National Weather Service Overview and Marine Weather

Erik Heden
NWS/Newport/Morehead City
Our Mission

The National Weather Service (NWS)

About

Serving you in every community in the U.S. Check out who we are and what we do!

NWS Mission
Provide weather, water, and climate data, forecasts and warnings for the protection of life and property and enhancement of the national economy.

NWS Vision
A Weather-Ready Nation: Society is prepared for and responds to weather, water, and climate-dependent events.

Weather-Ready Nation Story
Accurate weather forecasts do not always result in a good outcome. The National Weather Service (NWS) learned this difficult... Read more
Our Local Office

Eastern part of North Carolina

Includes: Land areas, inland rivers, sounds, and adjacent ocean

Other parts of the state covered by other local offices (Raleigh, Wilmington, etc)
24 hours a day, 7 days a week, plus any overtime for severe weather…we never close!

Two to three forecasters per shift.

Shifts per day: midnight, day and evening.

Management team: 8 am to 5 pm Mon.-Fri. (they work shifts sometimes too!)

In total 21 people when fully staffed
Our Website
weather.gov/moreheadcity

Weather information from past events, current weather, and forecast

Explore the website and bookmark or save what you like

Go in depth as much as you need
Created prior to bigger events of severe weather
Category of the storm is only related to wind, it does not tell you about all of the impacts with a #hurricane like #florences. Our impacts have not changed with storm surge and catastrophic flooding. Do not let your guard down. weather.gov/media/mhx/Late...
Special marine warning:
Thunderstorm winds greater or equal to 35 knots, hail greater or equal to ¾” or waterspouts

Marine Weather Statement:
Strong thunderstorms below warning criteria, lightning, sea fog

Coastal Flood Watch/Warning/Advisory:
Coastal or sound side flooding, high surf
Marine Terminology

**Small Craft Advisory:**
Winds greater or equal to 25 knots and/or seas greater or equal to 6 feet

**Gale Warning:**
Wind speeds greater or equal to 34 knots

**Storm Warning:**
Wind speeds greater or equal to 48 knots

**Note**
SCAs across the sounds (including Core and Bogue) are based solely on wind speeds or frequent gusts
5-Day Marine Forecast

Marine Zone Forecast

**Tonight**  NE winds 10 to 15 kt. Waves a moderate chop. Rain.

**Fri**  N winds 10 to 15 kt, increasing to 15 to 20 kt in the afternoon. Waves a moderate chop, increasing to choppy in the afternoon. Rain likely.

**Fri Night**  N winds 15 to 20 kt, diminishing to 10 to 15 kt after midnight. Waves choppy, diminishing to a moderate chop after midnight. A chance of showers in the evening, then rain likely after midnight.

**Sat**  N winds 10 to 15 kt. Waves a moderate chop. Rain.

**Sat Night**  N winds 10 to 15 kt. Waves a moderate chop. Rain likely.

**Sun**  N winds 10 to 15 kt. Waves a moderate chop. A chance of showers.

**Sun Night**  N winds 10 to 15 kt. Waves a moderate chop. A chance of showers.

**Mon**  NE winds 10 to 15 kt. Waves a moderate chop. A chance of showers.

**Tue**  SE winds 15 to 20 kt, becoming W 10 to 15 kt. Waves choppy, diminishing to a moderate chop. Rain likely, then a chance of showers.

Additional Forecasts and Information
### 5-Day Marine Forecast

**Where:** Currituck Beach Light to Surf City out 20 nautical miles

Also local sounds and rivers

**What:** Winds, wave heights, precip chances, obstructions to visibilities (rain, fog).

**When:** Every 3 hours. Available as text, graphical, or audio (phone/radio).

Includes any Small Craft Advisories & Gale Warnings if needed

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#### Marine Zone Forecast

**Synopsis:** AMZ100-102315- 1014 AM EST Tue Nov 19 2019. Synopsis for Eastern North Carolina coastal waters... The region will remain between areas of low pressure offshore and high pressure to the west through mid week. Then, high pressure will build closer to Eastern NC through the end of the work week, with another storm system arriving this weekend. $S$

<table>
<thead>
<tr>
<th>Rest Of Today</th>
<th>NW winds 10 to 15 kt. Seas 3 to 5 ft. Dominant period 10 seconds. Adjacent sounds and rivers choppy.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tonight</td>
<td>NW winds 10 to 15 kt, increasing to 15 to 20 kt after midnight. Seas 3 to 5 ft. Dominant period 10 seconds. Adjacent sounds and rivers choppy.</td>
</tr>
<tr>
<td>Wed</td>
<td>NW winds 15 to 20 kt. Seas 3 to 5 ft. Dominant period 10 seconds. Adjacent sounds and rivers choppy.</td>
</tr>
<tr>
<td>Wed Night</td>
<td>N winds 15 to 20 kt. Seas 3 to 5 ft. Dominant period 9 seconds. Adjacent sounds and rivers choppy.</td>
</tr>
<tr>
<td>Thu</td>
<td>N winds 10 to 15 kt, becoming NW 5 to 10 kt in the afternoon. Seas 3 to 5 ft. Adjacent sounds and rivers a moderate chop, diminishing to light chop in the afternoon.</td>
</tr>
<tr>
<td>Thu Night</td>
<td>W winds 5 to 10 kt, increasing to 10 to 15 kt after midnight. Seas 2 to 3 ft. Adjacent sounds and rivers light chop, increasing to a moderate chop after midnight.</td>
</tr>
<tr>
<td>Fri</td>
<td>W winds 15 to 20 kt. Seas 4 to 6 ft. Adjacent sounds and rivers choppy.</td>
</tr>
<tr>
<td>Sat</td>
<td>SW winds 10 to 15 kt, becoming W 15 to 20 kt. Seas 4 to 6 ft. Adjacent sounds and rivers a moderate chop, increasing to choppy. A chance of showers.</td>
</tr>
</tbody>
</table>
5-Day Marine Forecast
weather.gov/moreheadcity

Click again on map to “zoom” into your favorite aquaculture area

Detailed Forecast

<table>
<thead>
<tr>
<th></th>
<th>Wind Speed</th>
<th>Wind Direction</th>
<th>Weather</th>
<th>Sea Height</th>
</tr>
</thead>
<tbody>
<tr>
<td>Late Afternoon</td>
<td>NNE</td>
<td>around 9 kt.</td>
<td>A chance of rain.</td>
<td>around 1 ft.</td>
</tr>
<tr>
<td>Tonight</td>
<td>NE</td>
<td>around 12 kt.</td>
<td>Rain, mainly after 7pm.</td>
<td>around 1 ft.</td>
</tr>
<tr>
<td>Friday</td>
<td>N</td>
<td>10 to 13 kt.</td>
<td>Rain likely.</td>
<td>around 1 ft.</td>
</tr>
<tr>
<td>Friday Night</td>
<td>NNE</td>
<td>11 to 13 kt.</td>
<td>Showers likely, mainly after 1am.</td>
<td>around 1 ft.</td>
</tr>
<tr>
<td>Saturday</td>
<td>NNE</td>
<td>around 11 kt.</td>
<td>Rain.</td>
<td>around 1 ft.</td>
</tr>
<tr>
<td>Saturday Night</td>
<td>NNW</td>
<td>around 10 kt.</td>
<td>Rain likely.</td>
<td>around 1 ft.</td>
</tr>
<tr>
<td>Sunday</td>
<td>NNE</td>
<td>around 10 kt.</td>
<td>A chance of showers.</td>
<td>around 1 ft.</td>
</tr>
<tr>
<td>Sunday Night</td>
<td>NNE</td>
<td>around 12 kt.</td>
<td>A chance of showers.</td>
<td>around 1 ft.</td>
</tr>
<tr>
<td>Washington’s Birthday</td>
<td>NNE</td>
<td>around 13 kt.</td>
<td>A chance of showers.</td>
<td>around 1 ft.</td>
</tr>
</tbody>
</table>

*Notices:

1. This forecast is for a single location. For safety concerns, mariners should be aware of the weather over a larger area. Forecast based on the latest available data. Actual weather may vary. Visit weather.gov/moreheadcity.

Disclaimer: Information provided by Esri, HEV, Garmin, USGS, and Met Office.
Hourly Forecast

weather.gov/moreheadcity

Defaults to wind, wave heights

Can display other parameters (precip chance, sky cover, etc)

See trends in hourly increments out through 5 days

Digital readout available
View forecasts on a map

Includes marine forecasts as well (winds, wave height)

Easily see the weather across all waters
**Where:** Near shore waters 20 nm to 250 nm

**What:** Winds, wave heights, precip chances, obstructions to visibilities (rain, fog).

**When:** Every 6 hours.
From Ocean Prediction Center

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**TODAY**
W to NW winds 10 to 20 kt, becoming N to NW. Seas 4 to 8 ft. Scattered showers and tstms.

**TONIGHT**
E to NE winds 5 to 15 kt, becoming NE 15 to 25 kt. Seas 4 to 7 ft. Rain.

**FRI**
NE winds 15 to 25 kt. Seas 6 to 11 ft. Rain.

**FRI NIGHT**
N to NE winds 15 to 25 kt. Seas 6 to 11 ft. Showers likely and scattered tstms.

**SAT**
E winds 10 to 20 kt, becoming S to SE 15 to 25 kt. Seas 6 to 10 ft.

**SAT NIGHT**
S to SW winds 20 to 30 kt. Seas 6 to 10 ft.

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Includes any Small Craft Advisories & Gale Warnings if needed
NOAA Weather Radio

...the voice of the NATIONAL WEATHER SERVICE

All hazards 24 hour radio

Requires special radio receiver

Marine products will play, including warnings
Forecasts By Phone
252-223-5737

***Our website is FAR superior for the details you can get***

**We ALWAYS answer the phones, 24/7**

1 – Local Forecast for Eastern NC (land based)
2 – Tides/Water Temperatures
3 – Offshore Waters Forecast
4 – Coastal Marine Forecast
5 – Tropical Weather Outlook
6- Talk to a forecaster

***Our website is FAR superior for the details you can get***

**We ALWAYS answer the phones, 24/7**
Current water levels for all sites

A few forecast sites for the coast

Duck, Oregon Inlet, Hatteras, Ocracoke, and Beaufort have current and forecast water levels.

Oriental, Washington, Belhaven, have current levels only.
Past water levels (in blue) along with latest observed value.

If applicable (projected) water level in the future (purple line).

Coastal areas where tides have an influence are taken into account along with storm surge, water level trends.
Thunderstorms
(lightning, high winds, abrupt wind shifts, hail)

Waterspouts

Tropical cyclones

Arctic cold fronts

Hurricane Florence
LISTEN to the forecast (NOAA Weather Radio/VHF Marine Band)

LEARN how to read the weather

WATCH and LISTEN for distant activity. Have an escape plan

Thunderstorms forecasted? Don’t go out!

If you are out, get back to land.

If you can’t get back to land, drop anchor and get as low as possible. Get below deck if you can.
Marine Weather Hazards
Waterspouts

Winds can reach 100 MPH

Watch the sky for certain types of clouds (cumulus, growing)

Never navigate through a spout.

Head at a 90 degree angle from the apparent motion of the waterspout

**Call 1-800-889-6889 To Report Waterspouts**
Marine Weather Hazards
Arctic Cold Front/Wind Shifts

Primarily in the winter and spring

Gale force winds possible, sudden shifts in wind direction

Thunderstorms, hail

Quick jump in seas
Since 1851, how many tropical cyclones have impacted our waters?

50, 100, 200?
Marine Weather Hazards
Tropical Cyclones

Since 1851...

287
Tropical & Extratropical Systems

...in Eastern North Carolina
Marine Weather Hazards
Tropical Cyclones

The Time To Prepare Is NOW

Peak of the season is around September 10th

Tropical systems can occur from May through November

- Beryl
- Andrea
- Arthur
- Irene
- Hermine
- Matthew
- Sandy
- Isaias
- Florence
- Dorian

NOAA

Hurricanes and Tropical Storms
Hurricanes

Number of Storms per 100 Years
Marine Weather Hazards
Tropical Cyclones

Strong winds, heavy rain

Large waves can occur well ahead or from distant storms

Enhance rip current threat

Water levels can remain high or rough for days
Marine Weather Hazards
Sea Fog

Warm moist air moving over cold water

Most common December through March

Very low visibility

Can began well out over the ocean and spread inland
Thanks for Your Interest!

erik.heden@noaa.gov

www.weather.gov/moreheadcity