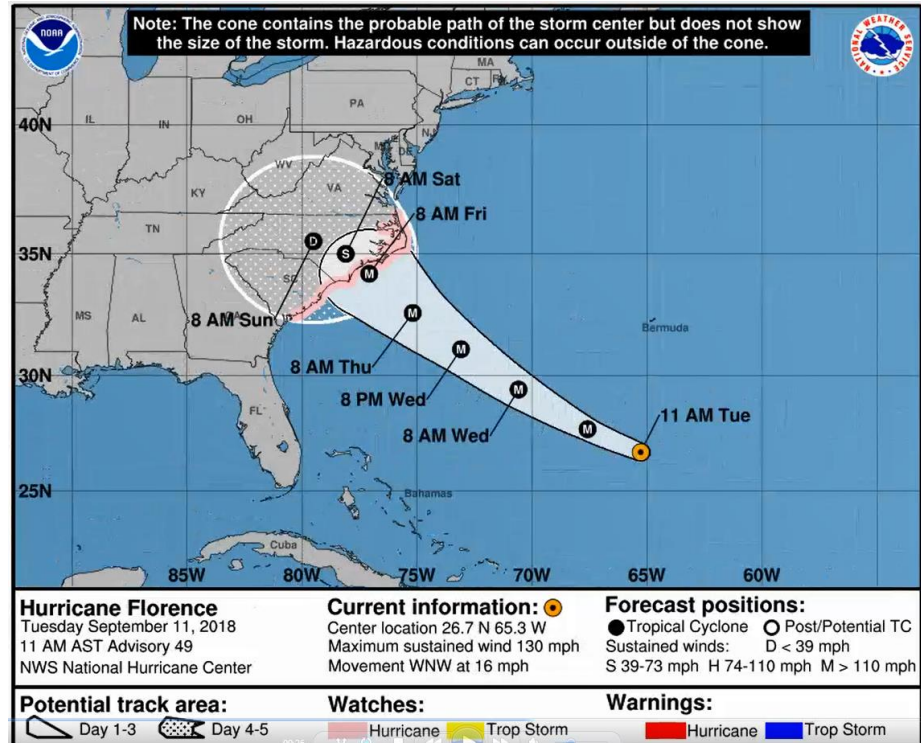
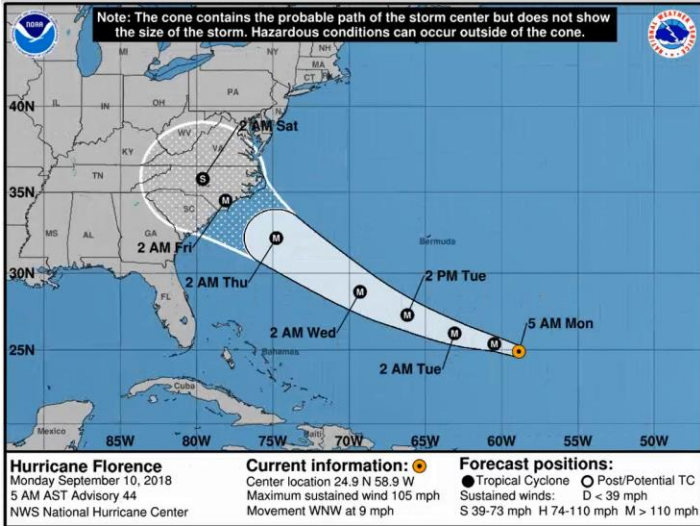
Brunswick County, NC

Oak Island Fire

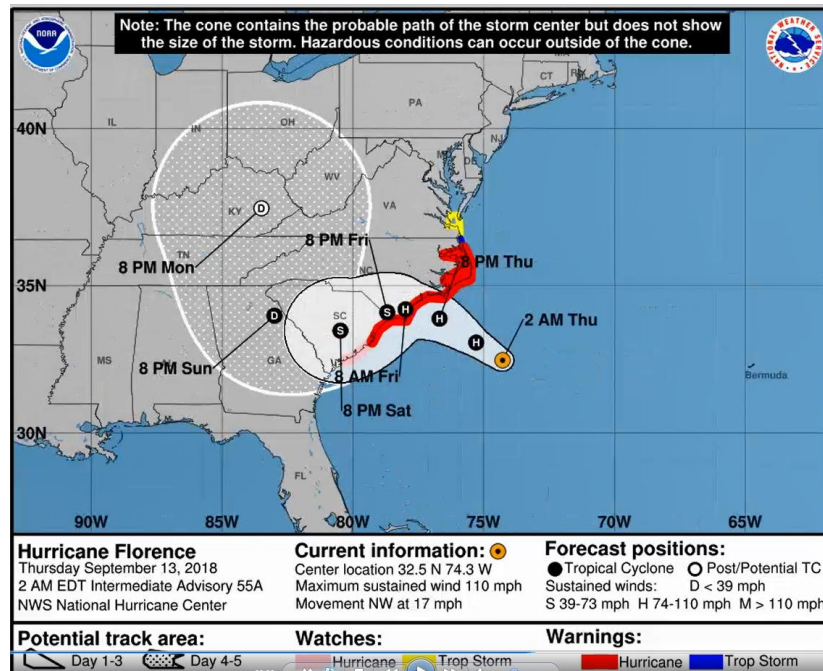
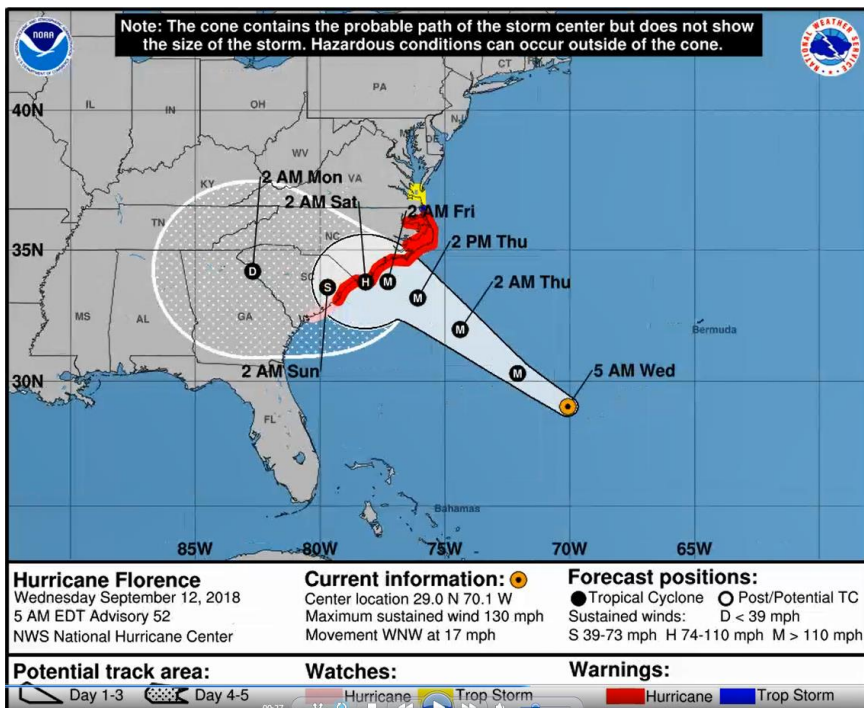


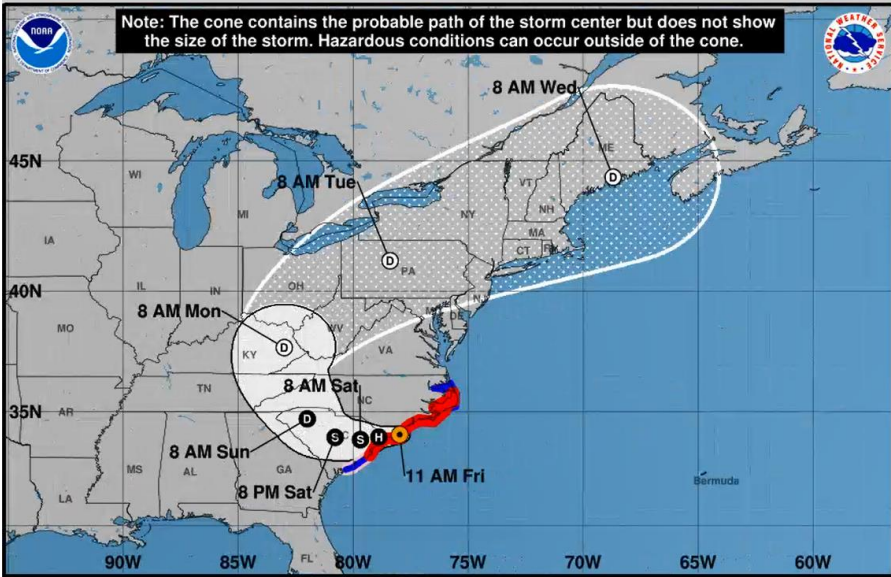
# Why plan for a Hurricane?

- <https://www.weather.gov/ilm/hurricaneflorence>



# Why plan for a Hurricane?





Note: The cone contains the probable path of the storm center but does not show the size of the storm. Hazardous conditions can occur outside of the cone.

**Hurricane Florence**  
 Friday September 14, 2018  
 11 AM EDT Advisory 61  
 NWS National Hurricane Center

**Current information:** ●  
 Center location 34.0 N 78.0 W  
 Maximum sustained wind 80 mph  
 Movement WSW at 3 mph

**Forecast positions:**  
 ● Tropical Cyclone ○ Post/Potential TC  
 Sustained winds: D < 39 mph  
 S 39-73 mph H 74-110 mph M > 110 mph

**Potential track area:**

**Watches:**

**Warnings:**





# Hurricane Florence

- Monday 9/10 Council meeting
  - State of Emergency Declared Monday 9/10 at 11am
  - Mandatory Evacuations beginning Tuesday 9/11 at 8 am to be complete by Wednesday 9/12 by 8 pm
- Tuesday 9/11 Emergency Meeting
  - Forecast Category 4 Hurricane arriving Thursday with Tropical Storm force winds Thursday morning
  - Expected Storm surge 4-6 feet – putting wash line at the 2<sup>nd</sup>/3<sup>rd</sup> row of houses
  - Expect 7 ½ inches of Rain
- Wednesday 9/12 Emergency Meeting
  - Storm is slowing – expect Tropical Storm winds Thursday night – Saturday
  - Landfall predicted 2 am on 9/15 (Saturday) potentially at High tide
- Thursday – Sunday – Executing storm activities by departments

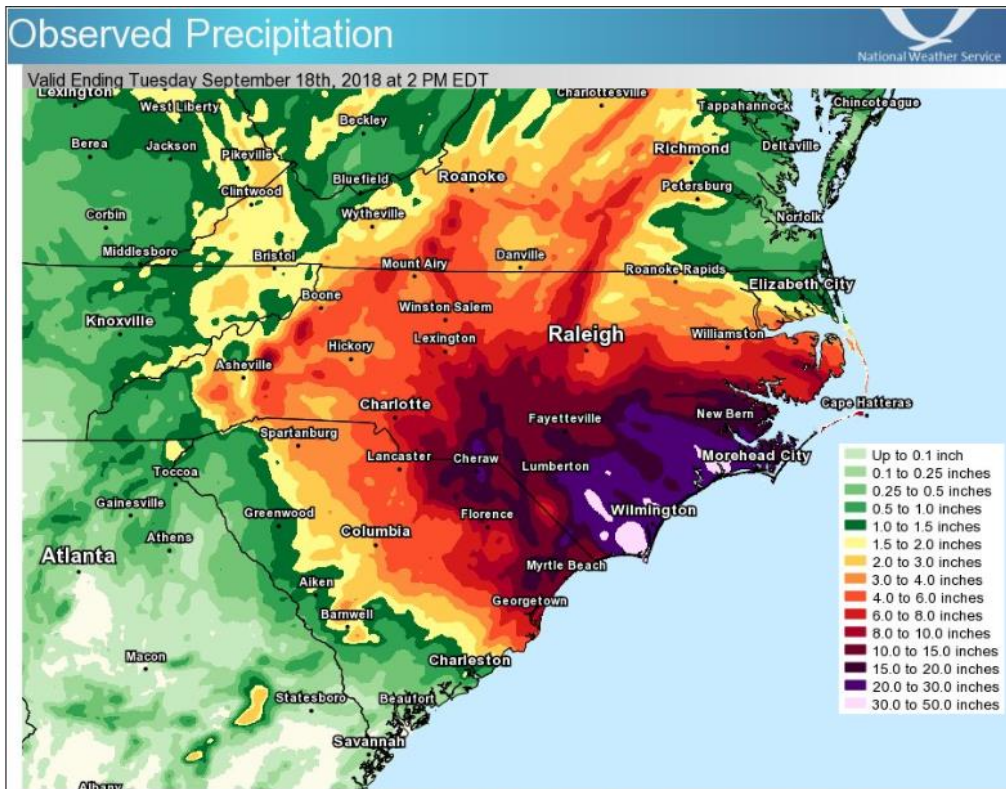
# Hurricane Florence

- Sunday 9/16 3 pm
  - 24 hour curfew
  - 10% of town has power (Duke Power restoring services)
  - Storm water draining in all areas (>28 inches of rain)
  - National Guard assisting Police on curfew enforcement
  - Fire Department assisting Public Works and Duke Energy as requested
  - City of Wilmington isolated due to road closures
  - Fuel concerns in multiple community emergency services
  - Carolina Beach having water pressure issues
  - Main Sewage treatment plant is overloaded for Pleasure Island
  - Food/shelter concerns in Wilmington and New Hanover County
- Monday 9/17
  - Bridge opened at noon to allow citizens in Wilmington/New Hanover County to return to Pleasure Island
  - Curfew from 8 pm to 6 am as multiple properties still without power and many residents cannot get through Wilmington to return.

# Hurricane Florence

- Tuesday 9/18
  - Discontinued State of Emergency at 8pm following restoration of the majority of power in the town, all water/sewer systems working properly and unsafe areas barricaded and marked throughout town

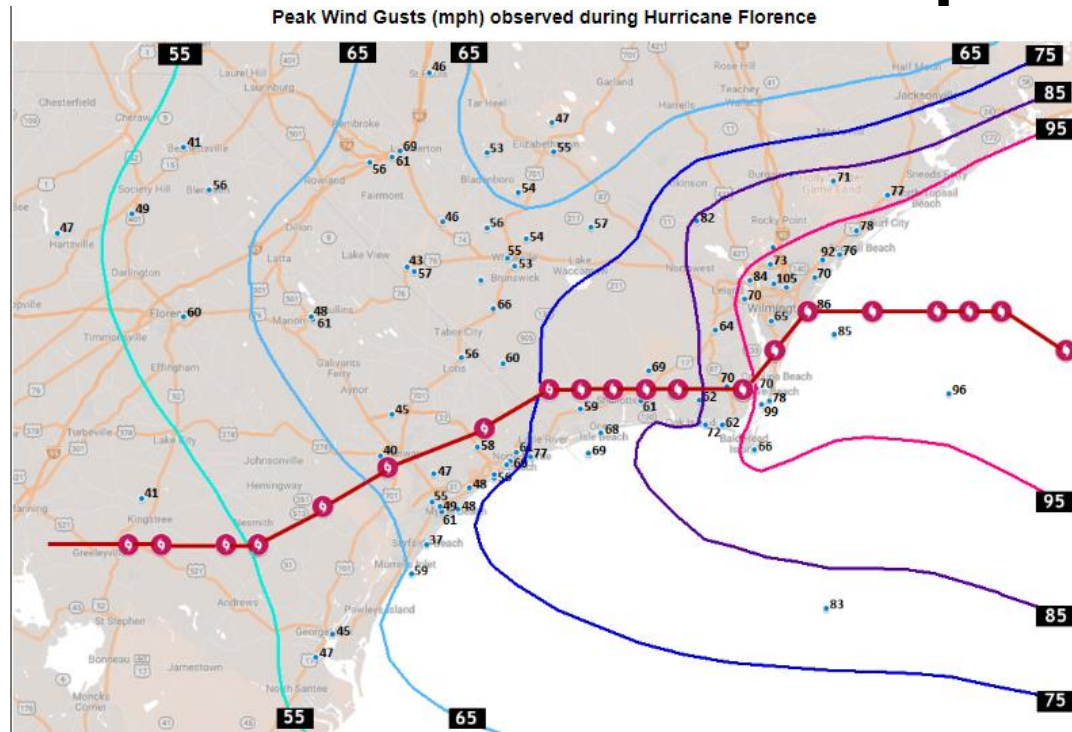
# Rainfall - >27.44 inches



Multi-sensor rainfall estimates from Hurricane Florence, produced by National Weather Service Eastern Region Headquarters.

| Location                          | Rainfall Total | Location             | Rainfall Total |
|-----------------------------------|----------------|----------------------|----------------|
| 6.2 miles NW Elizabethtown, NC    | 35.93"         | Bennettsville, SC    | 18.05"         |
| 3.7 miles S Wilmington, NC        | 30.10"         | Watha, NC            | 17.49"         |
| 4.1 miles WNW Hampstead, NC       | 29.52"         | Lumberton, NC        | 17.49"         |
| Sunny Point Military Terminal, NC | 27.44"         | Gallivants Ferry, SC | 17.01"         |

# Peak Wind – 78 mph



Map of peak wind gusts (mph) observed during Hurricane Florence on September 14, 2018. NHC hourly position updates are also shown. Isopleths indicate the highest observed wind gusts in open locations like airports, parks, and farms.

| Location                                | Max Wind Gust (mph) | Location                         | Max Wind Gust (mph) |
|---|---------------------|----------------------------------|---------------------|
| Wilmington, NC (airport)                | 105                 | Sunny Point, NC (RAWS station)   | 70                  |
| Cape Fear Comm. College, Wilmington     | 100                 | Lumberton, NC (airport)          | 69                  |
| Federal Point, NC                       | 99                  | Ocean Isle Beach, NC             | 68                  |
| Hampstead, NC (EMS/Fire station)        | 92                  | Tabor City, NC                   | 66                  |
| Wrightsville Beach, NC (J. Mercer Pier) | 86                  | Bald Head Island, NC (NC EConet) | 66                  |
| I-140 near Cape Fear River, NC          | 84                  | Fayetteville, NC (airport)       | 65                  |
| Currie, NC                              | 82                  | Fort Bragg, NC                   | 62                  |
| Hampstead, NC (Kiwanis Park)            | 78                  | Myrtle Beach, SC (airport)       | 61                  |
| Fort Fisher, NC                         | 78                  | Marion, SC                       | 61                  |
| Holly Ridge, NC                         | 77                  | Florence, SC (airport)           | 61                  |
| Cherry Grove Beach, SC                  | 77                  | North Myrtle Beach, SC (airport) | 60                  |
| Myrtle Grove, NC                        | 76                  | Chadbourn, NC                    | 60                  |
| Castle Hayne, NC                        | 73                  | Murrells Inlet, SC               | 59                  |
| Oak Island, NC                          | 72                  | Whiteville, NC                   | 56                  |
| Leland, NC                              | 70                  | Elizabethtown, NC                | 48                  |



# Hurricane Florence – the facts

- In Kure Beach it was barely a Hurricane – it came in around Wrightsville Beach and sat – but peak wind measured at Fort Fisher was 78 mph and at Federal Point (Carolina Beach) was 99 mph
- It was a very significant rain event – with >27 inches measured during the storm at Sunny Point – reminder that the stormwater system is designed for significantly less than that amount and had excessive overflows throughout the town
- While not confirmed a tornado or micro-burst did occur at the National Training Guard center damaging one of their main buildings.
- IT was not as serious from an Ocean Surge or Wind event as Hurricane Fran (Cat 2 with over 40 homes in KURE BEACH destroyed) and was definitely not Hurricane Hazel.

# What could it have been?

- Hurricane Michael – 2018 – Mexico Beach, FL
- Similar forecast 3 days before landfall
- Similar topography of Kure Beach
- Instead of dropping intensity – ramped up to now classified Cat 5 Hurricane





# 3 day forecast – Cat 3 – same as Florence at same time

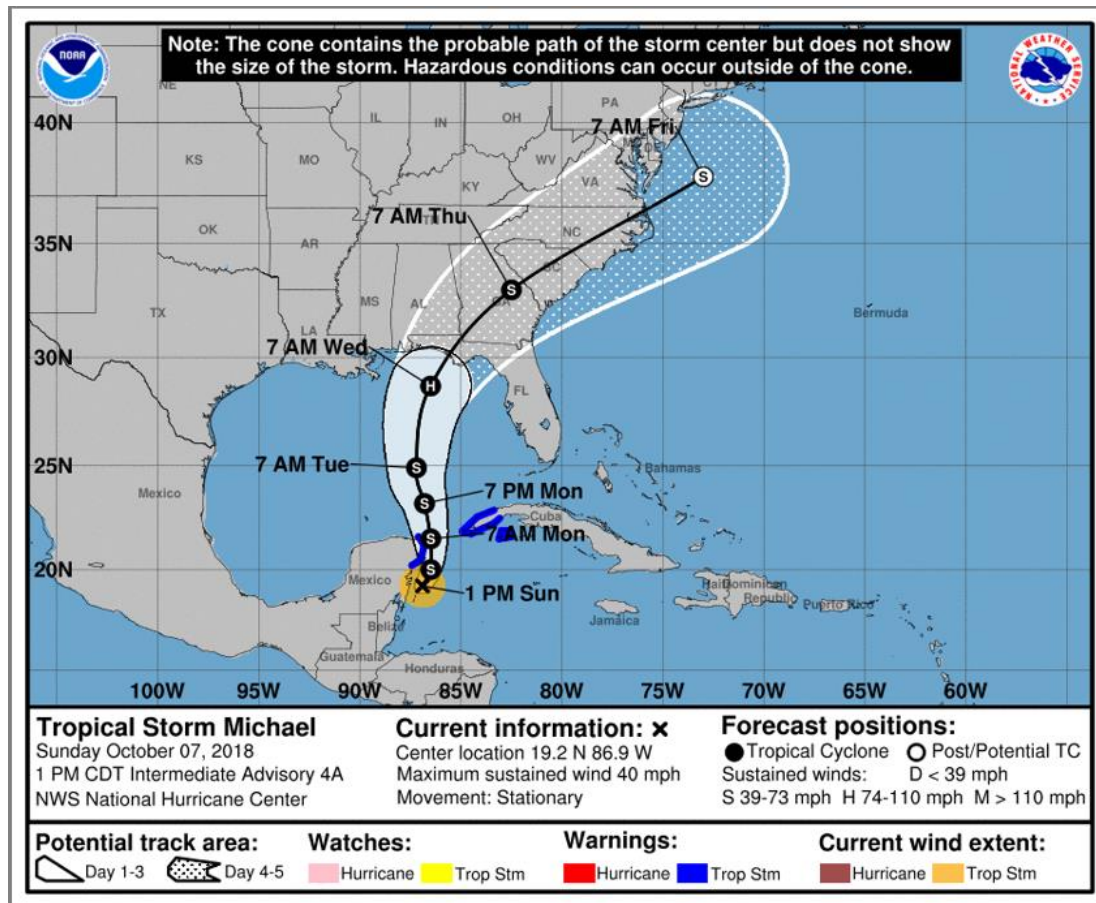


Figure 3: Track forecast issued at 2pm 7 October as Michael became a Tropical Storm

# What could happen

<https://www.weather.gov/tae/HurricaneMichael2018>



# Town Actions

- The town's Emergency Response Plan separates actions into three phases:
  - Preparedness
  - Response
  - Recovery
- The preparedness phase begins prior to Hurricane Season (June 1<sup>st</sup>) and continues until the a state of emergency is declared prior to landfall by the Governor, County Commissioners or Kure Beach Town Council.

# Preparedness - Town

- **Provide public information** (ERC, Council)
  - Letter from the Emergency Response Coordinator to all citizens
  - Public Hurricane information forums
  - How to request information
  - Update the Town website with this presentation
- **Training** (ERC, Department Heads)
  - All Department Heads provide training and information on department responsibilities to their personnel
  - Volunteers are solicited and provided specific training to support the functions that they are assigned within the hurricane plan
  - National Incident Management System (NIMS) – federal requirement for FEMA online courses to support response by ensuring all Emergency personnel – including volunteers, understand how the Federal Government requires emergency response to occur.

# Preparedness - Town

- Planning

- Each Department has specific designated planning responsibilities
- Arrange for vendor support – generators, supplies, etc
- ERC presents updated Hurricane plan to Town Council at the May meeting – for approval at the June meeting (Historically the earliest Hurricane to hit Kure Beach was Bertha – July 12, 1996)
- Ensure department personnel have family action plans to support department requirements.
- Provide updated contact information to the NHC EOC
- Participate in NHC Emergency Management planning.
  - May – 3 day NHC Hurricane drill at the EOC

# Response - Town

- **Priorities of Response**
  - Life Safety – including Emergency Personnel
    - This means no response during the storm (>45 mph winds)
  - Protecting Emergency response (includes access) and public property
  - Restoration of services – priority is water pressure (Firefighting, re-certification of water systems), sewer (prevent overflow and subsequent health concerns), electrical (with Progress Energy support)
  - Ensuring private property is protected
  - Restoration of public access to property

# Response - Town

- Life Safety
  - Provide timely decisions on evacuation and communicate to all citizens
  - Encourage citizens to have a Hurricane plan and to evacuate
  - During the storm (sustained winds > 45 mph) – emergency personnel will shelter in place at location based on storm severity – this means that for those who stay – YOU ARE ON YOUR OWN.

# Response - Town

- Protecting Emergency response – public property
  - Water tower isolated prior to the storm
  - Public buildings shuttered
  - Generators operating wells
  - Isolation of water to 1<sup>st</sup> row homes Category 3 or greater
  - Emergency personnel lock-in or relocate to designated areas
  - Rental equipment staged for restoring emergency access
  - Agreements for debris removal after storm landfall.



# Response - Town

- Restoration of services
  - Public works and fire department will verify water system integrity and return water tower to service. Maintain – return generators to operation on wells – isolate any breaks in system.
  - Damage Assessment teams will audit town for damage to report to NC and NHC Emergency Management
  - Ensure sewer system integrity manually pump lift stations as needed.
  - Fire Department will audit Electrical Distribution System – communicate to Progress Energy to facilitate Electrical restoration

# Ensuring Private Property Protected

- Evacuation orders based on Hurricane Severity
- Curfews enforced following the storm until Damage Assessments completed, Public Safety Issues resolved
- Curfews initially enforced by Kure Beach Police Department – for larger storms with significant damage NC National Guard and NC Highway Patrol provide extended support
- The town has an excellent record of protecting private property – no confirmed incidents of looting during any event in the past 11 years

# Restoration of Public Access

- Requires public safety issues resolved/contained and water (firefighting) and sewer (protect public property) service minimally restored
- Requires Kure Beach residency or ownership during the recovery phase – contractors are signed in through Building Inspections Department
  - Access is facilitated by Vehicle Town ID stickers
  - Recommend you ensure via NHC Public Information Office that the Carolina Beach Bridge is open to Residents/Property Owners PRIOR to returning
    - In FRAN – there was very long lines at the bridge
- General access restored when all town services are returned to full service.

# What can (and should) you do?

- Before the Storm
- During the Storm
- After the Storm

# Before the Storm

- Know the hurricane risks for your area. Find out if your home is subject to storm surge flooding.
- Inspect your property for potential problems that may arise during a hurricane. Trim back dead branches from trees, and take note of any objects that may become airborne during high winds.
- Consider installing permanent protection for your windows. Hurricane shutters offer excellent protection, but marine plywood panels of ½ inch thickness may be a more feasible form of window protection during a weather emergency. Learn how to install the panels and be sure to mark which panels will go where when needed.
- If you own a boat, plan ahead where you will put it in case of a weather emergency.
- Ensure your property insurance is up to date and sufficient.
- Inventory your property by making a list, taking photographs, or making a video. Store records in a secure, dry place like your safety deposit box.
- Create a [Family Disaster Plan](#) and make sure family members know what to do. Assemble a [Disaster Supply Kit](#). Plan your evacuation route.
- Learn Locations of [Emergency Shelters](#).
- Make arrangements for [Pets](#).
- Make the commitment now to evacuate when told to do so by local officials.

# Your Hurricane Plan – don't count on luck

## Understand the threat

- Get information on how to prepare for a hurricane – New Hanover County website is a good source.
- Acknowledge that you live in a Hurricane evacuation area – during the season pay attention to storms – be aware of the threat.
- Learn about animal care. Animals are not allowed in shelters.
- Find out about disaster plans at your workplace, your children's school or daycare center and other places where your family spends time at. Factor in these issues when planning to prepare your property for the storm.

# COVID 19

- Consider this in your plan
  - Currently State/County officials are determining the modifications that are necessary to shelters for COVID 19 – this may reduce shelter capacity
  - Recommend you have alternatives for evacuation
    - Multiple cities – pick as path is defined
    - Multiple options – family/friends/multiple hotels
      - » Have the numbers ready – make decisions early
      - » Are they open – do they have extra requirements
  - Additions to what you take
    - Disinfectant/Hand sanitizer
    - Masks – may be required in shelters, stores, hotel common areas

# Your Disaster Plan

## Create a Plan

- Hold a family meeting and discuss why you need to prepare for disaster. Explain the dangers of a hurricane to your children.
- Discuss the levels of hurricane and your response to them.
  - Decide now what you will do for each level
  - If you plan to stay – make sure YOU are ready to be on YOUR OWN
- Create a checklist of actions to prepare your property for a hurricane
  - remove yard items that may become flying debris in high winds.
- Ask an out-of state friend to be your "family contact". After a disaster, it is often easier to call long distance. Other family members should call this person and tell them where they are. Everyone must know your contact's phone number.
- Discuss what to do in an evacuation. Plan how to take care of your pets



# Your Preparations

- Stock emergency supplies and assemble a [Disaster Supplies Kit](#).
- Take a class from the American Red Cross on first aid and CPR.
- Determine the best evacuation routes and your final destination.
- Learn location of all [Emergency Shelters](#) that might be opened in the event of a disaster.

# What the news means

- ***Hurricane Watch:*** A hurricane watch is issued when there is a threat of hurricane conditions within 24-36 hours. When a hurricane watch is issued, stay tuned to television or radio for official bulletins of the hurricane's progress. If evacuation has not already been recommended or ordered, consider leaving early to avoid traffic. Remember that weather conditions will deteriorate quickly as the hurricane approaches.
- ***Hurricane Warning:*** A hurricane warning is issued when hurricane conditions (winds of 74 miles per hour or greater, or dangerously high water and rough seas) are expected in 24 hours or less.

# Hurricane Watch

- **When a Hurricane Watch is Issued for Your Area . . .**
- Listen to local officials
- Check often for official bulletins on radio, TV, or NOAA Weather Radio frequency 162.550 MHz
- Fuel Car
- Check mobile Home tie-downs
- Moor small craft or move to safe shelter
- Stock up on canned food
- Check supplies of special medicines and drugs
- Check radio, flashlight batteries, manual can opener
- Secure lawn furniture and other loose material outdoors
- Tape, board, or shutter windows to prevent shattering
- Wedge sliding glass doors to prevent lifting from their tracks
- Turn refrigerator and freezer to coldest settings. Open only when absolutely necessary and close quickly
- Review evacuation plan

# Hurricane Warning

- **When a Hurricane Warning is issued for your area . . .**
- Listen to local officials
- Stay tuned to radio, TV, or NOAA Weather Radio for official bulletins
- Board up garage and porch doors
- Move valuables to upper floors
- Bring in pets
- Fill clean containers with several days supply of drinking water
- Turn up refrigerator to maximum cold and don't open unless necessary
- Use phone only for emergencies
- Stay indoors on the downwind side of house away from windows
- Beware of the eye of the hurricane
- Leave mobile homes
- Leave areas which might be affected by storm tide or stream flooding
- Leave early - in daylight if possible
- Shut off water and electricity at main stations
- Take small valuables and papers but travel light
- Bring your pets inside – winds will begin to pickup rapidly.
- Lock up house
- Drive carefully to your pre-planned shelter location. Leave early and relax.
- Avoid elevators

# Evacuation Ordered

- **If officials indicate evacuation is necessary . . .**
  - Leave as soon as possible.
  - Avoid flooded roads and watch for washed out bridges.
  - Secure your home by unplugging appliances and turning off electricity and the main water valve.
  - Tell someone outside of the storm area where you are going.
  - If time permits, elevate furniture to protect it from flooding.
  - Bring pre-assembled emergency supplies and warm protective clothing.
  - Take blankets and sleeping bags if you go to a shelter.
  - Lock up house and leave.

# It's not just Hurricanes

## Your Family's Emergency Plan

- Quiz your children every six months so they remember what to do.
- Conduct fire and emergency evacuation drills.
- Replace stored water every three months and stored food every six months.
- Test and recharge your fire extinguishers according to manufacturer's instructions.
- Test your smoke detectors monthly and change the batteries at least once a year.

# Directions To Shelters

## **Eaton Elementary School**

- 6701 Gordon Road, Wilmington, NC 28405

## **Dorothy B. Johnson School**

- From Fort Fisher, Kure Beach, Carolina Beach and the Southern end of the County Highway 421 N turn right on Grace Street turn left on McRae Street.

## **Codington Elementary School**

- 4321 Carolina Beach Road, Wilmington, NC 28412

## **Holy Shelter**

- 921 Roger Haynes Dr., Castle Hayne, NC 28429

## **Blair Elementary School**

- 6510 Market Street, Wilmington NC 28429

# Personal Supplies

- Water
  - Store one gallon of water per person per day.
  - Keep at least a three-day supply of water per day (two quarts for drinking, two quarts for each person in your household for food preparation/sanitation)
  - Remember to plan for your PETS!
- Food
  - Ready-to-eat canned meats, fruits, and vegetables
  - Canned juices, milk, soup (if powdered, store extra water)
  - Staples - sugar, salt, pepper
  - High energy foods - peanut butter, jelly crackers, granola bars, trail mix
  - Vitamins
  - Foods for infants, elderly persons or persons on special diets
  - Comfort/stress foods - cookies, hard candy, sweetened cereals, lollipops, instant coffee, tea bags
  - Your Pets need food also!



# First Aid Supplies

- Sterile adhesive bandages in assorted sizes
- Assorted sizes of safety pins
- Cleansing agent/soap
- Latex gloves (2 pairs)
- Sunscreen
- 2-inch sterile gauze pads (4-6)
- 4-inch sterile gauze pads (4-6)
- Triangular bandages (3)
- Non-prescription drugs
- 2-inch sterile roller bandages (3 rolls)
- 3-inch sterile roller bandages (3 rolls)
- Scissors
- Tweezers
- Needle
- Moistened towelettes
- Antiseptic
- Thermometer
- Tongue blades (2)
- Tube of petroleum jelly or other lubricant

# Medicines

- Prescription medicines (7-10 day supply or longer)
- Aspirin or non-aspirin pain reliever
- Anti-diarrhea medication
- Antacid (for stomach upset)
- Syrup of Ipecac (use to induce vomiting if advised by the Poison Control Center)
- Laxative: Activated charcoal (use if advised by the Poison Control Center)
- Heart and high blood pressure medication
- Insulin
- Prescription drugs
- Denture needs
- Contact lenses and supplies
- Extra eye glasses

# Sanitary Supplies

- Toilet paper, towelettes
- Soap, liquid detergent
- Feminine supplies
- Personal hygiene items
- Plastic garbage bags, ties (for personal sanitation uses)
- Plastic bucket with tight lid
- Disinfectant
- Household chlorine bleach

# Important Documents

- **Keep these records in a waterproof, portable container:**
  - Will, insurance policies, contracts deeds, stocks and bonds
  - Passports, social security cards, immunization records
  - Bank account numbers
  - Credit card account numbers and companies
  - Inventory of valuable household goods, important telephone numbers
  - Family records (birth, marriage, death certificates)
  - Digital pictures of your home – on a flash drive with your insurance papers
- **Documents to return home:**
  - Car – Kure Beach decal
  - Proof of ownership or residency
    - waterbill with your name on it
    - Deed or loan with your name and address
    - NC Driver's license with Kure Beach address

# Returning Home



- Wait until Bridge openings are announced prior to driving back
- Two Decals – at no charge to each property mailed with utility bill
- Additional decals on sale for \$20 **until July 31**
- Vehicles without decals will have to stop prior to the bridge to get a decal until bridge is opened to the public.

# Other tools to consider

- Mess kits, or paper cups, plates, and plastic utensils
- Emergency preparedness manual
- Battery-operated radio and extra batteries
- Flashlight and extra batteries
- Cash or traveler's checks, change
- Non-electric can opener, utility knife
- Matches in a waterproof container
- Aluminum foil
- Paper, pencil
- Needles, thread
- Medicine dropper
- Shut-off wrench, to turn off household gas and water
- Whistle
- Plastic sheeting
- Map of the area (for locating shelters)

# Pets

- Not allowed in shelters
- Food
- Water
- Medications
- Leash
- Pet Carrier
- Do Not leave your pet behind – include it in your plan!

# During the Storm

- Stay inside, away from windows, skylights and glass doors.
- Store drinking water in clean bathtubs, jugs, bottles and cooking utensils.
- Keep a supply of flashlights and extra batteries handy. Avoid open flames, such as candles and kerosene lamps, as a source of light.
- If power is lost, turn off major appliances to reduce power "surge" when electricity is restored.
- Fill bath tubs with water that will not be used for drinking.
- **Beware of the "Eye"**  
When the storm center passes directly overhead, there is usually a lull that can last a few minutes to more than half-an-hour. This calm is not a sign that the hurricane is over, but is most likely the center or "eye" of the storm. In fact, the most intense part of a hurricane comes just before and just after the eye has passed through an area.

**Stay tuned to local radio for information**



# After the Storm

- Avoid loose or dangling power lines and report them immediately to the power company, police or fire department.
- Beware of snakes, insects or animals driven to higher ground by flood water.
- Enter carefully – damage may not be apparent. Open windows and doors to ventilate and dry home. Check refrigerated foods for spoilage.
- Do not drink the water. Eat only foods you are absolutely sure are safe.
- Be extremely careful when using Generators.
- Be extremely careful when using Chainsaws.
- Use 911 for emergencies only. Remember that fire, rescue and police crews will be overwhelmed with the recovery effort.
- Do not burn any debris until permission is granted to do so by proper authorities.
- Call your Insurance Company to file a claim if your home was damaged.
- Ask your Insurance Company for financial help.
- Listen to local radio stations for official disaster.
- Remember: **INTERSECTIONS WITH MALFUNCTIONING STOPLIGHTS MUST BE TREATED AS A FOUR-WAY STOP.**
- Drive only if absolutely necessary and avoid flooded roads and washed out bridges.

# Closing

- Hurricanes are a reality of living in Kure Beach – its not if but when.
- With the extensive warning that comes from a hurricane – individuals can ensure the safety of themselves and their family
- Planning now will ensure that you take proper actions when the next hurricane hits
- The town will provide information and will respond to hurricanes – as a citizen you must plan and act on the information

- Questions or Comments to make the presentation better