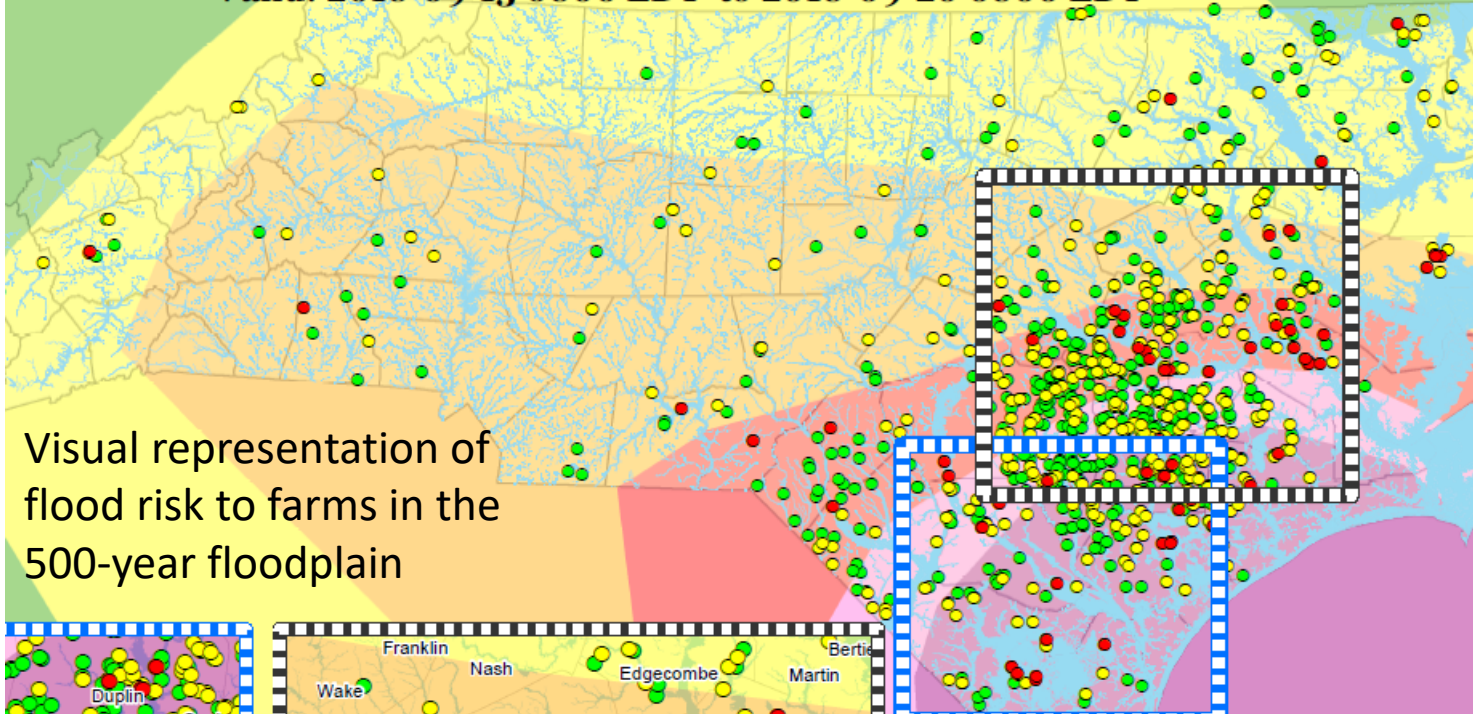NC Agriculture's Response to Hurricane Florence

North Carolina Swine Farms Proximity to Floodplain with 7-Day Quantitative Precipitation Forecast (QPF)
Valid: 2018-09-13 0800 EDT to 2018-09-20 0800 EDT

Visual representation of flood risk to farms in the 500-year floodplain
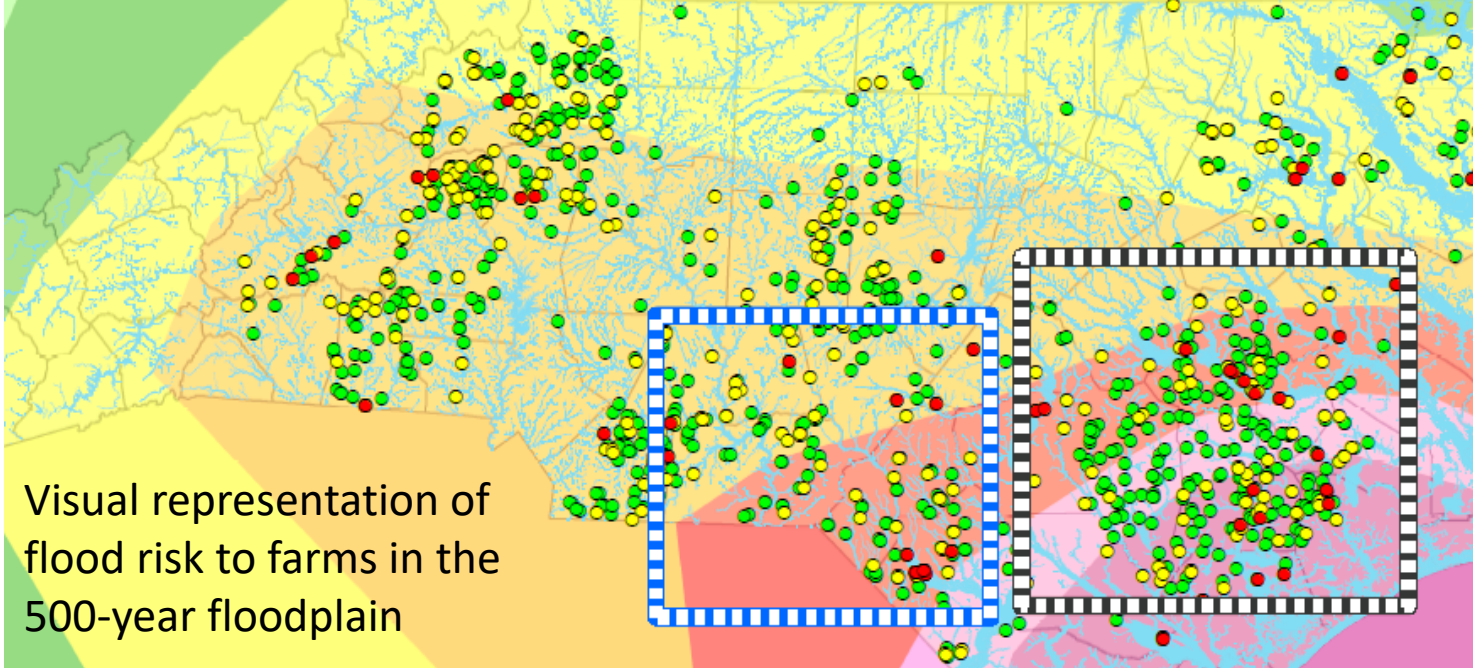
Preparation "Before the Storm" Swine Industry

- Industry partners contacted daily in preparation of storm

- 20,000 hogs were either moved to facilities in other states, transported to market, or movement to NC reduced.

- Many commercial farms lowered lagoon levels in accordance with DEQ regulations

- Facility generators and automatic feeders were pre-filled ahead of the storm

*Risk denoted on map does not depict actual flooding. Factors such as topography, animal barn placement, and previous mitigation work could limit impacts from flooding and other hazards.

North Carolina Poultry Farms Proximity to Floodplain with 7-Day Quantitative Precipitation Forecast (QPF)
Valid: 2018-09-13 0800 EDT to 2018-09-20 0800 EDT

Visual representation of flood risk to farms in the 500-year floodplain

Preparation "Before the Storm"
Poultry Industry

- Industry partners contacted daily in preparation of storm

- Approximately 1.5 million birds were moved before the storm – either to processing or to other farms

- Feed was positioned on farms before storm

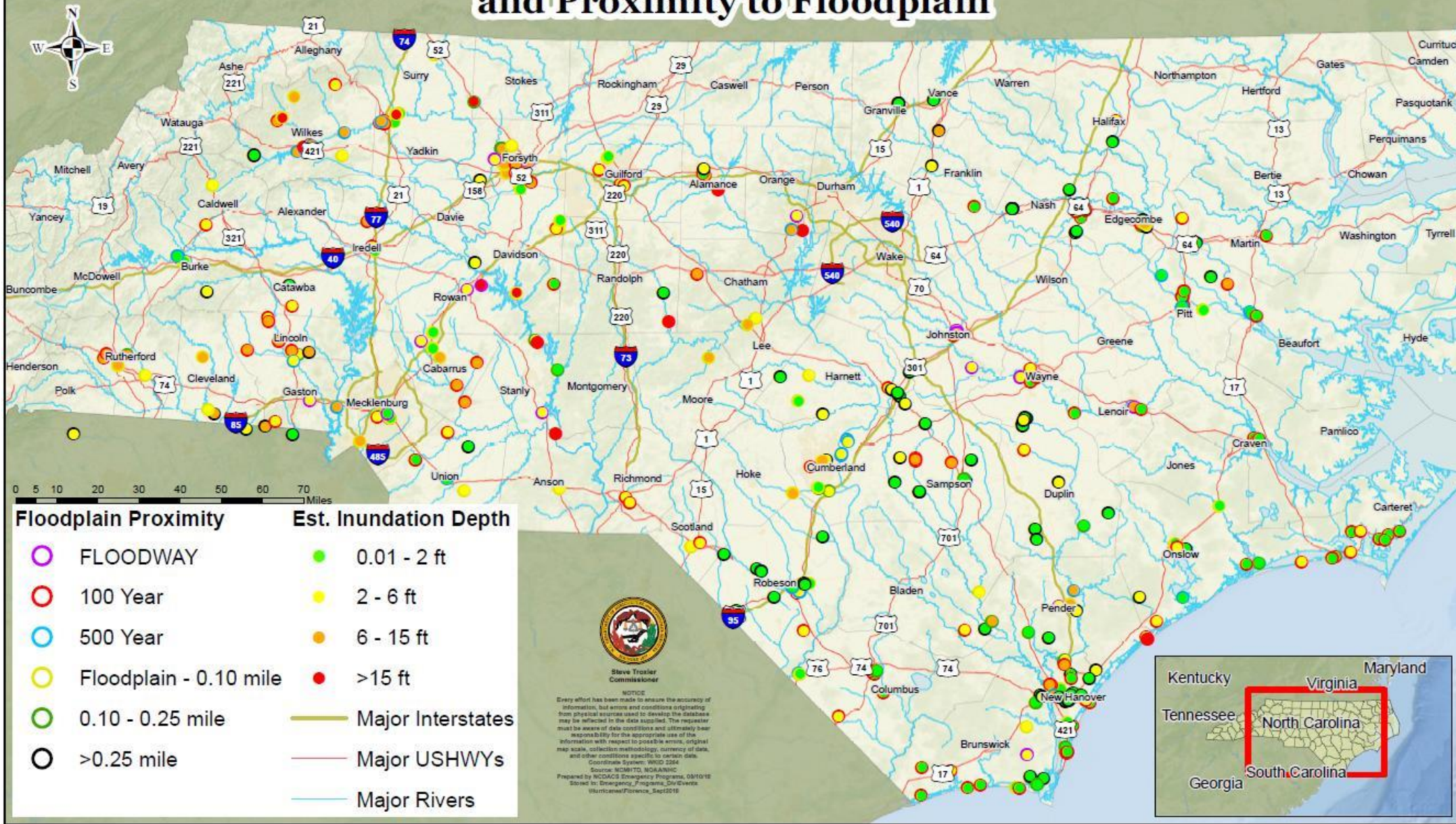- Generators were prepared before storm

*Risk denoted on map does not depict actual flooding. Factors such as topography, animal barn placement, and previous mitigation work could limit impacts from flooding and other hazards.

Coordination with Partners

- NCEM
  - Executive Order 52
- DEQ
  - Assistance locating approved landfills for deceased farm animals
- Local and National Animal Groups
  - Prepared potential needs and offers for local, state, and national partners for animal rescue, evacuation, and sheltering
- NC Cooperative Extension
  - Discussed potential staging areas for hay and other donations

Food Firms and Inundation

Firms in US Army Corps of Engineers Hurricane Florence Inundation and Proximity to Floodplain

Floodplain Proximity
- FLOODWAY
- 100 Year
- 500 Year
- Floodplain - 0.10 mile
- 0.10 - 0.25 mile
- >0.25 mile

Est. Inundation Depth
- 0.01 - 2 ft
- 2 - 6 ft
- 6 - 15 ft
- >15 ft
- Major Interstates
- Major USHWYs
- Major Rivers

Crop and Economic Loss

Commodity	Production Loss	Total Estimated Loss	Estimated Job Impact
Flue-Cured Tobacco	$314M	$769M	11,772
Sweet Potatoes	$180M	$497M	13,967
Corn	$84M	$232M	6,522
Soybeans	$202M	$486M	4,623
Cotton	$135M	$338M	4,608
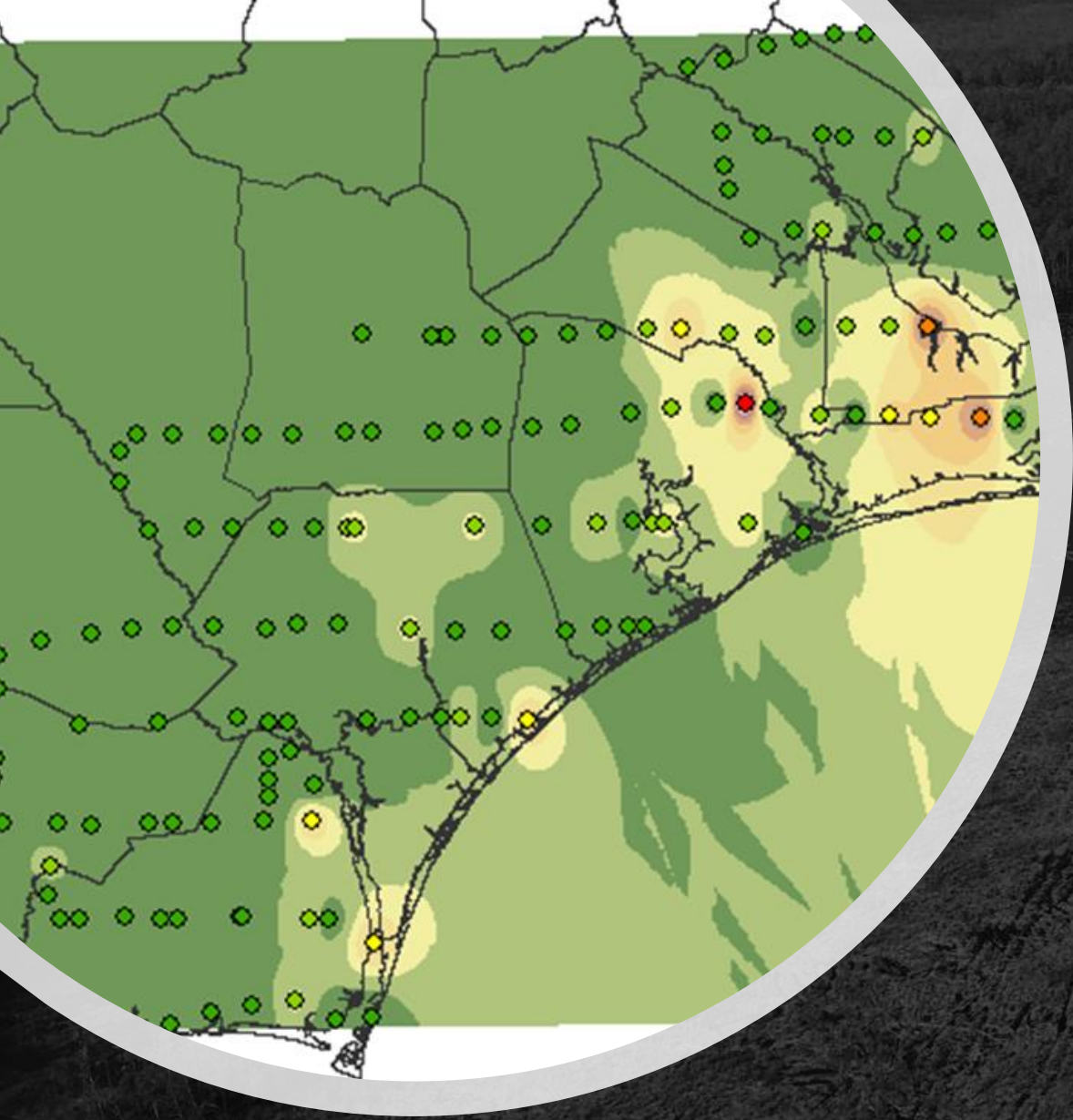
Commercial Forestry

- $69M in production loss / $153M Total Estimated Loss
- 3,445 Estimated Jobs Impacted
- 1.2 million acres with impact
- Jones, Onslow, Craven and Carteret Counties with greatest impact

Example of how mitigation prevented disaster. This commercial farm had no flooding to animal houses and no inundation or breach of lagoon. Commercial swine farms take into consideration flooding when building. Record rain totals tested building standards.
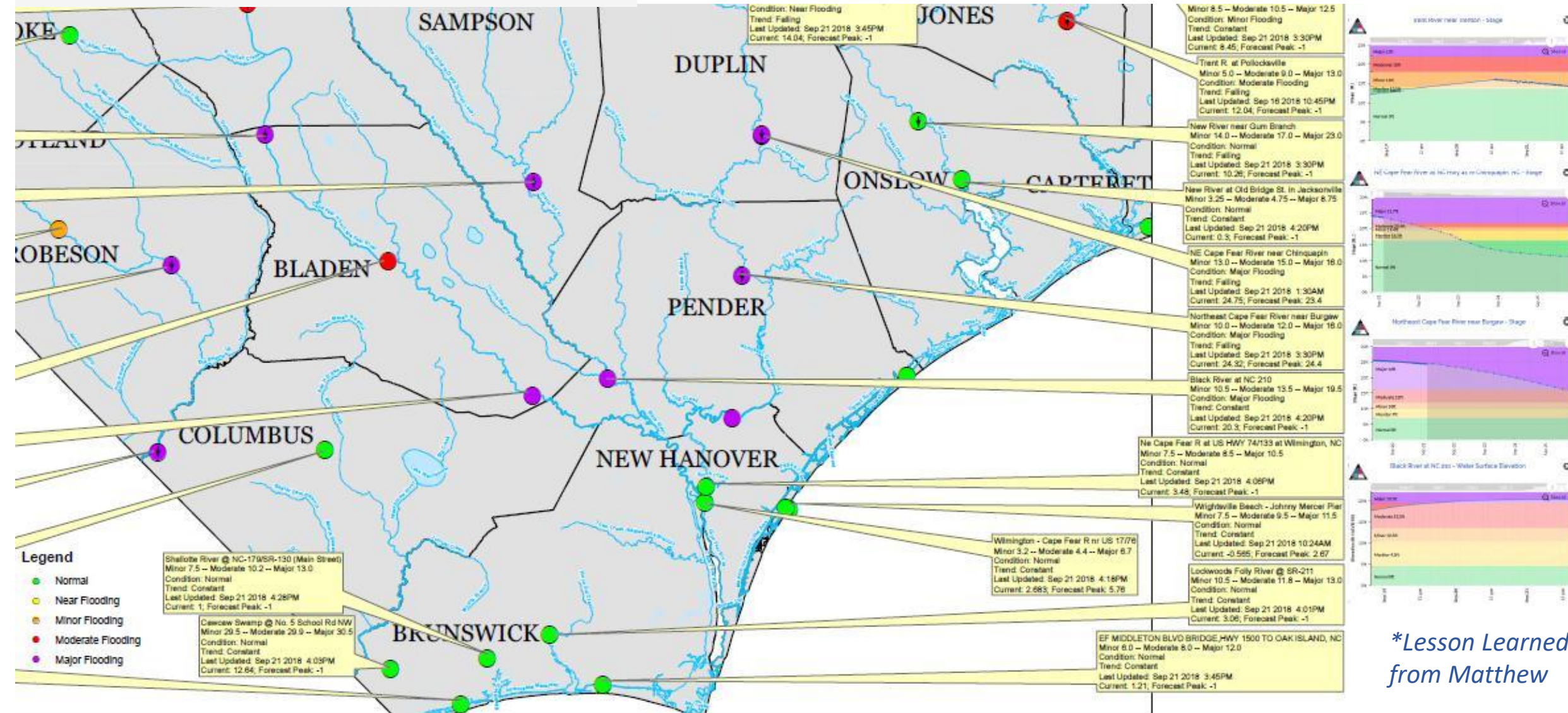
NC Commercial Swine

- Out of the several thousand commercial hog buildings:
  - About 180 buildings were impacted: 30 buildings flooded more than 6 inches and **22 of** buildings that flooded were **NOT** in any recognized floodplain
  - Over 40 buildings had access cut off due to flooded roads

Lesson Learned from Matthew

Commercial Poultry

- Over 370 commercial poultry houses were impacted out of several thousand

- 238 poultry houses were flooded

- 179 of the buildings flooded were **NOT** in any recognized floodplain

- 4 poultry houses were destroyed by wind (or tornados)

- **$63 million estimated economic loss**

- Response and assessment was slow due to flooded farms and roads
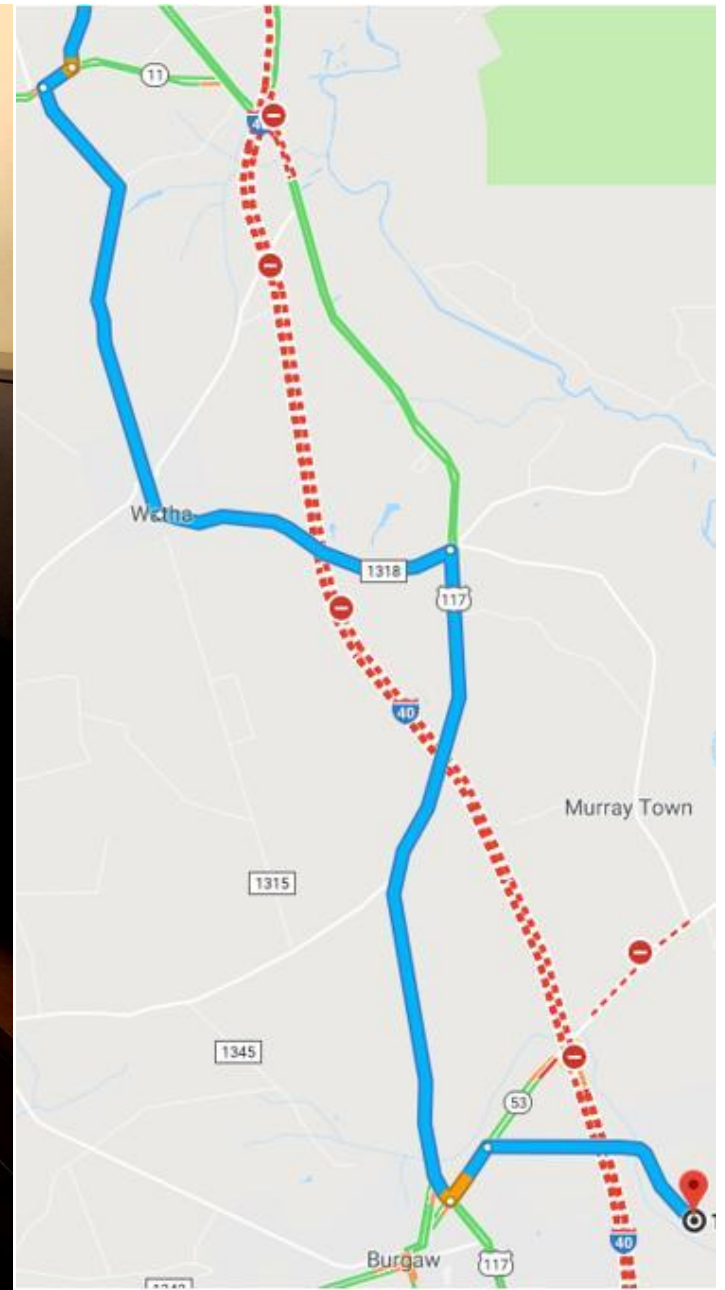
Recovery "After the Storm"
NCDA&CS Mortality Management Program
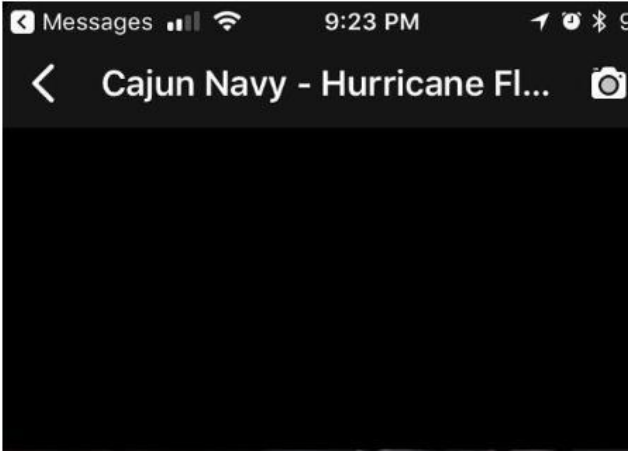

- 63 Commercial poultry farms participating

- NCDA&CS provided:
  - Subject Matter Experts
  - Carbon Delivery
      (139,783 cubic yards)
      (1,510 loads for compost)
  - Clean Out/Hauling
  - October 2016-December 2016

No Facebook

Cajun Navy - Hurricane Fl...

Saving "the Black Lab"

In Summary

- Incident Management Teams can't operate without significant GIS and routing support

- What we learned from Matthew we implemented in Florence

Lesson's Learned

- Google Maps is impossible to beat for routing during an event, don't try

- Need better process and strict procedures for routing into areas with rising water

- "Self Deployments" on Facebook and social media are something we have to get a better handle on. Can't just say you shouldn't self deploy—not working

- If 1,000 year events happen every other year, we need to plan differently

- Need to get industry partners more self-sufficient for X days after storm