



# Carolina SkyWatcher

National Weather Service, Newport/Morehead City, NC



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Summer 2019 Edition

## 2019 Hurricane Season Preview

*By Chris Collins, Meteorologist*

The 2018 hurricane season was certainly unforgettable for eastern North Carolina, highlighted by Hurricane Florence. Florence produced extensive wind damage along the North Carolina coast from Cape Lookout, across Carteret, Onslow, Pender and New Hanover counties. Thousands of downed trees caused widespread power outages to nearly all of eastern North Carolina. The historic legacy of Hurricane Florence will be record breaking storm surge of 9 to 13 feet and devastating rainfall of 20 to 30 inches, which produced catastrophic and life-threatening flooding. The hardest hit areas included New Bern, Newport, Belhaven, Oriental, North Topsail Beach and Jacksonville, along with Downeast Carteret County, or basically south of a line from Kinston to Cedar Island. A [CoCoRaHs gauge](#) recorded a storm total rainfall of 34.00 inches in Swansboro, while the NWS office in Newport recorded 25.20 inches. Wind gusts of 106 mph were reported at Cape Lookout with 105 mph at Fort Macon.

As we learned during [Hurricane Florence](#), impacts from hurricanes are far more than just wind, but include storm surge and severe flooding. It is important to [prepare now for hurricane season](#). Become familiar with your evacuation zone, evacuation route and shelter locations should a hurricane approach our area. Gather needed supplies to last for at least three days and protect your property.

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### ATLANTIC STORM NAMES 2019

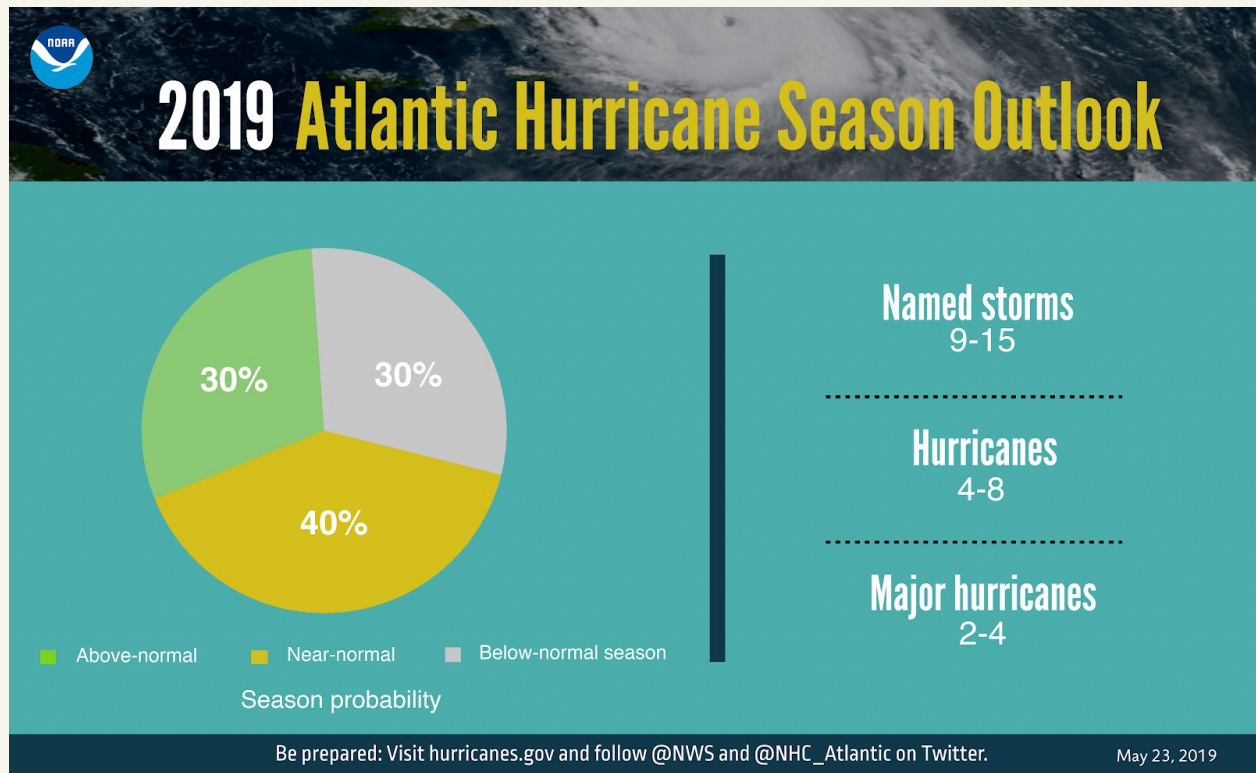
- |           |           |
|-----------|-----------|
| Andrea    | Lorenzo   |
| Barry     | Melissa   |
| Chantal   | Nestor    |
| Dorian    | Olga      |
| Erin      | Pablo     |
| Fernand   | Rebekah   |
| Gabrielle | Sebastien |
| Humberto  | Tanya     |
| Imelda    | Van       |
| Jerry     | Wendy     |
| Karen     |           |



## 2019 Seasonal Hurricane Outlook

*By Carl Barnes, Meteorologist*

Every year, [NOAA scientists release an outlook for the upcoming hurricane season](#) based on a number of factors, including the current El Nino/La Nina trends, Atlantic water temperatures, and several other factors. The 2019 outlook revealed that the signals indicate that a near normal season is most likely (40% chance), with equally smaller chances for an above (30%) or below (30%) normal season.



This outlook reflects competing climate factors. The ongoing El Nino is expected to persist and suppress the intensity of the hurricane season. Countering El Nino is the expected combination of warmer-than-average sea-surface temperatures in the tropical Atlantic Ocean and Caribbean Sea, and an enhanced west African monsoon, both of which favor increased hurricane activity.

It is critical to remember that it does not matter how many storms form in the Atlantic Ocean and Gulf of Mexico, it **only takes one** storm to make it a devastating year for your community! You should prepare for every hurricane season with the expectation that a storm will impact you and your family, regardless of the outlook.

## 2019 Seasonal Hurricane Outlook (Continued)

We will continue to work with other National Weather Service offices including the National Hurricane Center, Weather Prediction Center, and the Storm Prediction Center to monitor the tropics for the development of any storms and forecast their impacts to eastern North Carolina. You too can keep an eye on the tropics by monitoring [hurricanes.gov](http://hurricanes.gov). If a storm poses a threat to eastern North Carolina, the National Weather Service will issue a Hurricane, Tropical Storm, and/or Storm Surge **Watch** when conditions are possible in the next 48 hours - and will upgrade to a Hurricane, Tropical Storm, and/or Storm Surge **Warning** when conditions are expected within the next 36 hours. Always heed the advice of local officials and make sure that you are receiving your information from reliable sources when hurricanes threaten!

**5 THINGS TO KNOW ABOUT WHERE TO GET HURRICANE INFO**

1. **Television** - Tune in to your trusted local news source.

2. **Phone** - Access [mobile.weather.gov](http://mobile.weather.gov) on your mobile phone and get Wireless Emergency Alerts.

3. **Radio** - Receive forecast information and news on your NOAA Weather Radio.

4. **Social Media** - Stay in touch with friends and family and receive updates from your trusted sources of information.

5. **Computer** - Access information from [weather.gov](http://weather.gov), [ready.gov](http://ready.gov) and [flash.org](http://flash.org)

For more Hurricane Safety Information, visit [weather.gov/hurricanesafety](http://weather.gov/hurricanesafety)

## Hurricane Preparedness: Lessons from Florence

*By Carl Barnes, Meteorologist*

NOW is the time to make sure that you are prepared for hurricane season. Start by determining the elevation of your house (often available through your County GIS website), determine if you are in a floodplain on the [North Carolina Flood Risk Information System](#) or if you are vulnerable to storm surge on the [National Storm Surge Hazard Maps](#). Then, ensure you understand the available evacuation routes from your area, should local officials issue evacuation orders. Additionally, contact your insurance agent for a check up and determine if you need flood insurance.

Now is also the time to assemble your hurricane kit. A complete list of items you should have in your disaster supply kit can be found on the [FEMA webpage](#). Additional recommendations from local Emergency Managers, based specifically on their first-hand experiences before, during, and after Hurricane Florence include:

- Keep plenty of cash handy. After the storm, the power may be out for an extended period of time, and cash may be the only way to pay for items that you need.
- Do not let your gas tank get below half a tank during hurricane season. Stations ran out of gas ahead of Florence, and resupply deliveries were unreliable.
- Keep important documents in a safe, waterproof location in your house. Many families lost important documents in the flooding associated with Florence.
- Always keep a 3 month supply of medication with you during hurricane season if possible. During evacuations, pharmacies will close and there will not be an option to get prescriptions filled.

When making the decision on how to best keep you and your family safe when a hurricane approaches, it is very important to focus on the expected impacts of the storm, not the category. While early forecasts called for Hurricane Florence to be a Category 3 or 4 hurricane as it approached the coast, it became apparent as the storm came closer that it would not maintain its maximum intensity. However, the impacts, especially with regards to the storm surge and rainfall flooding, essentially **did not change** as the category forecast was lowered. Remember that the category of the hurricane only relates to wind speed, and does not account for size, speed, rainfall, tornado threat, or any other potential hazard. We talked to many people after the storm who let their guard down when the forecast category was reduced and said they would never make that mistake again.

## Hurricane Preparedness: Lessons from Florence (Continued)

After the storm has ended, keep in mind that it may not be possible to return home immediately. Following Florence, water continued to rise on the Neuse and Cape Fear Rivers and their tributaries for several days, with many roadways flooded for a week or more, effectively cutting off access to portions of eastern North Carolina. Wait until you know you can return to do so, and **NEVER** drive through flooded areas. Over the past several years, the number of people who have died driving through flooded areas has **FAR** exceeded the number of fatalities from hurricane winds, storm surge, and tornadoes combined. Remember if you come to a flooded section of roadway: **Turn Around, Don't Drown.**



## River Flooding

**N.E Cape Fear River  
 Near Chinquapin  
 gauge and New River  
 near Gum Branch  
 (northwest of Jacksonville)**

**Exceeded  
 Hurricane Floyd  
 (flood of record)  
 levels**



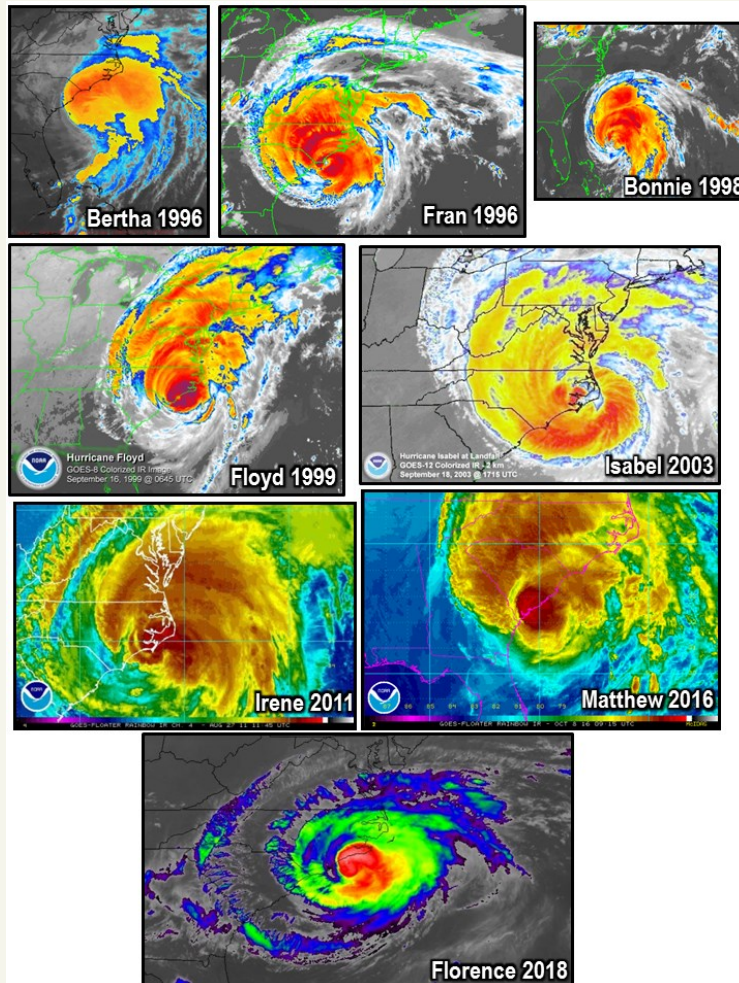
**Extensive flash flooding  
 caused numerous road  
 washouts**

## Hurricane Community Forums

By Erik Heden, Warning Coordination Meteorologist

Did you know that the category of the storm is only related to wind? How about that water, either from storm surge or flooding, kills more people in a tropical cyclone than anything else? Whether you are new to the area or you have lived here 30 years, this is information you need to know with our proximity to the ocean. To increase awareness of tropical cyclones in our area we will continue to hold public discussions throughout the summer. During these forums, we will give a brief discussion on the various impacts a cyclone can bring to our area, along with the outlook for the year. After this you will have a chance to ask any questions you may have. For more information on our schedule visit: <https://www.weather.gov/mhx/hurricanecommunityforums>

If you can't attend one of the dates or already missed one, you can always watch a past talk on our [YouTube page](#).



## Staying Safe and Informed at the Beach

*By Tom Lonka, Meteorologist*

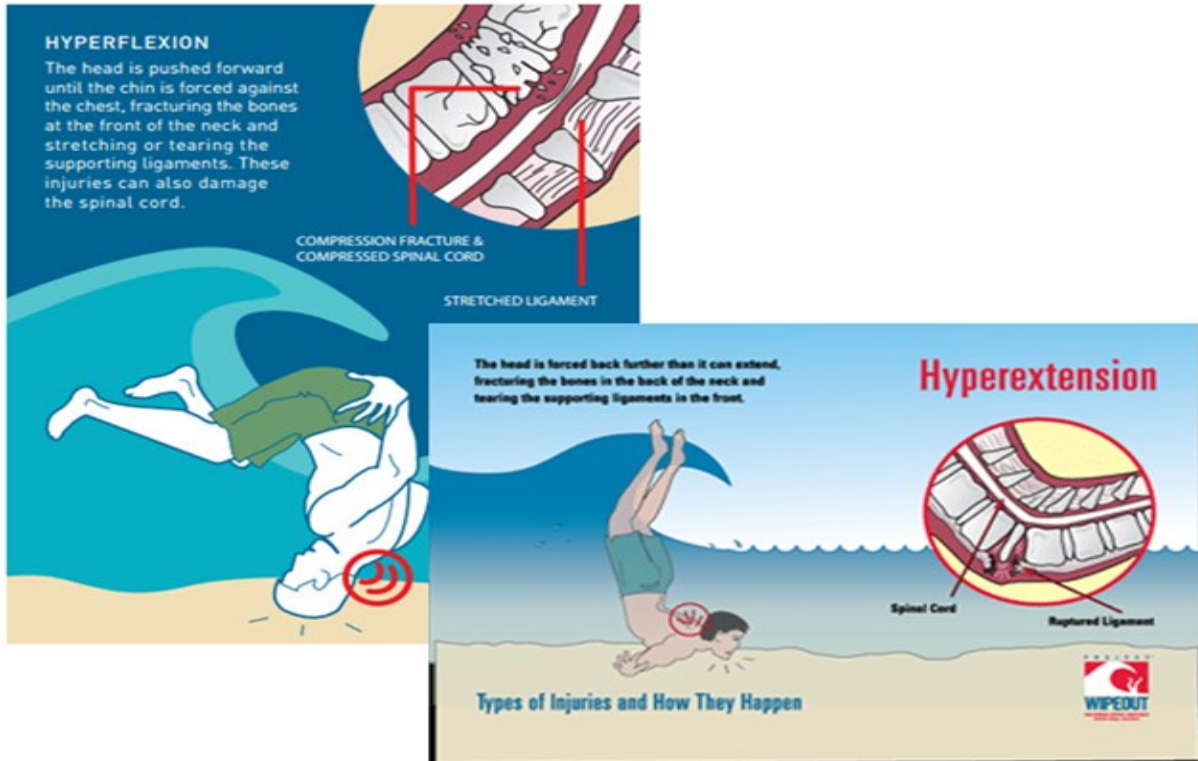
Summertime in eastern North Carolina brings flocks of visitors to our beautiful beaches. Unfortunately, sometimes tragedy strikes unsuspecting folks that venture into the ocean. Tragically, several fatalities have already occurred in the surf zone across eastern North Carolina beaches so far in 2019. These fatalities occurred due to rip currents and large dangerous surf.

Rip currents are defined as powerful, channeled currents of water flowing away from the shore. Rip currents often form where there is a break or low spot in the sandbar, and near man-made structures such as piers and jetties. Strong shorebreak is defined as large waves breaking directly on the beach, which can cause spinal and neck injuries. Longshore, or lateral currents, can sweep swimmers into rip currents or other hazards like piers and jetties. Fatalities and injuries can be prevented by becoming informed about hazards in the surf. More rip current safety information is available at [this website](#).

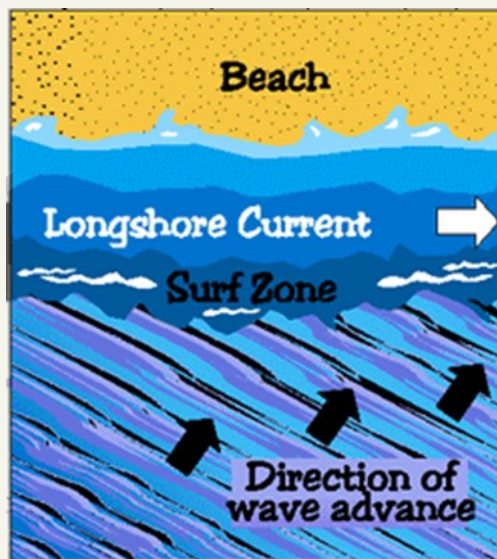


*Overhead view of a rip current (courtesy of UNC Coastal Studies Institute).*

## Staying Safe and Informed at the Beach (Continued)



*Strong shorebreak can cause spinal and neck injuries (image courtesy of Project Wipeout).*



*Longshore or lateral current.*



## Staying Safe and Informed at the Beach (Continued)

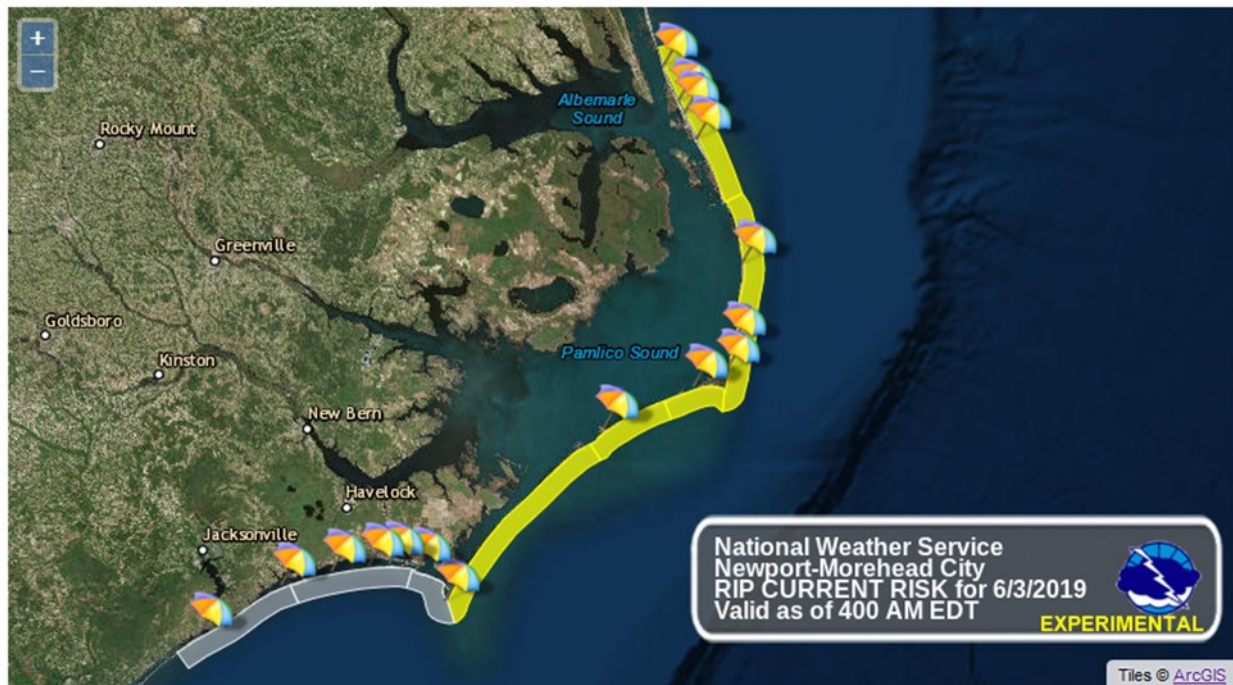
There are steps you should take before planning on heading into the surf. First and foremost, it is advised to swim at a lifeguarded beach. Most lifeguarded beaches fly flags to inform beachgoers whether it is safe to enter the water or not. A yellow flag usually means be extra vigilant when entering the surf. A red flag usually means the water is extremely unsafe to go into. Many times a red flag will mean the beach is closed to swimming. Familiarize yourself with the beach's flag system before entering the water.



*Familiarize yourself with your beach's flag system.*

The Newport/Morehead City NC NWS office, along with most coastal and Great Lakes offices in the U.S., issues a daily [surf zone forecast](#). The surf zone forecast includes the rip current risk for the day, classified as low, moderate, or high. Before heading to the beach, be sure to check out the surf zone forecast for your area of interest. Other important parameters are included in the surf zone forecast, such as the U.V. index, water temperatures, and surf height.

## Staying Safe and Informed at the Beach (Continued)

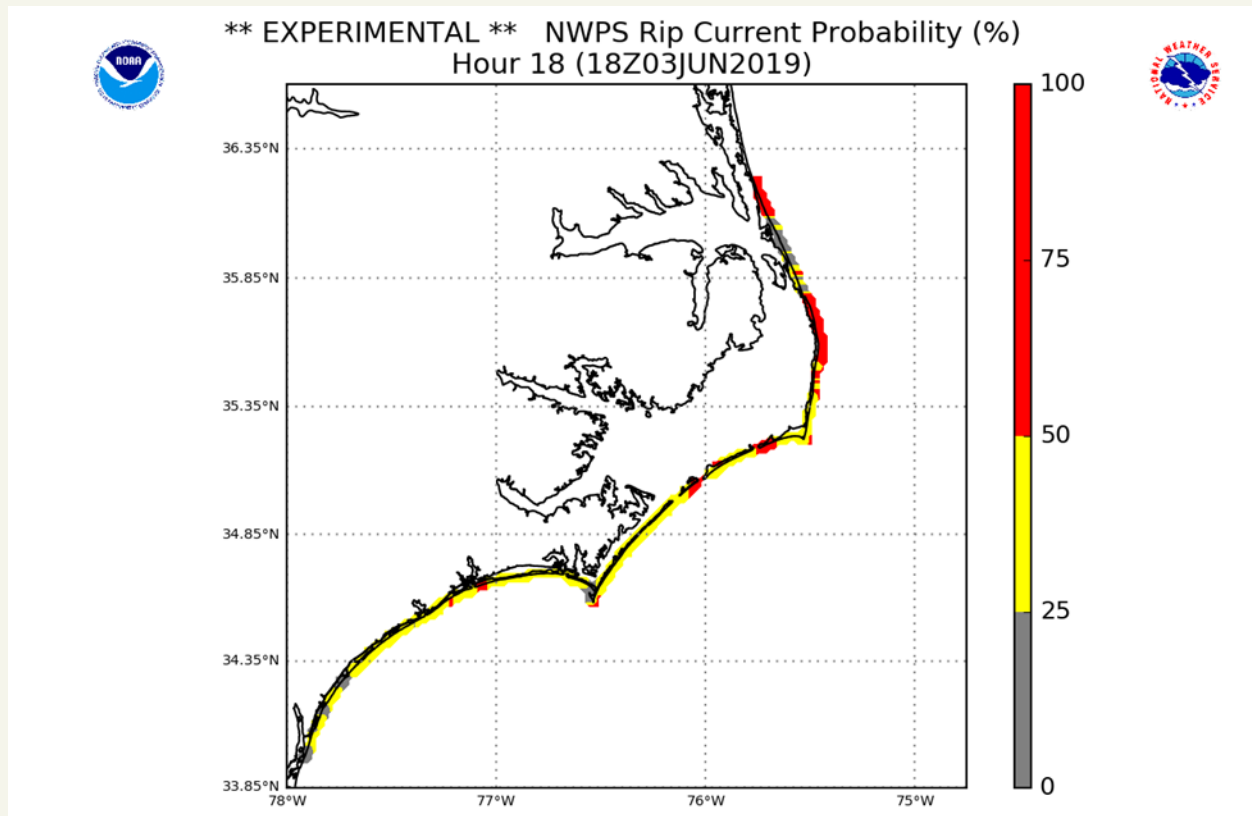


Risk Level	Description	Details
Low	Life threatening rip currents often occur in the vicinity of inlets, groins, jetties, and piers. Always supervise those who cannot swim and remember to heed the advice of the local beach patrol and flag warning systems.	Select a shaded area on the map to view details.
Moderate	Swim near a lifeguard. Remember to heed the advice of the local beach patrol and flag warning systems.	
High	The surf is dangerous for all levels of swimmers. Remember to heed the advice of the local beach patrol and flag warning systems.	

Rip current forecast issued by NWS: <http://www.weather.gov/beach/mhx>

## Staying Safe and Informed at the Beach (Continued)

The National Weather Service has partnered with researchers at the National Ocean Service (NOS) and Environmental Modeling Center (EMC) to produce experimental rip current probability forecasts generated by the Nearshore Wave Prediction System (NWPS). The NWS has also been partnering with lifeguards and ocean rescue units for many years to refine and improve rip current forecasting. The lifeguard units send rip current and surf reports to the NWS via a rip current reporting form.



*Experimental rip current forecast guidance generated by the NWPS.*

## Staying Safe and Informed at the Beach (Continued)



### Rip Current Monitoring Report



Beach Name: Mission Beach ▾ ?	Observation Date: 2015-02-20 [calendar icon] (yyyy-mm-dd) ?	Observation Time Hour ▾ : Minute ▾ AM/PM ▾ ?
Surf Height (Feet): <input type="text"/> [Examples: 1 or 2-3] ?	Average Surf Zone Width (Yards): <input type="text"/> [Example: 25] ?	
Incoming Wave Direction From: Select Direction ▾ ?	Tide: Select Tide ▾ ?	
Rip Observed? Yes ▾ ?	Rip Currents Activity: Select Activity ▾ ?	
Number of Rip Rescues: <input type="text"/> [Example: 3] ?	Water Attendance: Select Attendance ▾ ?	
Comments (Wave breaking, wind direction, longshore currents, rip pull distance, sand bars and red tides): <input type="text"/> ?		
Lifeguard: <input type="text"/> ?		
<b>Security Question (Required):</b> Please type the word "nine" in the box <input type="text"/>		



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Page last Modified: September 04, 2014.

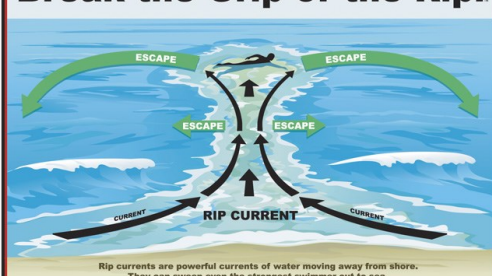
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### Format for Rip Current Monitoring Report

## RIP CURRENTS

### Break the Grip of the Rip!



Rip currents are powerful currents of water moving away from shore. They can sweep even the strongest swimmer out to sea.

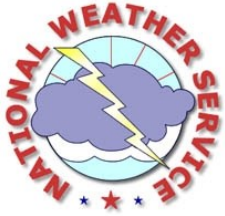
IF CAUGHT IN A RIP CURRENT

- ◆ Don't fight the current
- ◆ Swim out of the current, then to shore
- ◆ If you can't escape, float or tread water
- ◆ If you need help, call or wave for assistance

SAFETY

- ◆ Know how to swim
- ◆ Never swim alone
- ◆ If in doubt, don't go out

More information about rip currents can be found at the following web sites:  
[www.ripcurrents.noaa.gov](http://www.ripcurrents.noaa.gov)  
[www.usfa.org](http://www.usfa.org)



## National Weather Service

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