



Large Storm Impacts on Animal Feeding Operations  
2020 CAFO Roundtable  
September 23, 2020

*Department of Environmental Quality*



# *Large Storm Impacts on AFOs in NC*

- AFOs in NC
- Storm History
- Hurricane Florence
- Lessons Learned

# *AFOs in NC – Permitting*

- State Permits – 2,236 total
- NPDES Permits – 17 total
- General Permits
- Individual Permits

# *NC Permitting Threshold*

NC General Statute 143-215.10B

- 250 or more swine
- 100 or more confined cattle
- 75 or more horses
- 30,000 or more poultry with a liquid waste management system
- All Others Deemed/Permitted by Rule
  - 15A NCAC 02T .1303



# *Lagoon-Sprayfield Systems*



# *AFOs in North Carolina by type*

- Permitted Facilities
  - Swine – 2069 permits (~ 3300 lagoons)
  - Cattle – 159 permits (~ 200 waste structures)
  - Wet Poultry – 18 permits / 7 active (32 lagoons)
  - Others – 7 facilities
- Deemed Permitted
  - Dry Litter Poultry – unknown\*



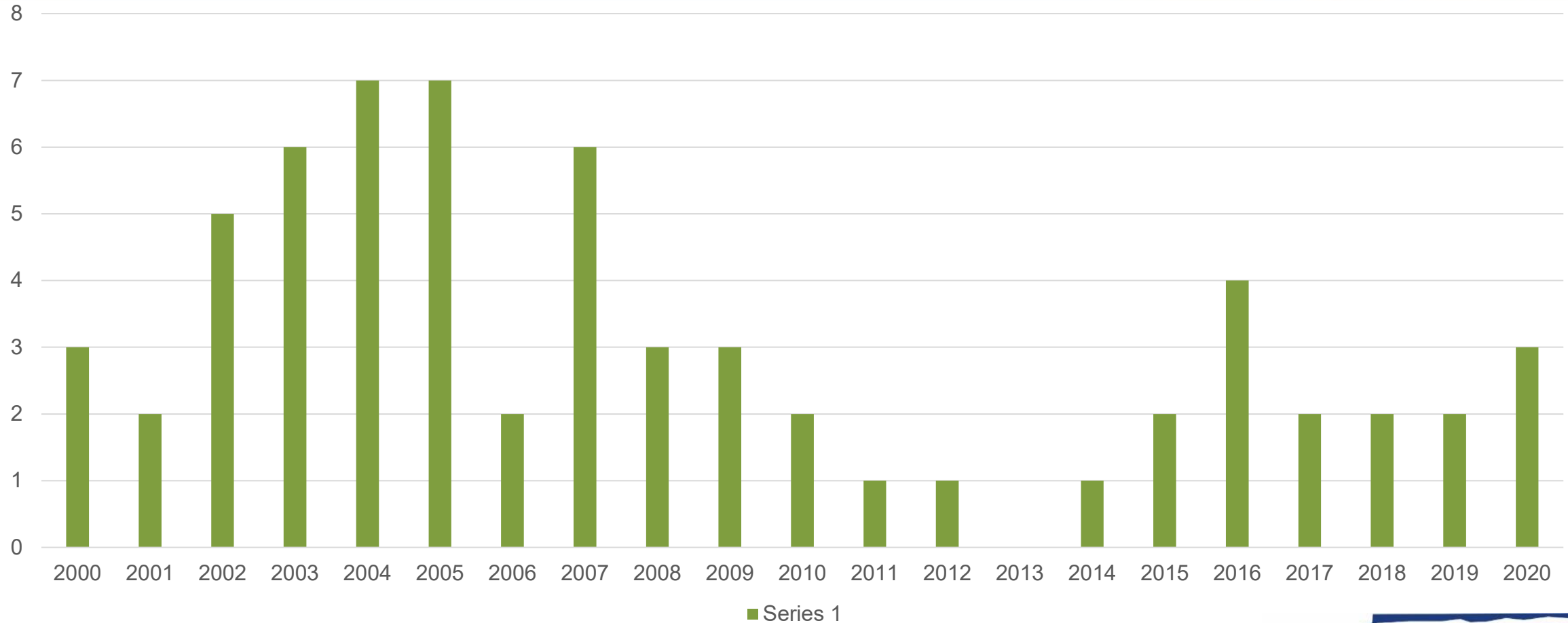
# *Storm History*



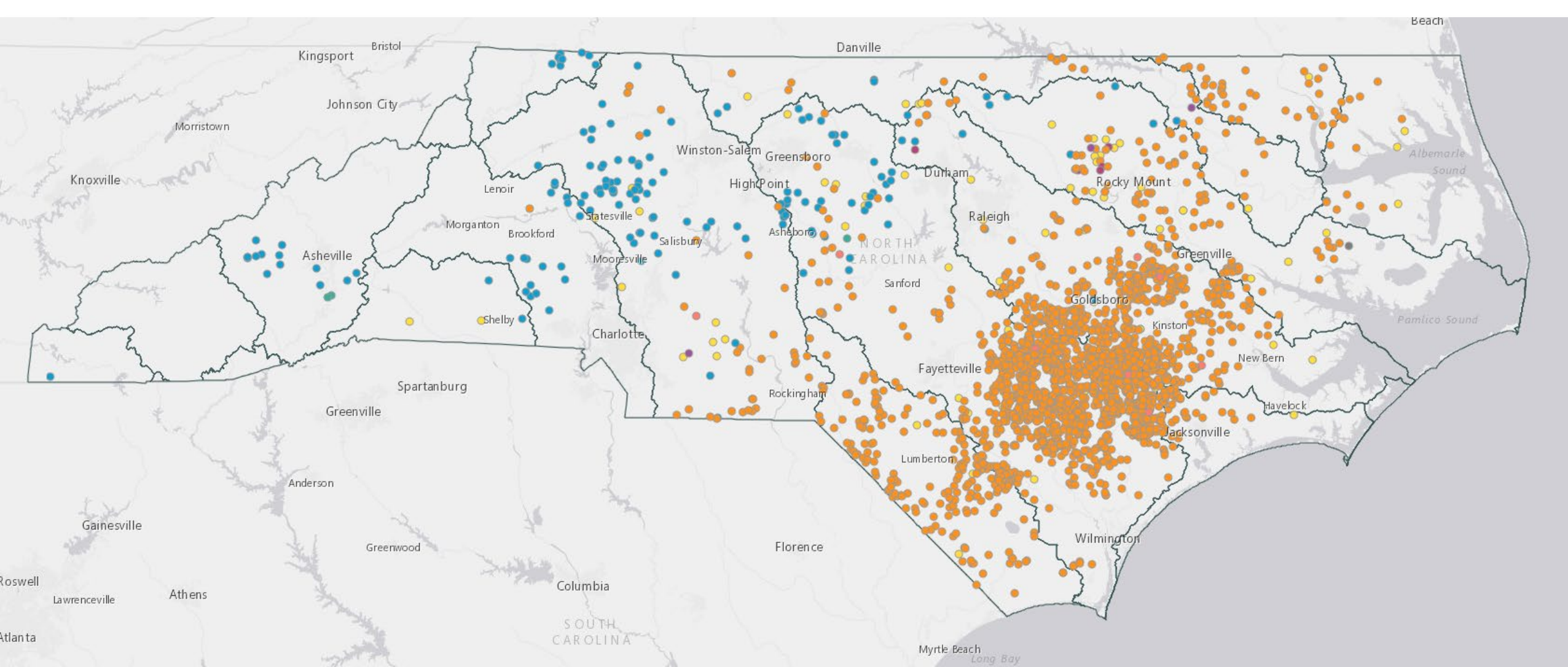
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# *Tropical Systems Impacting NC*









## *Major Hurricanes to Impact NC*

*1999 – Hurricane Dennis*

*1999 – Hurricane Floyd*

*2004 – Hurricane Frances*

*2004 – Hurricane Ivan*

*2005 – Hurricane Dennis*

*2016 – Hurricane Matthew*

*2018 – Hurricane Florence*

*2018 – Hurricane Michael*



# *Storm History*

## Issues Faced

- Lagoon Capacity
  - Discharge/Overtopping
  - Structural Integrity
- Inundation
- Structural Damage
- Crop Loss
- Mortality
- Access
- Debris



Voluntary conservation easements for swine operations in 100-year floodplain to reduce risk to water quality from future flood events

- 43 farms and 106 lagoons closed to date
  - Phase 1 – 1999; 17 farms
  - Phase 2 – 2002; 18 farms
  - Phase 3 – 2004; 5 farms
  - Phase 4 – 2007; 3 farms
  - Phase 5 – 2018; still in process



# *Hurricane Florence*



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# *Hurricane Florence*

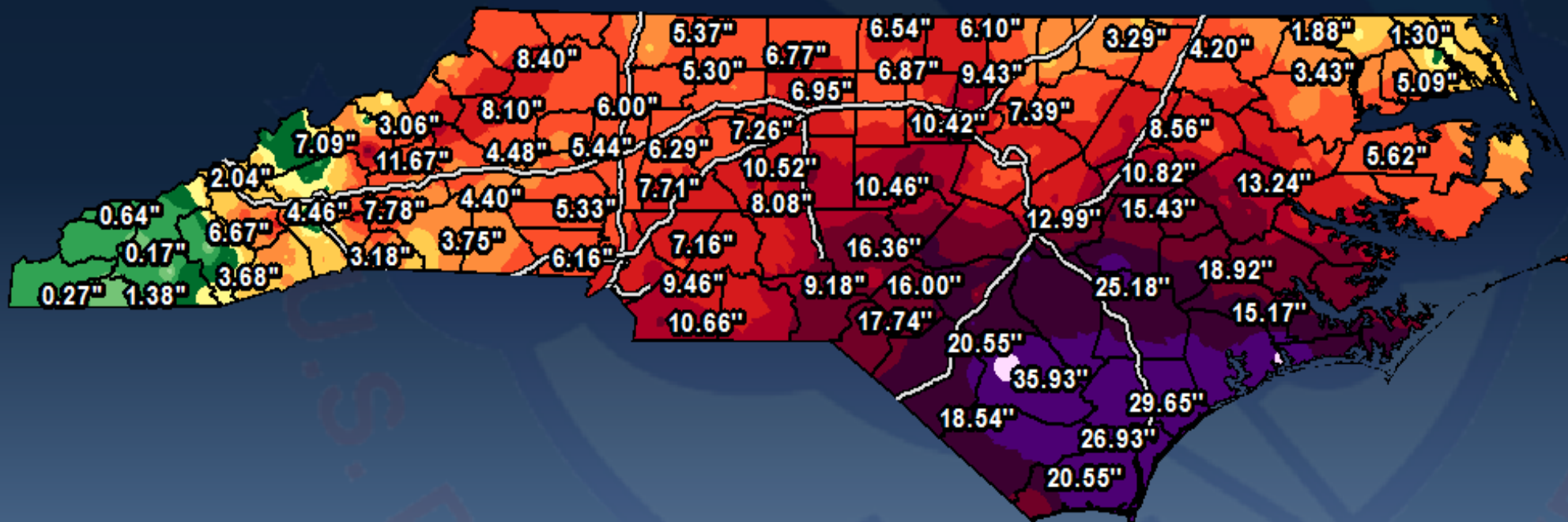


- Historic Rainfalls
- Lagoon Performance
  - Surface Water
- Mortality Management
- Bermuda window extension
- Reporting Requirements

## Division of Soil & Water Conservation

- Buy-out Program
- Incentives Program





### Rainfall Analysis 0" - 50"



# *Hurricane Florence*

## Lagoon Performance

- Over 900 facilities reported in
- Structural Damage
  - 6 Facilities – 6 lagoons
- Discharge – Overtopped
  - 28 Facilities – 32 lagoons
- Inundated
  - 7 Facilities – 9 lagoons
- Freeboard 0-3”
  - 18 Facilities – 20 lagoons at 0”
  - 32 Facilities – 40 lagoons 0-3”

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31-445 owner Terry Miller Terry Miller Farm  
sites 1&2

31-166 RL Pickett Farm  
Richard L Pickett

31-475 Ready Meadows Farms  
Rufus Rouse



31-259 Joey Carter Farms





An aerial photograph taken from the cockpit of a small aircraft, looking out over a rural landscape. The view is framed by the aircraft's window and wing. In the center of the image, a red arrow points to a small, light-colored building situated in a clearing. The surrounding area is a mix of green fields, dense forests, and several bodies of water, including a large pond to the right of the building. In the background, rolling hills are visible under a blue sky with scattered white clouds. The wing of the aircraft is visible in the lower right foreground, and a portion of the pilot's head and shoulder is visible on the left side of the frame.

31-166 Pickett Farm  
Richard L Pickett

71-15 Shady Oak Farm Tgb Farms  
LLC



# *Hurricane Florence*

## Mortality Management

- NCDA&CS Veterinary Division
- Livestock losses
  - 5,500 swine
  - 4.5 Million poultry
- Mortality Management
  - Landfill
  - Rendering
  - Burial
  - Composting - poultry



# *Hurricane Florence*

## Bermuda Window



- Bermuda Window extension
- Issued by NCDA&CS Agronomic Division
- Extended to Oct 20
  - Based on stand of bermuda and on weather forecast
- No additional PAN
- No blanket extensions on other crops

# *Hurricane Florence*

## Reporting Requirements

- DWR waived 5-Day POA requirement
- Include in 30-Day POA
- Discharges – include overtopped and inundated
  - Self Report required
  - Press Release
  - Public Notice
  - Source Samples



# *Hurricane Florence*

## Policy Actions

- NCDA&CS Div. of Soil & Water Conservation
- Buy-out Program
- Incentives Program
  - Pasture Renovation
  - Winter Forage
  - Lagoon Management



## *Lessons Learned*



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## *DEQ Lessons Learned*

- Improved reporting/tracking system
  - Coordinated response
- Communication
  - With Permitted Operations
  - External
- Coordination with other agencies
- Staff
- Flexibility
- **There will be a next time**



*Can you find the lagoon in this photo?*