River Flood Assessment

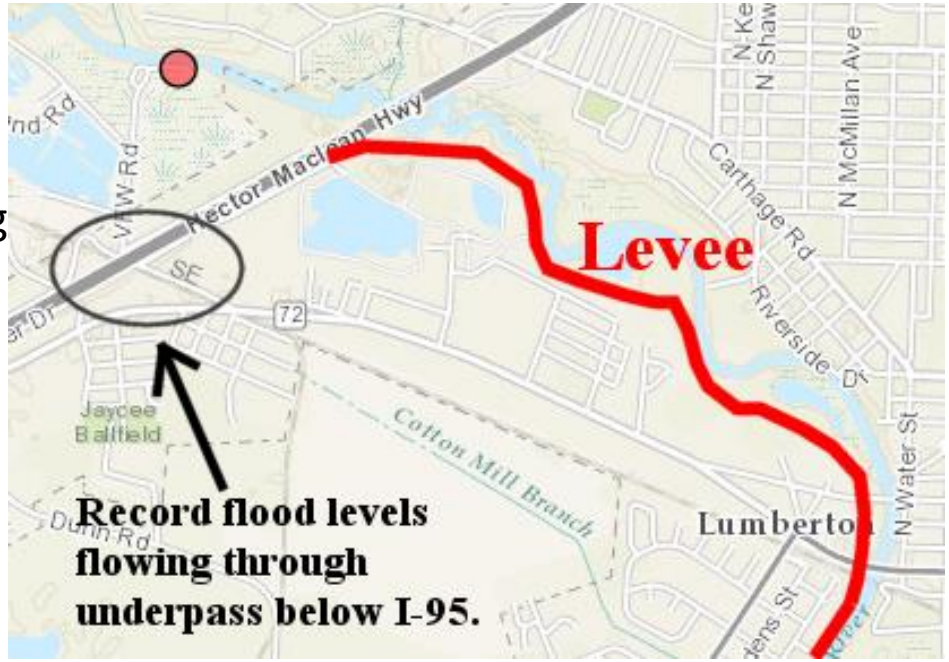
for northeast SC and southeast NC

Monday October 11, 2016
12:50 PM EDT

Prepared By:
Rick Neuherz, Service Hydrologist

Lumberton Levee

- ***According public works in Lumberton, the levee has NOT breached.***
- Due to the extremely high water levels during the flood, the flood ***flanked*** the levee by going under I-95 about a half mile south of the river.
- The area protected by the levee is flooded as a result of this flanking maneuver **NOT** by a levee failure.
- Had the levee failed, the flood in the area protected by the levee would have occurred in minutes to hours instead of hours to days and it would have been more catastrophic than the flooding now.
- There is no dam on the main stem Lumber River itself that could break and affect downstream water levels.

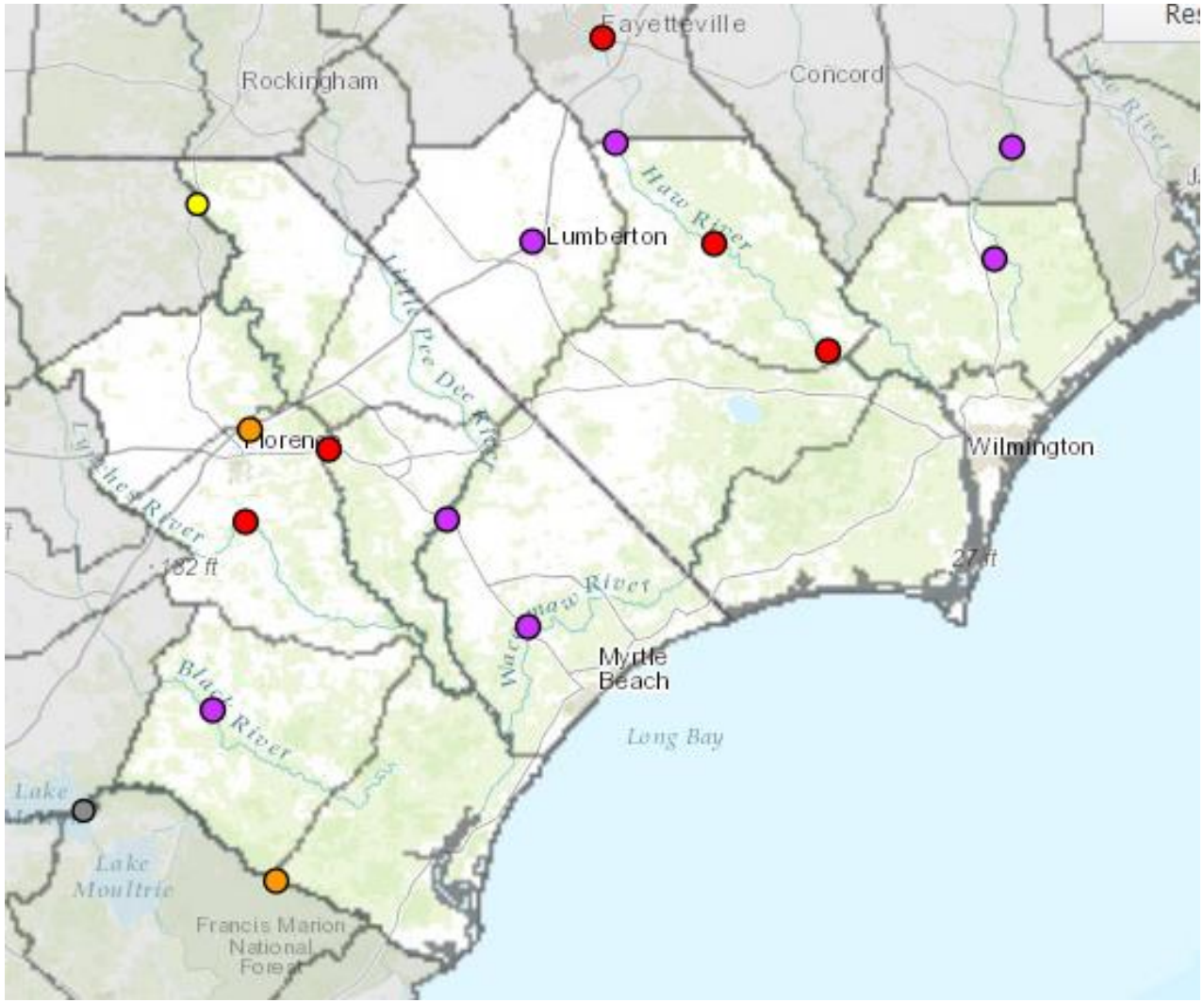


Highlights

- ***Seven rivers*** *in or forecast to reach* ***MAJOR*** *flood*:
  - Waccamaw River near Conway, SC
  - NE Cape Fear River near Chinquapin
  - Lumber River at Lumberton
  - Little Pee Dee at Galivants Ferry
  - Cape Fear River at William O Huske Lock and Dam
  - Black River at Kingstree
  - NE Cape Fear near Burgaw

- ***Four rivers*** *in or forecast to reach* ***MODERATE*** *flood*:
  - Cape Fear River at Elizabethtown
  - Pee Dee River at Pee Dee
  - Cape Fear River at Lock #1
  - Lynches River at Effingham

River Forecast (ft) As of Noon Oct 11th, 2016



- Forecast available
- Probability and forecasts available
- Observations only available
- Major Flooding
- Moderate Flooding
- Minor Flooding
- Near Flood Stage
- No Flooding
- Observations Are Not Current
- Out of Service
- Flood Category Not Defined
- At or Below Low Water Threshold

Map denotes maximum flood category through 8 AM Oct 16, 2016.

This forecast contains observed rainfall through 8 PM this evening and forecast rainfall from 8 PM today through 8 PM Wednesday – no rain is expected

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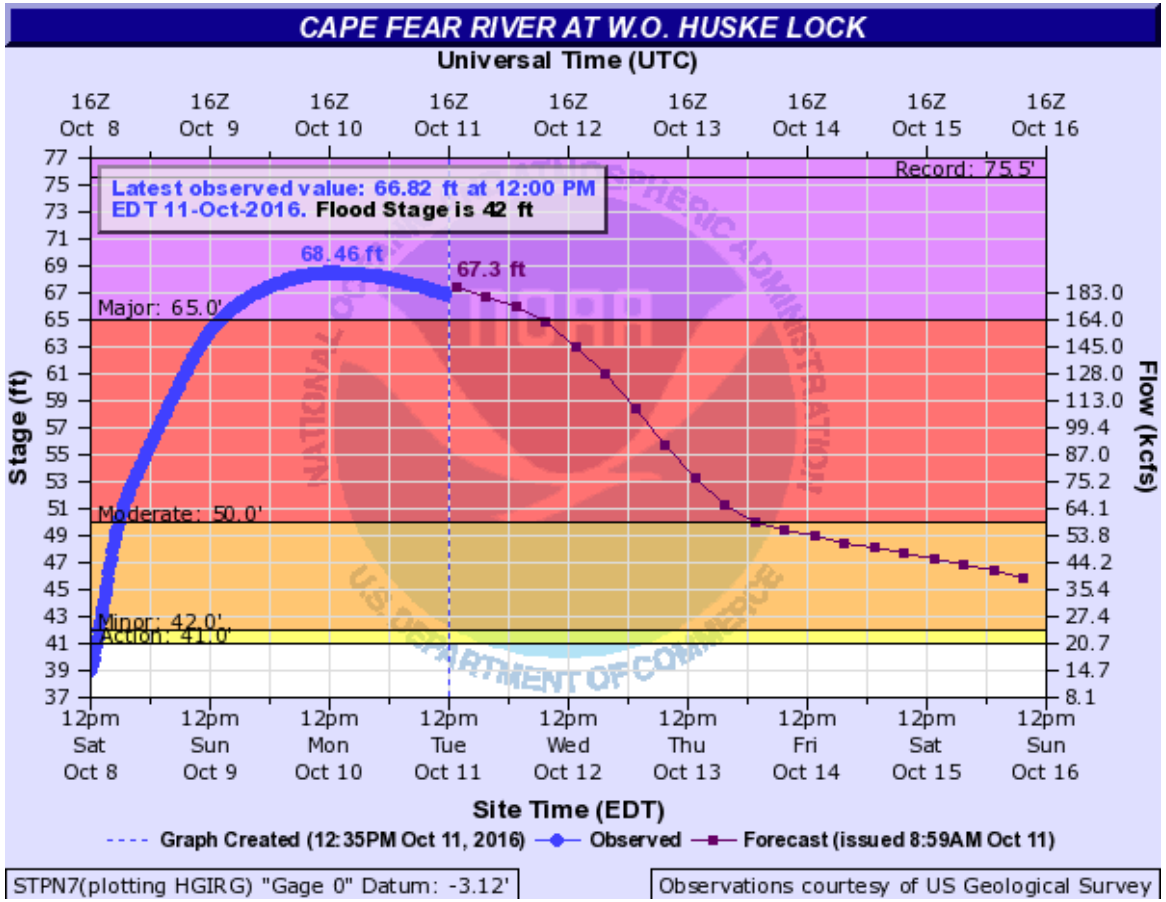

The river crested at the second highest stage ever here and is falling. This crest exceeded levels of Hurricane Fran by about 8.5 feet and is the highest level on the river here since 1945.

River Flood Impacts vs Stage

79.3 Water will reach the elevation of the instrument shelter in the USGS well house. Extensive flooding will occur along the all reaches of the river.

76.5 Water will reach the floor in the USGS well house. Extensive flooding will continue along both banks of the river.

75.5 Flood waters will reach within eight inches of the floor in the lockmasters residence. Extensive flooding can be expected along both banks of the river.

65 Water will approach the road in front of the lockmasters residence. Extensive lowland flooding will occur along the left bank with minor flooding along the right bank.

52 Extensive flooding will occur along the left bank of the river. Water levels will reach the door sill of the USGS well house.

50 Extensive lowland flooding will occur along the left bank of the river.

45 Flood waters will affect areas along the left bank of the river with some minor overflow along the right bank.

42 Water levels will top the navigational lock. Operations stop and the equipment must be removed. Minor flooding will occur on land adjacent to the left bank of the river.

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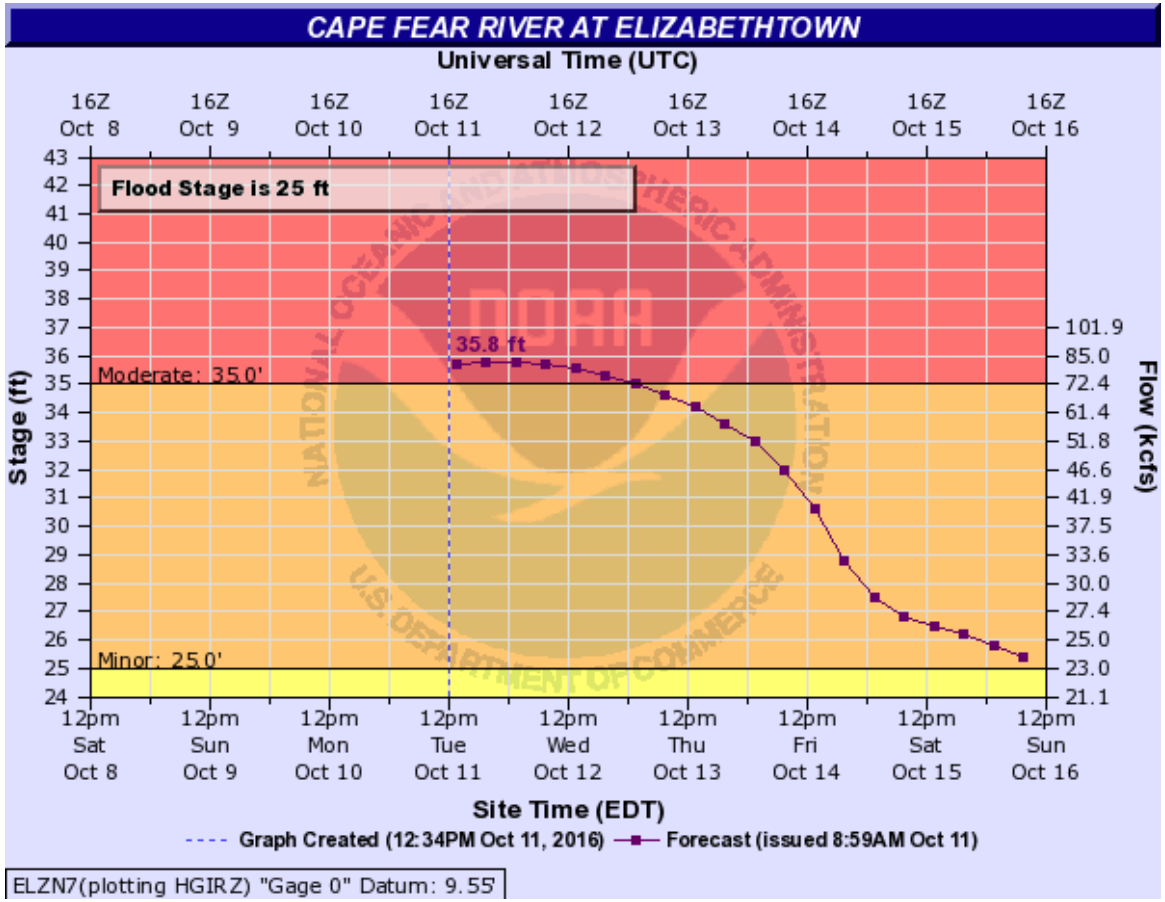


This level would exceed levels of Hurricane Fran by about four and a half feet and would be the highest level on the river here since 1929.

River Flood Impacts vs Stage

47 Flood waters will remain below the bridge on Highway 242 but lower roads along the left bank will of the river experience high water.

43 Considerable flooding will occur along the entire length of the river as well as near the city of Elizabethtown.

38 Flood waters will enter the first floor of the lockmasters residence.

35 Flood waters will reach the home of the lockmaster and will affect low grounds along the length of the river.

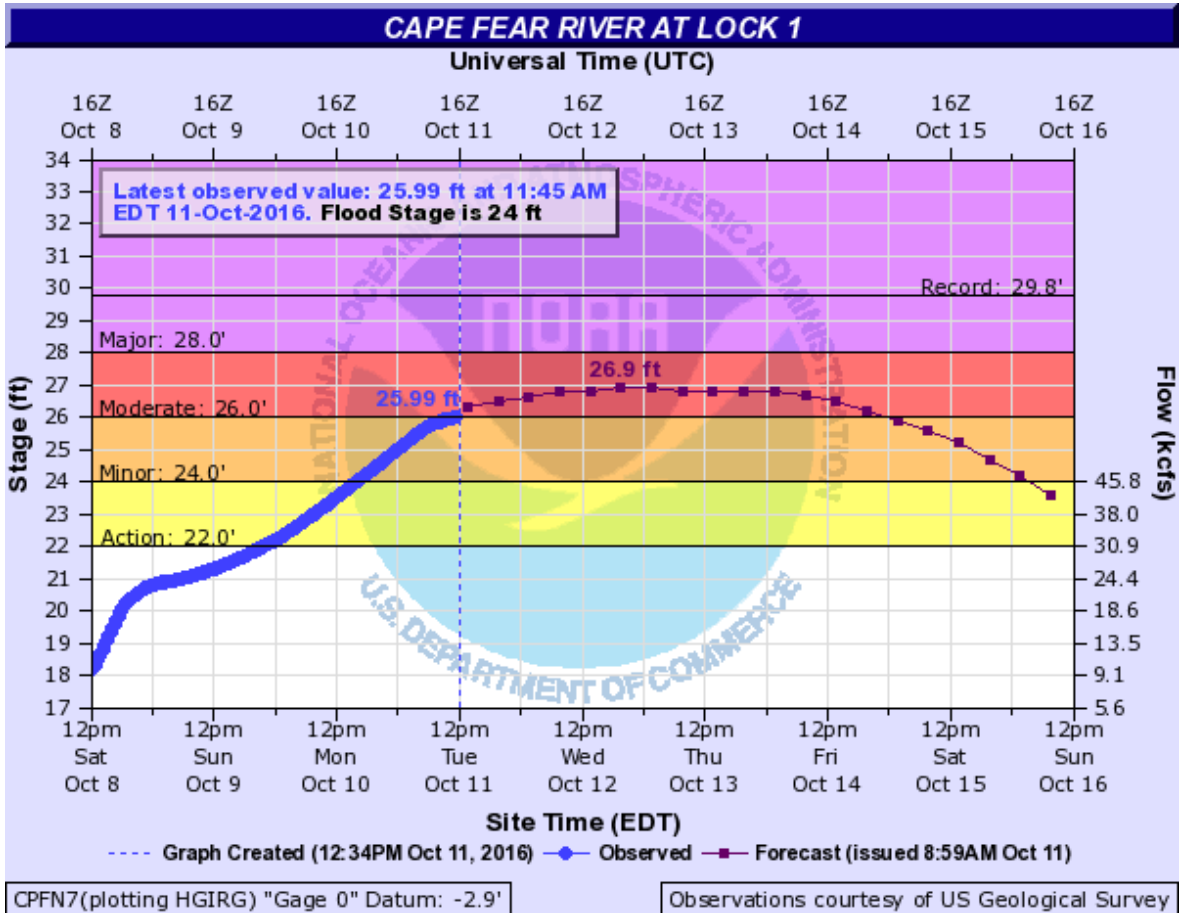
30 Flood waters will affect low grounds along the right bank of the river.

27 Floodwaters will affect farmers' fields adjacent to the river requiring the movement of farm equipment to higher ground.

25 Flood waters will reach the top of the navigational lock.

23 River will spread further into low grounds on the left bank.

River Forecast (ft) As of Noon Oct 11th, 2016



River Flood Impacts vs Stage

50 Water levels will reach the height of the bluff on which the lockmasters residence is located.

28 Flood waters will near the flood of record. At 30 feet, this is above the flood of record and flood waters reach the instrument shelter.

26 Moderate flooding of swamps and low lands. Flooding similar to that reached with the remnants of Hurricane Hilda in 1964.

24 Lowland flooding will occur along the riverbed.

This is the first time the Cape Fear has exceeded flood stage since 1998, will exceed levels from Hurricane Fran by about two feet, and will be the highest the river has been here since 1945.

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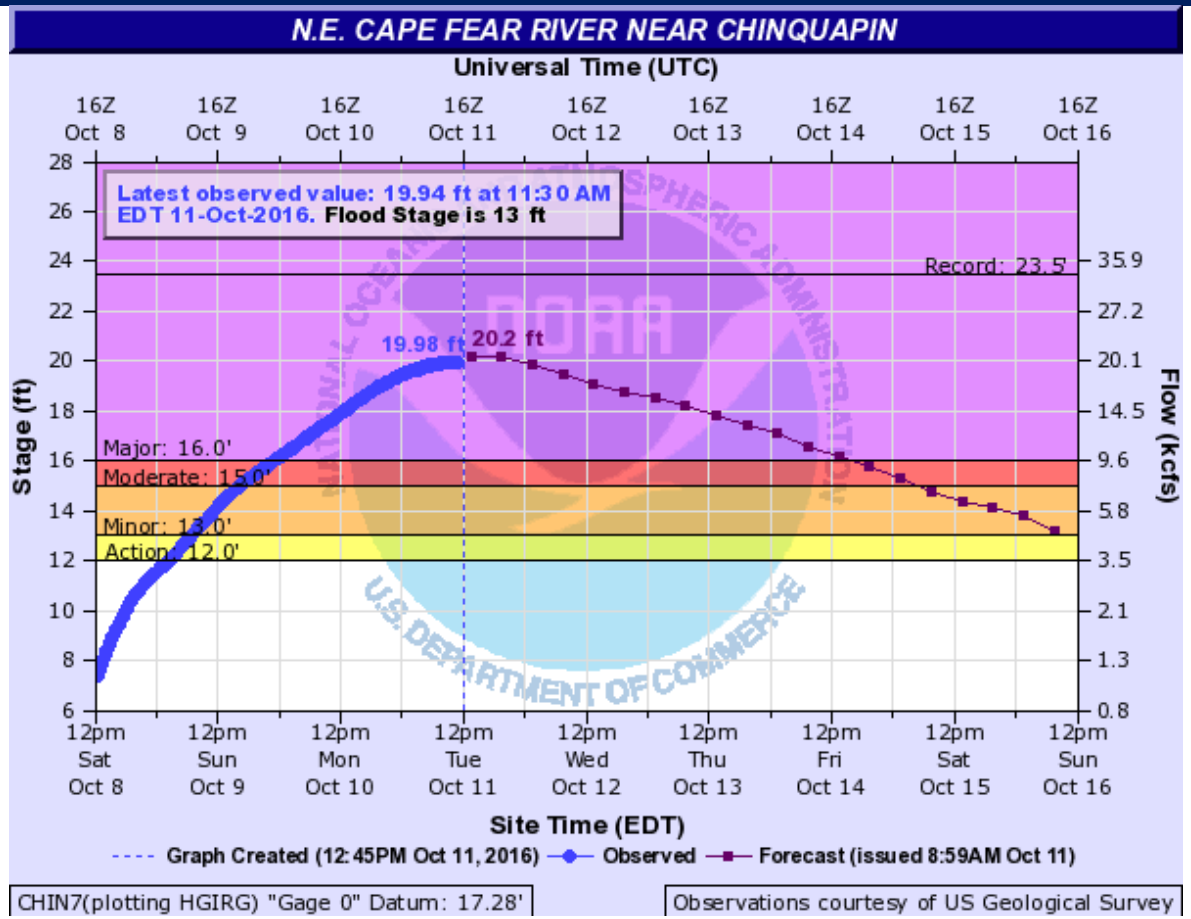

15 Secondary roads adjacent to the river will begin to get flooded and may be impassable. Tributaries that dump into the river will also flood secondary roads. Residents who live adjacent to the river need to move property to higher ground.

14 Low land flooding adjacent to the river and its tributaries can be expected.

13 Minor low land flooding adjacent to the river will occur. Tributaries to the Northeast Cape Fear River will also likely produce low land flooding.

This would be about 3 feet lower than Hurricane Floyd.

River Flood Impacts vs Stage

23 Devastating flooding across much of the county. Numerous evacuations are necessary. Travel will become nearly impossible with numerous roads countywide becoming impassable or washed out.

20 Widespread flooding over much of the county. Many evacuations needed along the Northeast Cape Fear River and its tributaries. Most roads will become flooded and impassable. Numerous homes and communities near the river will begin to flood.

18 Numerous roads flooded. Evacuations will be needed for residents living near the river or adjacent to tributaries. Water will flood Highway 41 and may begin to affect Highway 24 and Interstate 40. Areas many miles from the river will be flooded.

17 Many roads will be flooded and impassable near the river. Some evacuations may be needed for residents who live adjacent to the river and its tributaries. Locations many miles from the river may begin to flood as smaller streams backup and flood.

16 Many secondary roads are flooded. Evacuations may be needed for residents who live near the river or adjacent to tributaries. Water will begin to affect Highway 41 and travel delays are likely. Areas many miles from the river will be affected as small streams backup and flood. Muddy Creek and Cypress Creek will begin flood areas in and around Chinquapin.

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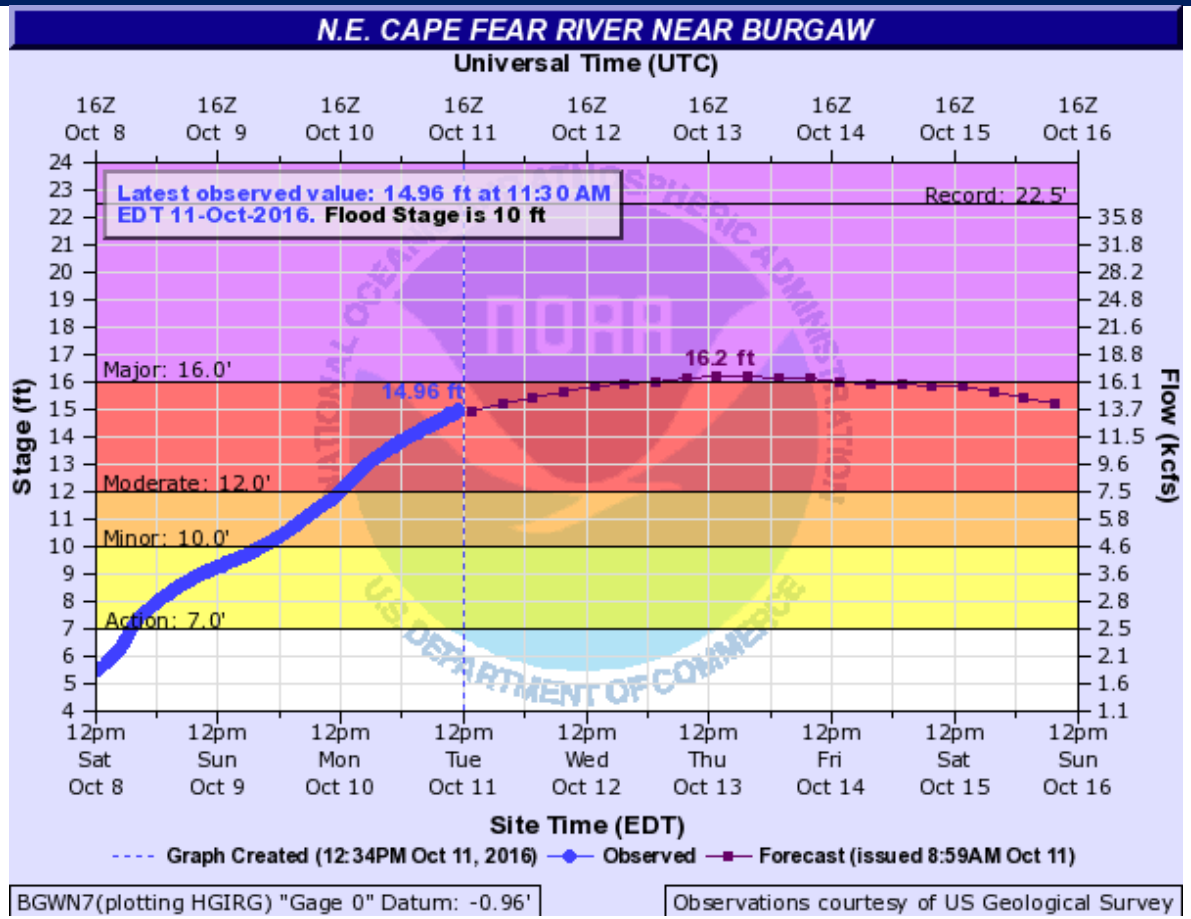

13.5 Floodwaters begin to affect Highway 53, Highway 210, White Stocking Road, Shaw Highway and Holly Shelter Road. Roads are passable but have water on them.

12.5 Floodwaters cause roads to become impassable in the River Bend, River Birch and Alligator Lake subdivisions off Highway 53. These areas become isolated due to the floodwaters and some evacuations may be needed. In the Holly Shelter Estates subdivision, half of the area has water on the roads due to floodwaters. Approximately 12 homes on Old Maple Hill Road off Shaw Highway become isolated.

This would be about 6 feet lower than Floyd.

Selected River Flood Impacts vs Stage

22.4 12 miles of Highway 53 are under water, in some cases 7 feet deep, between the Northeast Cape Fear bridge and Maple Hill. All homes including 60 in River Bend, 20 to 25 in River Birch and 12 in the Alligator Lake subdivision are flooded. 20 to 30 homes in Holly Shelter estates are underwater. In the Sandy Bend subdivision, off Shaw Highway, 40 to 50 homes, which is half of the homes in the subdivision sustain flooding. Portions of Croomsbridge, Island Creek and White Stocking Roads are underwater.

16.5 White Stocking Road is closed and floodwaters begin to get into the homes in this area. Highway 53 is closed adjacent to the river. Stag Park Road has water 2 feet deep on it and becomes impassable.

16 Water begins to get into homes, including those that are elevated, in the River Birch and River Bend subdivisions. Floodwaters also get into homes on Croomsbridge Road.

15.25 The approaches to the bridge at Lanes Ferry on Highway 210 may be flooded. Much of White Stocking Road is closed. At the wildlife ramp on Shaw Highway, ramp is underwater and parking lot is half full of water.

14 Floodwaters cause portions of Shaw Highway to be closed between Carl Meeks Road and Lillington Lane. White Stocking Road is also closed from Chorley Road to Mack Williams Lane. Flooding worsens on Highways 210 and 53 but roads remain open.

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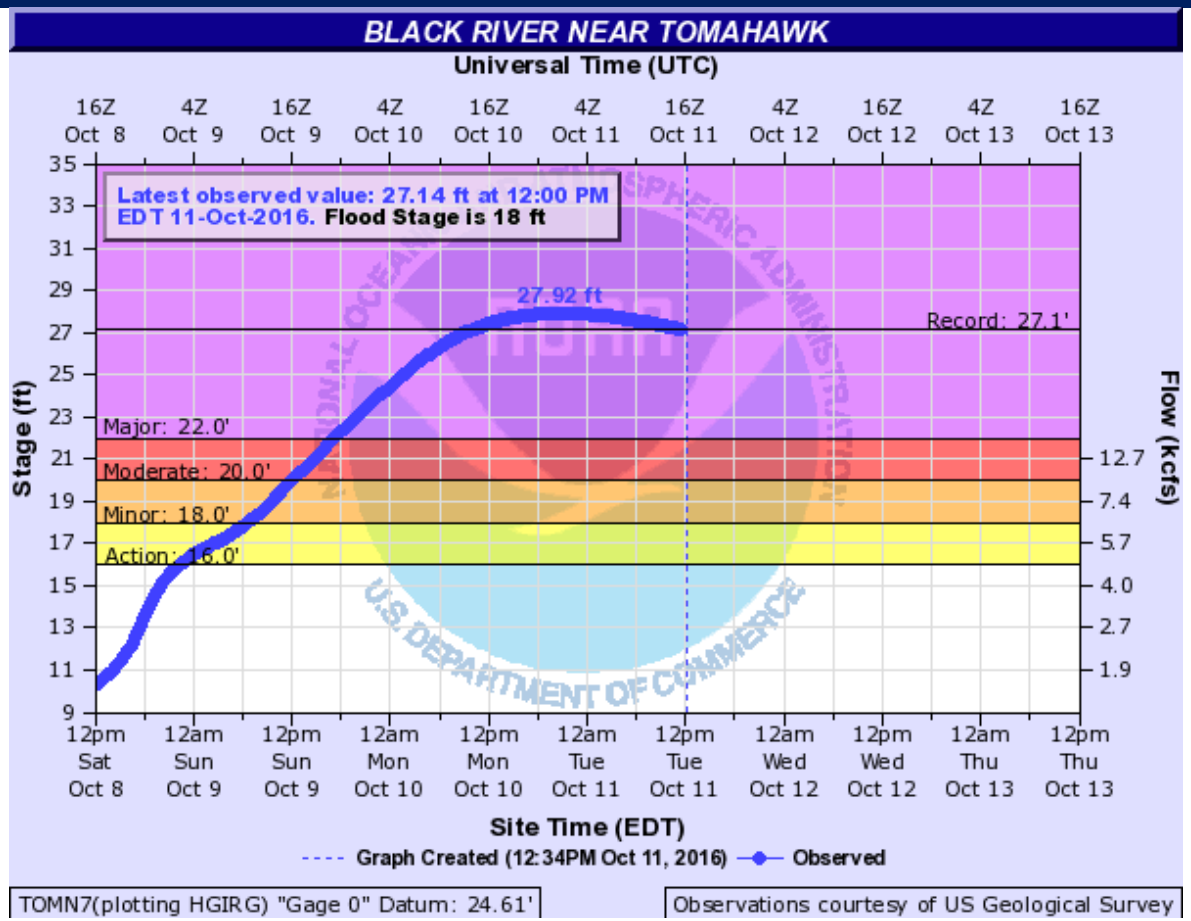

River Flood Impacts vs Stage

22 THE CLEAR RUN COUMMUNITY ADJACENT TO THE NC411 BRIDGE WILL BEGIN FLOODING. NC411 WILL BE CLOSED WEST OF THE BRIDGE.

20 NC411 WEST OF THE BRIDGE OVER THE BLACK RIVER WILL BE IMPASSIBLE. RILEY TOWN AND WRIGHT BRIDGE ROADS JUST WEST OF US701 NEAR INGOLD WILL BE IMPASSIBLE.

18 WATER BEGINS TO FLOOD NC411 ABOUT 1/4 MILE WEST OF THE BRIDGE OVER THE BLACK RIVER. THE BLACK RIVER AND GREAT COHARIE CREEK WILL BE NEAR THE ROAD LEVELS ON WRGHT BRIDGE ROAD AND RILEY TOWN ROAD NEAR THE INTERSECTION OF US701 OUTSIDE OF INGOLD.

The Black River at Tomahawk has exceeded levels from Hurricane Floyd. RFC forecasts are not available for this site but points downstream should prepare for water above Floyd levels.

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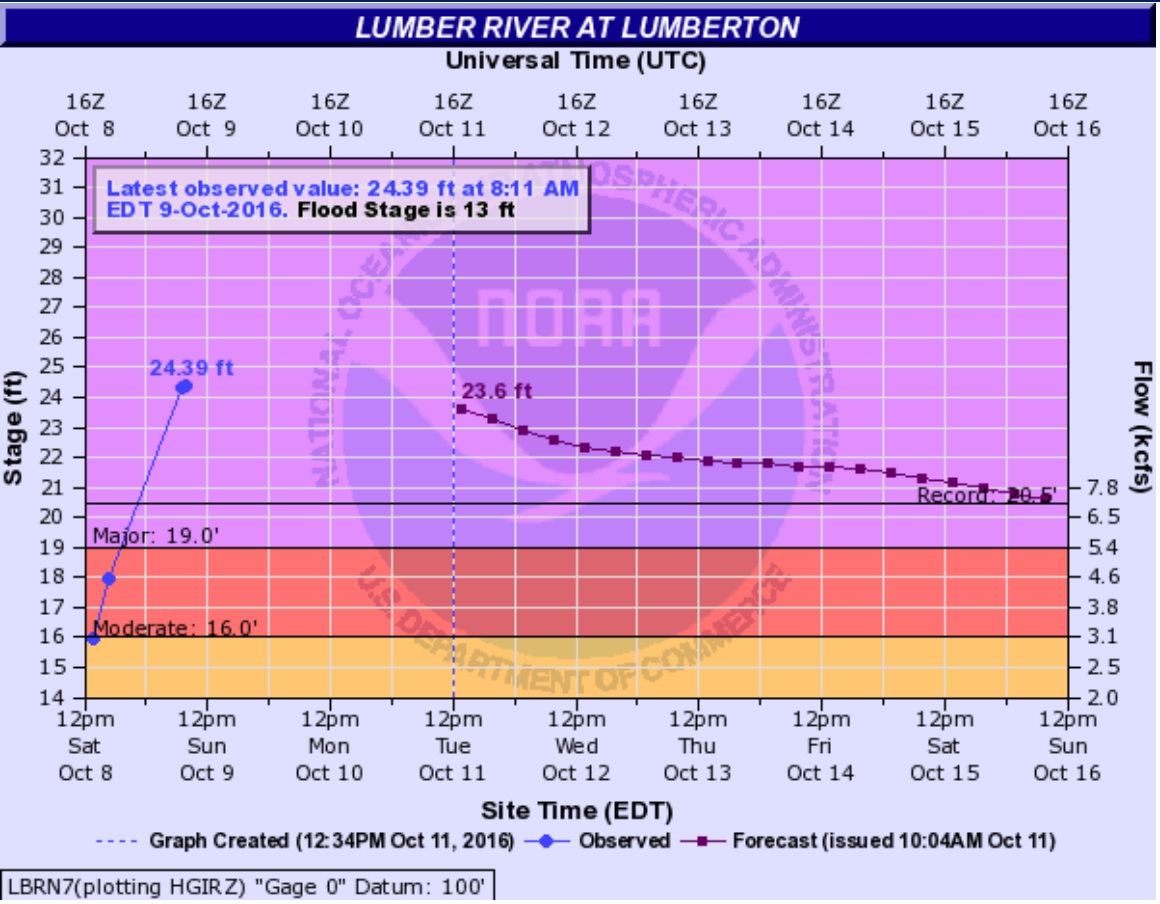

16 Flooding worsens in the Pines and Coxs Pond areas as well as along River Road. Flooding also worsens between the Pepsi plant and the river on the east side of town. In addition, Chickenfoot Road, Hestertown Road and Noir Street will have flood waters on them.

15 Flood waters will affect yards in the Pines area, Coxs Pond area, and along River Road. Additional residential property will be affected between the Pepsi plant and the river on the east side of Lumberton.

Record flooding is occurring in Lumberton.

River Flood Impacts vs Stage

20 Floodwaters come within 40 feet of the Pepsi plant on Chippewa Street. Flooding deepens in the Pines Area, Coxs Pond, along River Road and between the Pepsi plant and the river. Portions of Cox Road will become impassable. Flood waters affect areas along Planetarium Road including the Robeson County schools facility. West Carthage Road will be impassable near Mcmillans Beach Road. Kenric Drive will be flooded. Areas along Hester Drive off West 5th Street will experience minor flooding.

19 Extensive flooding occurs along the river. Over 50 dwellings will be inundated or isolated due to the flood waters and several roads will be closed especially in the Pines area and Coxs Pond area. Carthage Road may be completely covered with water.

18 Flood waters deepen in the Pines and Coxs Pond areas as well as along River Road. Flood waters may affect Carthage Road. Several homes will become isolated or inundated between the Pepsi plant and the river. Chickenfoot Road, Hestertown Road and Noir Street will be closed.

17 Flooding worsens west of Interstate 95 and water may begin surrounding homes in the Pines and Coxs Pond areas. Homes off River Road may become isolated by flood waters. Water may also affect yards off Planetarium Road and fields off deep Branch Road. East of Lumberton, the lowest homes in the Pines area may be flooded and homes may be surrounded by water in the Pines area and between the Pepsi plant and the river. Chickenfoot Road, Noir Street and Hestertown Road may be impassable.

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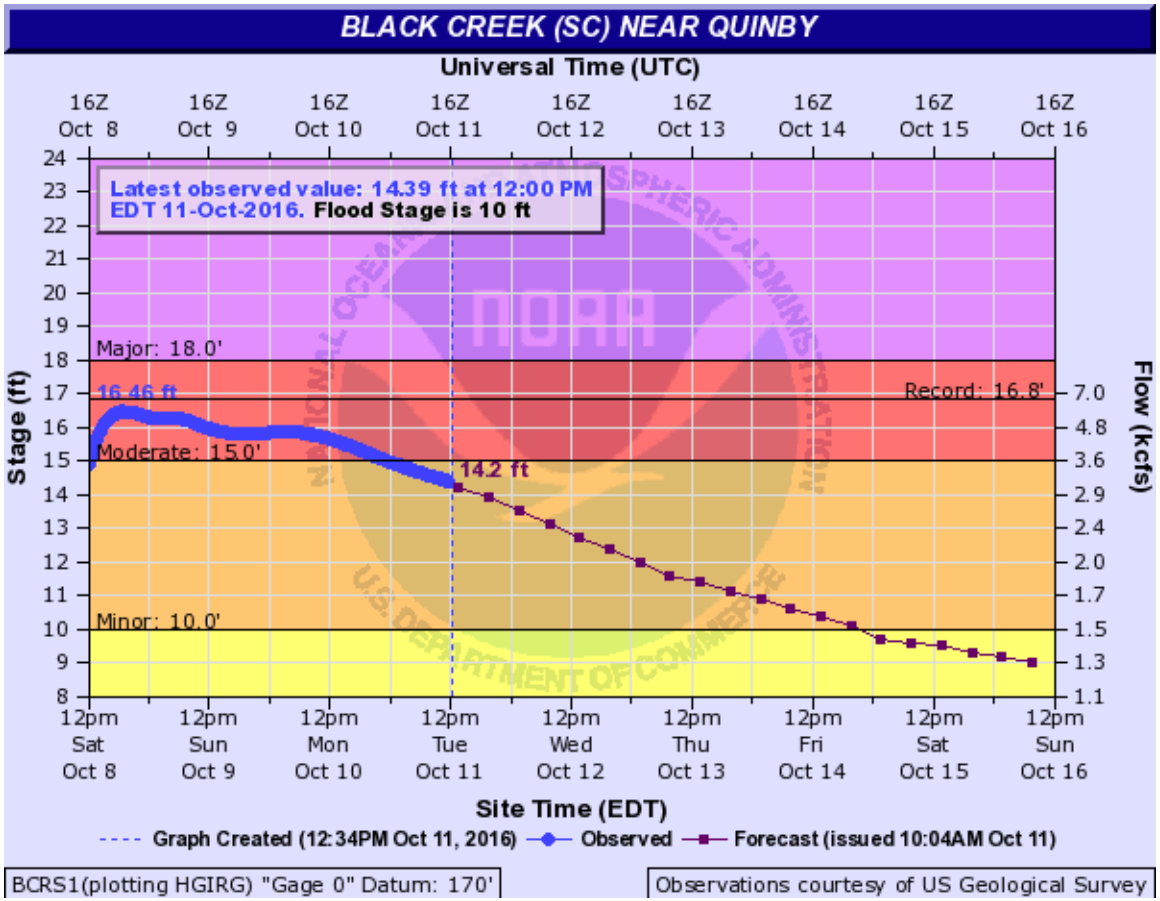

10.5 Floodwaters begin to affect portions of East Black Creek Road.
10 Flood stage. Creek coming out of its banks.

The creek will continue a slow fall into the weekend.

River Flood Impacts vs Stage

18 Water several feet deep in numerous homes on Creekside Drive, East Black Creek Road, and Crooked Creek Drive.

16 Floodwaters deepen on Creekside Drive, East Black Creek Road, and Crooked Creek Drive. Flood waters spread onto Cyprus Bend Road into the Country Club of South Carolina.

15 Floodwaters enter numerous homes on Creekside Drive, East Black Creek Road and Crooked Creek Drive.

14 Floodwaters surround the majority of homes on East Black Creek Road, Creekside Drive and Crooked Creek Drive and all residents are isolated due to the floodwaters. Water is lapping at the foundations of all ground level homes in these areas.

13.5 Floodwaters begin to affect one mobile home on Creekside Drive and continue to rise in yards.

13 Floodwaters spill over into all yards of residences on Creekside Drive, Crooked Creek Drive and East Black Creek Road. The creek spills over its banks off Highway 327 in the Country Club of South Carolina. Floodwaters affect some yards of residences in the Country Club of South Carolina.

12.5 Floodwaters continue to rise on Creekside Drive and East Black Creek Road with water nearing a few homes. Homes along East Black Creek Road become isolated and residents must use boats to exit the neighborhood.

11.5 Floodwaters spill over into yards of all residences on Creekside Drive.

11 Floodwaters affect Creekside Drive in Quinby. Water begins to get into residents' yards on Creekside Drive and East Black Creek Road.

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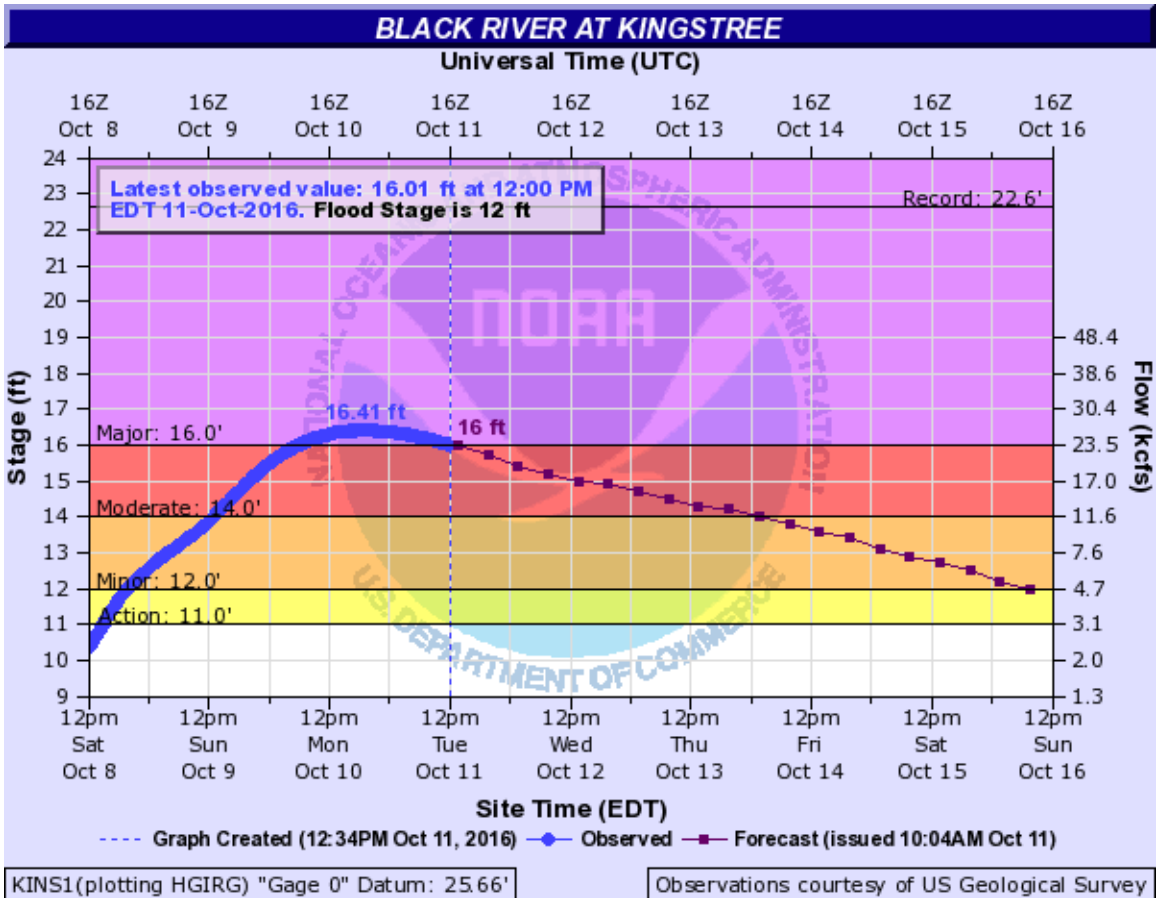

River Flood Impacts vs Stage

19.7 Flood waters will affect residential streets in Kingstree including Singleton, Scriven, McFarlin, and Cedar. Overflow from a canal on East Main Street near the railroad crossing may damage some stores in the area. Highway 52 and 261 closed.

18 Flood waters will begin to overflow Highways 52 and 261 causing some closures. Some evacuations may become necessary in the Kingstree area.

16 Flood waters will flow into some homes in the Kingstree area. Extensive flooding will occur along the remainder of the river.

14 Flood waters will continue to affect immediate areas along the river bed. Rising water levels will also reach Highway 41 at Andrews at 14.5 feet.

12 Flood waters will affect low lying areas along the river especially upstream from the Highway 52 bridge.

The crest was about 6 feet **lower** than the flood last year and the river will fall below flood stage this weekend.

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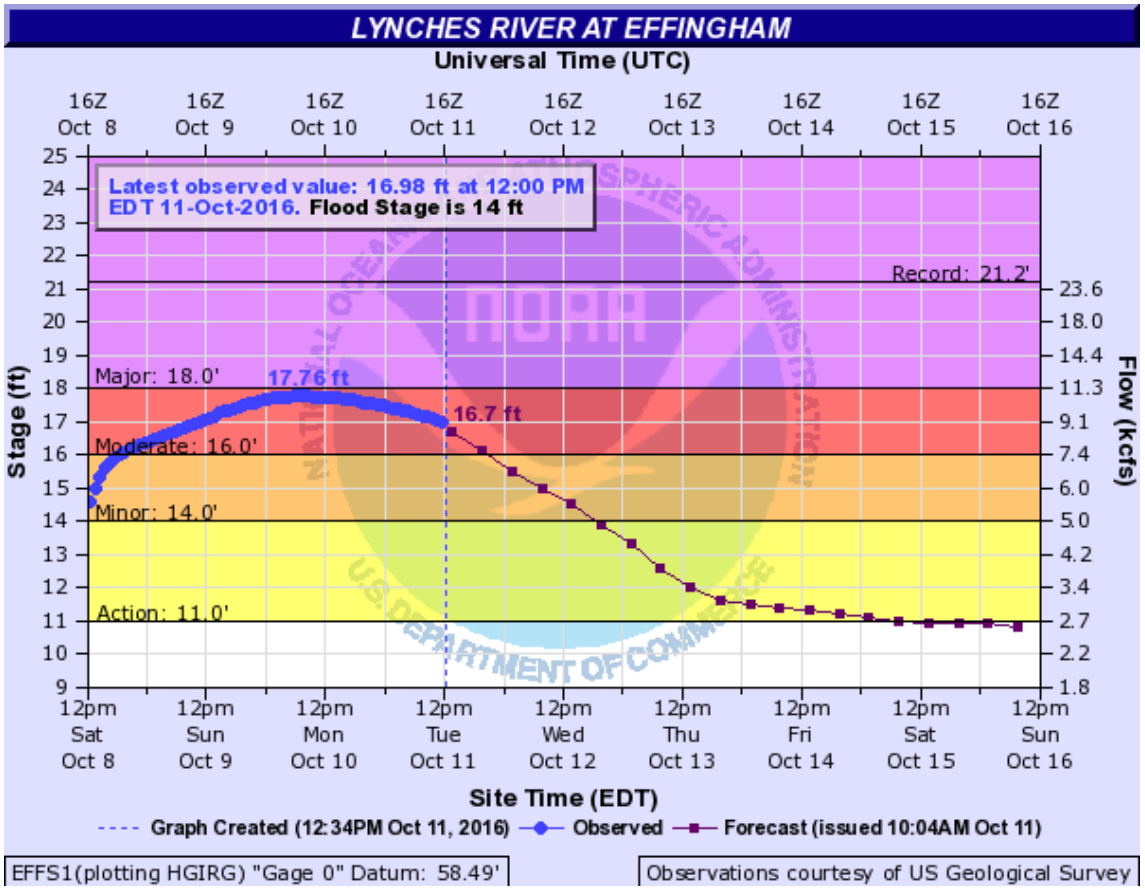

River Flood Impacts vs Stage

21 Near record flooding will occur.

18 Extensive flooding will occur.

17.5 Extensive flooding will occur along the river. In addition, flood waters will affect some residential areas up stream near the Sumter County line.

16.5 Water will enter some homes along Roundtree Road. Several homes will be isolated along North Old Georgetown, Roundtree, and Bengause Roads near Effingham and New Hope.

16 Flood waters will affect several homes along the river and isolate those residents without boats.

15.5 Flood waters will affect portions of North Old Georgetown, Roundtree and Bengause Roads near Effingham and New Hope. The roads will be impassable in places.

15 Flood waters will affect roads near Effingham and New Hope. North Old Georgetown, Roundtree and Bengause Roads will flood in low lying areas near the river.

14 Flooding will affect low lying areas along the river.

The river crested earlier yesterday and will fall below flood stage by Wednesday evening.

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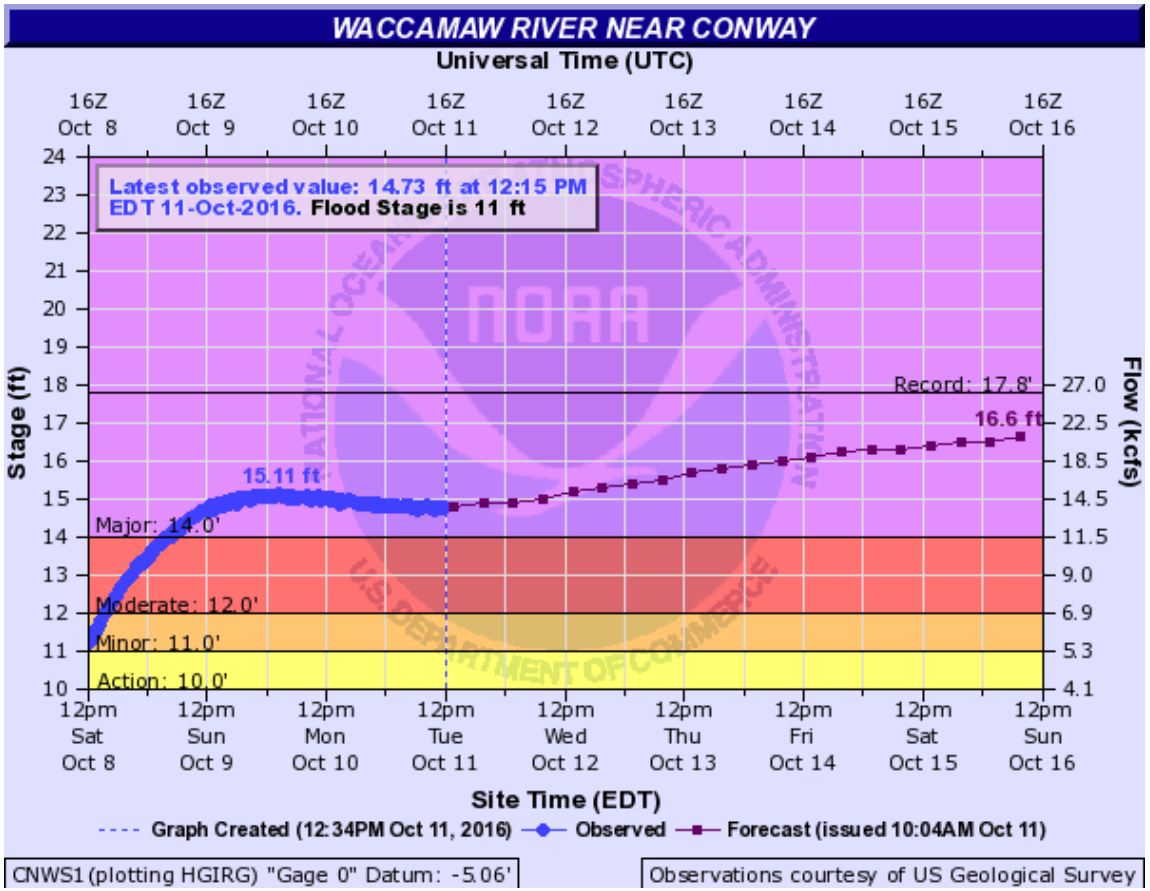

The river could crest around 16.5 feet on the 16th or 17th. This is about a half foot above last year and about a foot below Hurricane Floyd levels.

River Flood Impacts vs Stage

15 Residential flooding will continue to worsen. The Conway Marina will be flooded. Railroad trestles in downtown Conway will flood at 15.9 feet.

14 Flood waters will worsen and affect several residential properties and roads at Riverfront South, Lees Landing, Savannah Bluff, Pitch Landing, Jackson Bluff and Bucksville.

13 Flooding will occur in residential areas off Business 501, Highway 905 and Highway 90. Water levels one foot deep will surround approximately 20 homes in the Savannah Bluff area. Flood waters will also surround homes in the Lees Landing, Pitch Landing and Riverfront South communities. Flooding will occur near a few homes on Oak Street as well as at Punch Bowl and Pitch Landing.

12 Flooding will worsen in the Lees Landing, Riverfront South, Pitch Landing and Savannah Bluff communities. Flood waters will begin to affect homes north of Conway on Riverside Drive. Swamps will be heavily flooded.

11 Water will begin to cause minor flooding of yards and a few roads in the Lees Landing, Pitch Landing, Savannah Bluff, and Riverfront South communities. Overflow of vast uninhabited swamp and natural boat landings will occur.

Levels at Freeland are expected to crest around 18.5 feet on the 12th.
Levels at Longs are expected to crest around 18 feet on the 13th or 14th.
Freeland would crest below Floyd levels and Longs would crest near Floyd levels.

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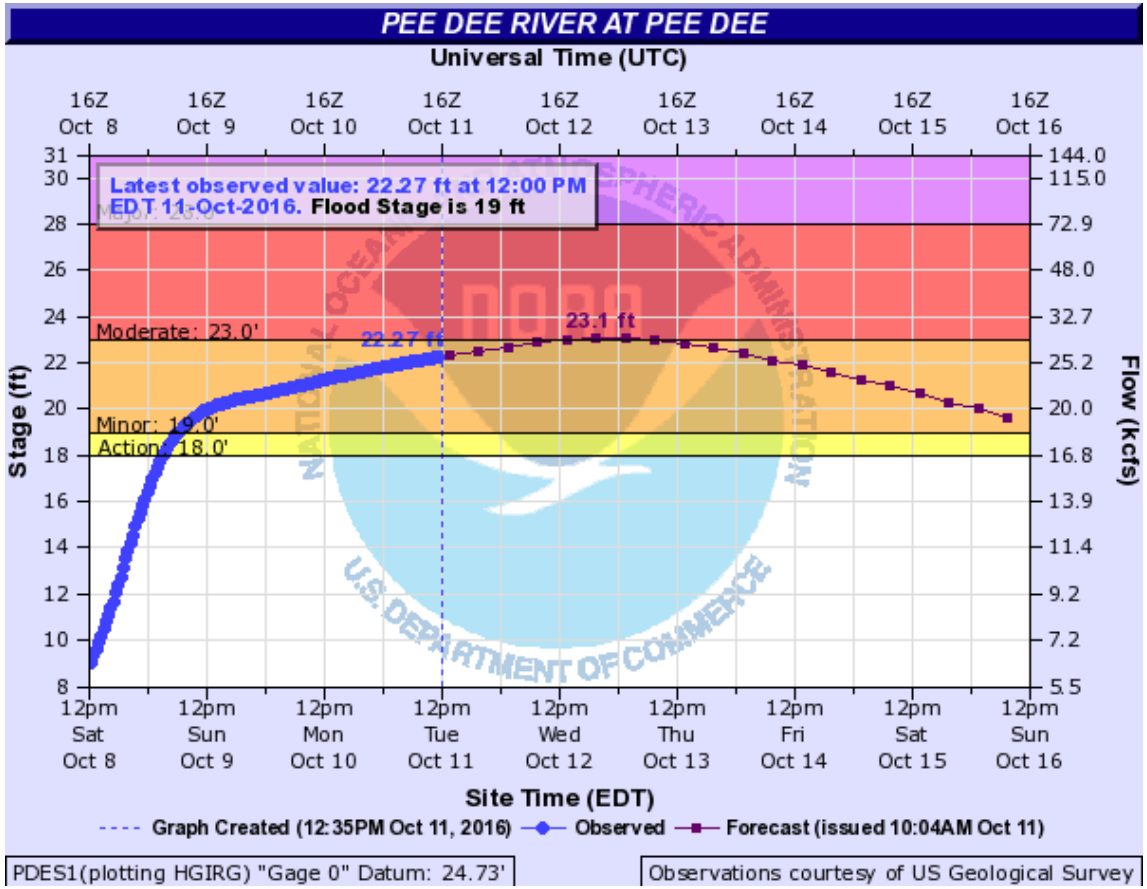

River Flood Impacts vs Stage

28 There will be extensive flooding of timber land and farm land along the river. Access roads may be damaged by the flood waters and operations at industrial plants along the river will be affected.

25 Flood waters will continue to affect logging operations upstream and downstream from Pee Dee. Flooding of farmlands adjacent to the river will worsen.

23 Flooding will affect swamp and timberlands while also disrupting logging operations. Operations will likely cease and equipment not previously moved will remain trapped. Some farmland will have minor flooding especially around Britton Neck.

20 Flood waters will affect swamplands and logging interests. Flood waters will affect timberland as far downstream as Yauhannah two weeks after the crest passes Pee Dee. Logging equipment needs to be moved.

19 Flood waters will affect swamplands adjacent to the river.

The river is in flood and is expected to reach moderate flood Wednesday.

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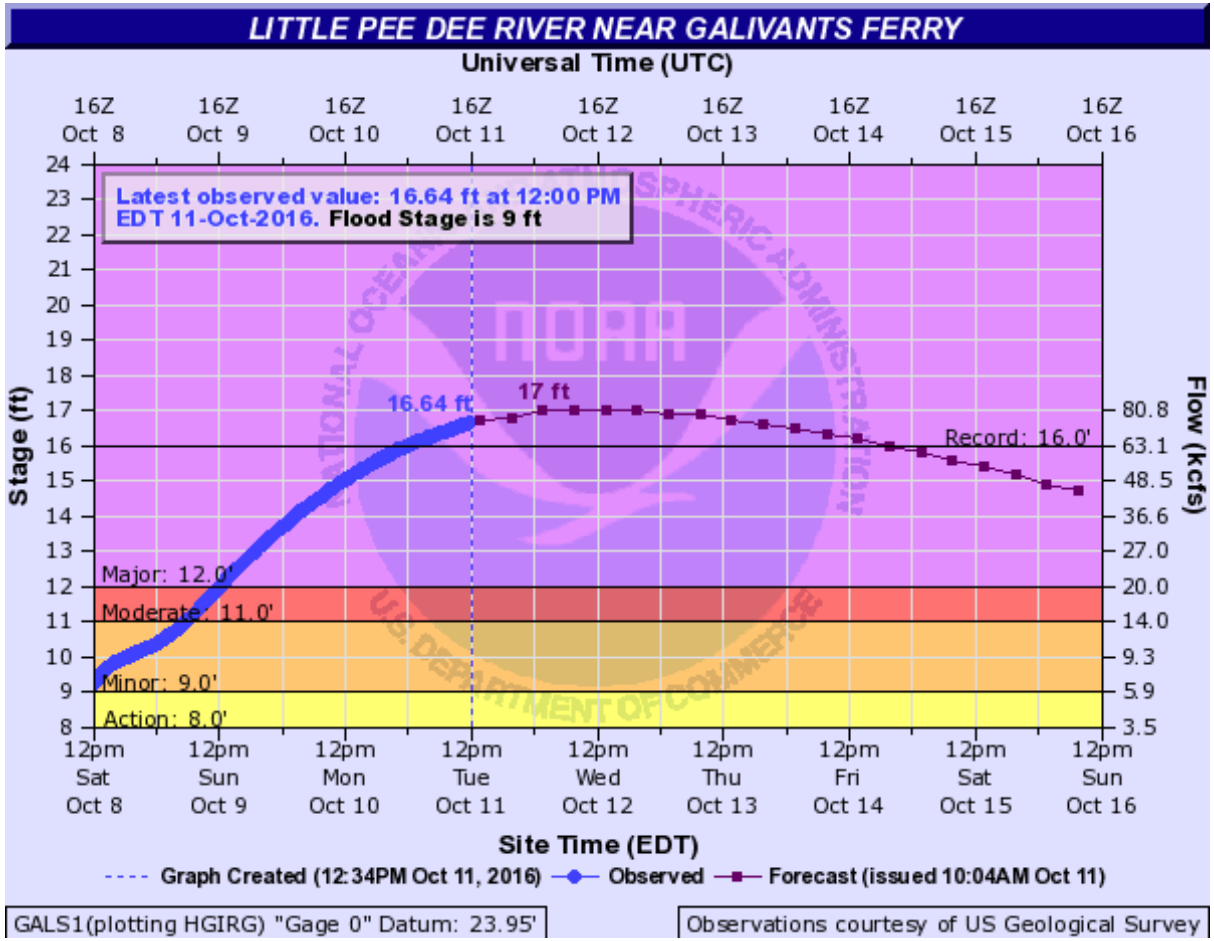

River Flood Impacts vs Stage

12 Flood waters will affect 30 to 40 homes in the Fork Retch community near Nichols.

11 Flood waters will continue to rise in the Fork Retch community located near Nichols. Flood waters will begin to affect some homes at Fork Retch. Swampland flooding will increase.

9 Flood waters will begin to affect residential yards in the Fork Retch community upstream of Galivant's Ferry near the town of Nichols. Swampland flooding becomes noticeable and natural boat landings will be flooded.

8 The river is at bank-full. Some minor flooding will occur in low lying areas.

This crest has eclipsed the record set by a hurricane in 1928. This level is almost 5 feet above those of Hurricane Floyd.

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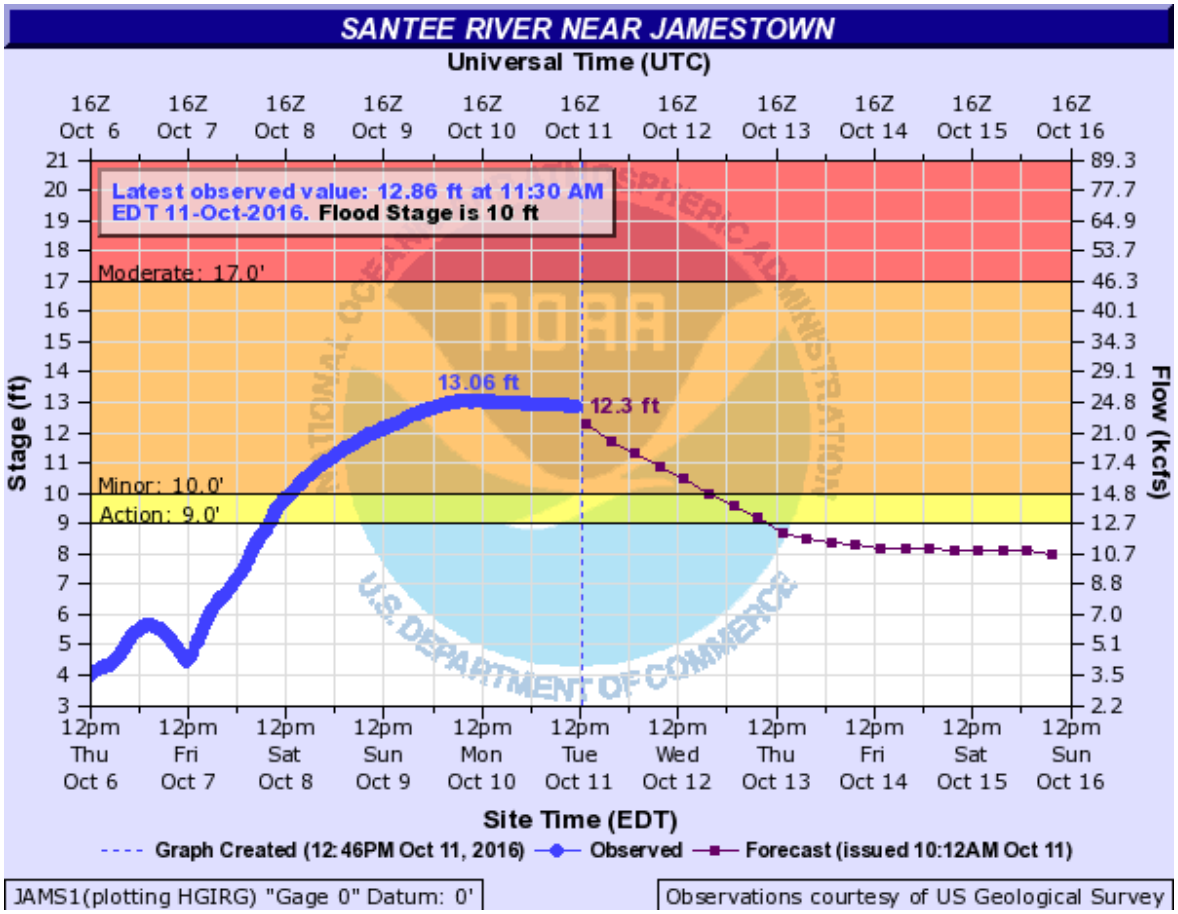

River Flood Impacts vs Stage

24 water will start to enter the lower level of the home at the end of Lawton Farm Lane.

22 water will surround the residence at the end of Crow Hill Drive and portions of the road will be covered with water due to backwater effects.

19 The lower quarter mile of Lawton Farm Lane is impassable.

18 The boat landing at the end of Santee Landing Road will be inaccessible. The lower half mile of Corner Loop Road will be impassable due to backwater effects from Pole Branch Creek. Water covers the lower quarter mile of Lawton Farm Lane.

17 The lower half mile of Harris Landing Road is flooded and impassable and the residence at the end of the road is flooded. Lenuds Ferry boat landing at Highway 41 is inaccessible and the parking lot is flooded.

16 water surrounds the house at the end of Harris Landing Road and the adjacent boat ramp is no longer accessible.

12 several dirt logging roads become impassable.

10 water covers numerous logging roads and inundates timber land adjacent to the river. Most access points to Wee Tee State Forest are cut off.