



NOAA FISHERIES

Hurricane Florence made landfall near Wrightsville Beach, NC on September 14th, 2018 as a **Category 1 storm**. The storm moved at a very slow speed, punishing sections of the coast to over a day of hurricane or tropical storm winds of **90+ mph**. The storm also dropped nearly three feet of rain over a four day period causing widespread flooding. Total damages were estimated to be **\$24 billion**; **53 deaths** were also attributed to the storm. (<https://www.ncdc.noaa.gov/billions/events.pdf>)

This Study

NOAA Fisheries, working with the North Carolina Division of Marine Fisheries and North Carolina Sea Grant, conducted a rapid appraisal of damage from Hurricane Florence through field, online and phone surveys throughout the state's coast. A total of **934 businesses and individuals** (out of 1,784 contacted) participated in the surveys. These estimates are extrapolated from information collected from respondents. Approximately **a third** of vessel owners reported damage to their vessels or gear, while land-sited businesses such as seafood dealers (**65%**) and aquaculture operations (**90%**) were more likely to be impacted. Total estimated damages* to vessels and businesses were approximately **\$38 million**, with estimated lost revenues* of **\$56.5 million**.

Hurricane Florence Fisheries Damage Assessment



Damaged vessels and docks in Beaufort, North Carolina.
Photo: North Carolina Fisheries Association/Beaufort Inlet Seafood

Commercial and Recreational Fisheries

Commercial and recreational fisheries are an important economic driver of many North Carolina coastal communities. In 2017, North Carolina's commercial fishing and seafood industry and recreational fishing sector had revenues of **\$373 million** and directly employed **7,500 workers** statewide.

Estimated Damages to Fishing Operations and Fishing-Related Businesses

Operation / Business Type	Vessel / Facilities Damages*		Immediate Job Losses	Total Revenue Losses*
	% Damaged	Total Damages		
Commercial and Fishing Businesses				
Commercial Fishing Operations	38%	\$16.8 million	2,933	\$9.2 million
Seafood Processors and Dealers	65%	\$12.9 million	211	\$20.0 million
Aquaculture Operations	90%	\$2.3 million	0	\$8.5 million
For-Hire & Recreational Fishing Businesses				
For-Hire Businesses	34%	\$4.6 million	356	\$8.1 million
Bait and Tackle Shops	57%	\$0.4 million	0	\$10.6 million
Total Estimated Damages* and Job Losses		\$38.0 million	3,500	\$56.5 million

*Damage estimates do not reflect disaster relief businesses and individuals may have received from private insurance, disaster programs administered by other Federal agencies such as FEMA, SBA, and HUD, the State, or other nongovernmental entities.

Commercial Fishing and Seafood Businesses

The North Carolina commercial and seafood industry had revenues of **\$257 million** in 2017 and directly employed **3,100 workers**. The local commercial fishery sector, excluding dealers and processors, had revenues of **\$97 million** and employed **2,100 workers**.



Damaged seafood processor/dealer. Photo: North Carolina Fisheries Association/Charles Smith

Damages by Operation / Business Type

Type	Summary	Estimated Damages**
Commercial Fishing Operations	Commercial fishing operations were disrupted by the storm. The average commercial fisherman's loss was approximately \$1,850 to vessels and gear with another \$1,000 worth of damage to facilities. Fishermen in the ocean-adjacent counties from Carteret south were more likely (14%) to suffer damages than those in other areas (9%). It also took over a month for these areas to regain normal salinity and water clarity, leading to a halt in shellfish harvesting and most other inshore fisheries. The state's commercial landings records indicate a drop of \$9.2 million in value in the three months after the storm in comparison to "normal" fall landings.	Vessels and Gear \$10.8 M Facilities \$6.0 M
Seafood Dealers and Processors	Seafood dealers in southern North Carolina, which experienced the brunt of the storm winds, incurred the most facility and equipment damage. Floodwaters repeatedly disrupted supply lines.	Facilities \$5.1 M Seafood \$3.4 M Equipment \$2.0 M Pier / Dock \$2.5 M
Aquaculture Operations	Aquaculture operations were surveyed statewide. As with the commercial fishing sector, the heavily polluted floodwaters from Florence's catastrophic rainfall led to near total losses of shellfish aquaculture products. Over half (\$4.4 million) of the product loss was in Carteret County, which had the largest (25) number of affected operations.	Facilities \$2.3 M Product \$8.5 M

**M = million

For-Hire and Recreational Fishing Businesses

Saltwater anglers in North Carolina spent **\$1.5 billion** on fishing trips, which directly supported **15,000 jobs**. For-hire operations alone employed **800 workers**.

The bait and tackle businesses and for-hire operations in North Carolina had combined revenues of **\$248 million** and employed **4,700 workers** in 2017.

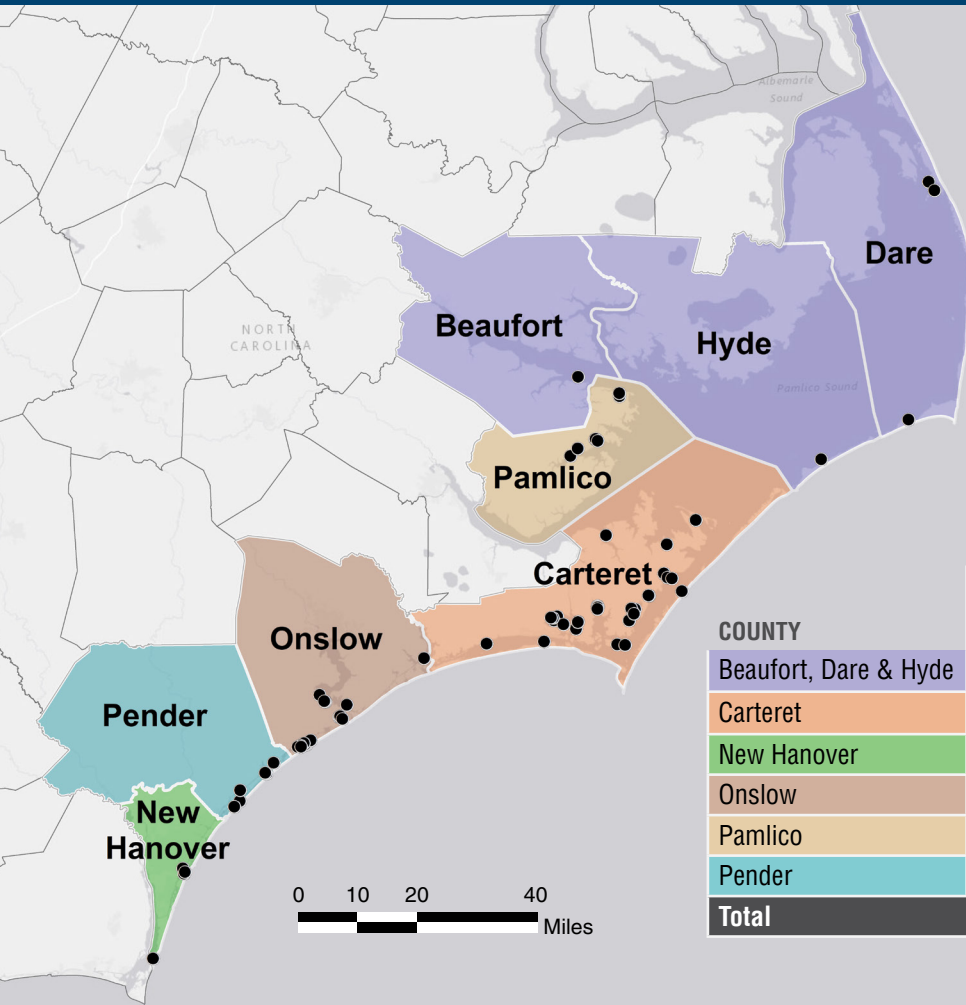


Damaged docks in Sea Level, North Carolina. Photo: North Carolina Fisheries Association

Damages by Operation / Business Type

Type	Summary	Estimated Damages**
For-Hire Businesses	Charter boat captains reported more losses from lost sales (\$8.1 million) than physical damages (\$4.6 million). The average charter captain reported almost \$10,000 in unfulfilled and cancelled charters, as housing shortages made it difficult for clients to stay overnight along much of the coast. Water quality issues also made it difficult to fish for popular inshore gamefish like red drum.	Vessels and Gear \$2.0 M Facilities \$2.6 M
Bait and Tackle Shops	Damage to bait and tackle shops was minimal, and reported losses were often covered by insurance.	Facilities \$0.2 M Bait and Seafood \$0.0 M Equipment \$0.1 M Pier / Dock \$0.0 M
Fishing Piers and Related Businesses	Some 80% of the state's fishing piers suffered structural damage, with nearly all of the major damage (85%) coming from area below the Outer Banks. Piers reported over a half million dollars in lost sales, with the only completely unaffected facilities located north of Hatteras Island.	Facilities \$0.0 M Bait and Seafood \$0.0 M Equipment \$0.1 M Pier / Dock \$1.3 M

**M = million



● Shellfish Aquaculture Operations

COUNTY	SHELLFISH OPERATIONS	FARM ACREAGE	PROPERTY DAMAGE	PRODUCT LOSS
Beaufort, Dare & Hyde	5	24	\$4,000	\$119,300
Carteret	25	79	\$414,100	\$4,364,990
New Hanover	4	13	\$21,800	\$516,750
Onslow	13	71	\$11,000	\$654,200
Pamlico	4	34	\$1,808,000	\$2,470,000
Pender	6	18	\$16,500	\$221,475
Total	62	263	\$2,279,400	\$8,466,015

Hurricane Florence estimated damages to North Carolina shellfish aquaculture operations.
Map: NOAA National Centers for Coastal Ocean Science and Coastal Aquaculture Siting and Sustainability



Crab traps waiting for the return of cleaner waters.
Photo: North Carolina Fisheries Association/Gary Cannon



Fish house damage in Sea Level, North Carolina. Photo: North Carolina Fisheries Association

