

ASSESSMENT OF PREPAREDNESS FOR MOSQUITO CONTROL POST-HURRICANE FLORENCE IN NORTH CAROLINA

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Outline

- Relationship between hurricanes and mosquito abundance.
- Discussion of Hurricane Florence in NC.
- Master's thesis project plan.
- Feedback from audience on project plan.

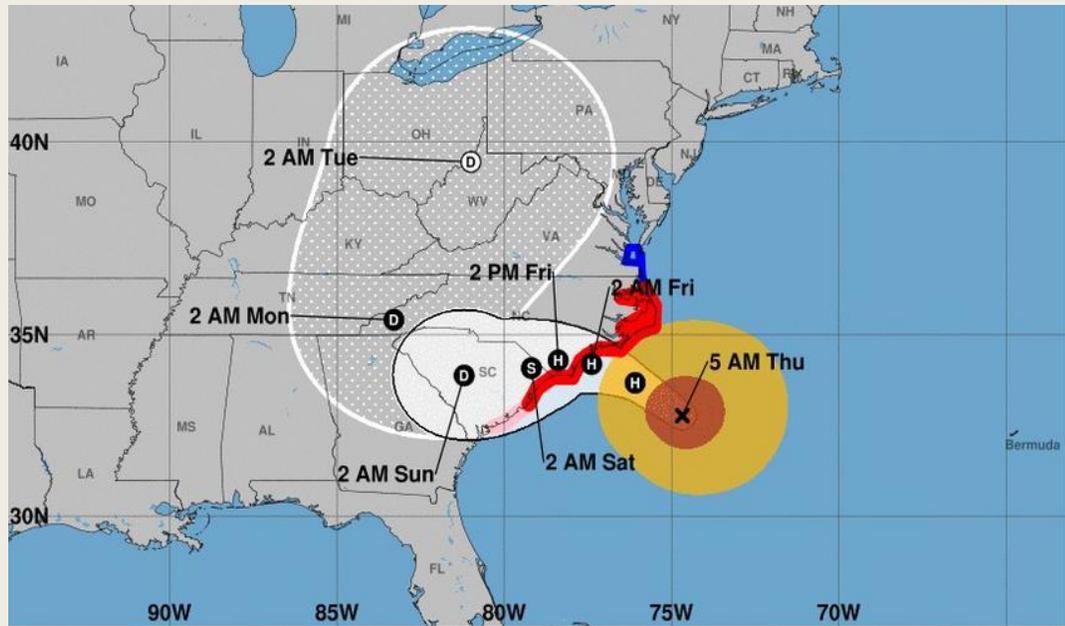
Environmental Factors Impacting Mosquito Abundance

- Natural Disasters
 - *Flooding effects on mosquito habitat*
- Rain and temperature fluctuations
 - *Favorable to mosquito ecology?*
- Increased risks of pathogen transmission
 - *Increased potential for mosquito-human contact*



Hurricane Florence

- Landfall around Wilmington, NC
- Thursday night September 13, 2018 through Friday morning September 14, 2018

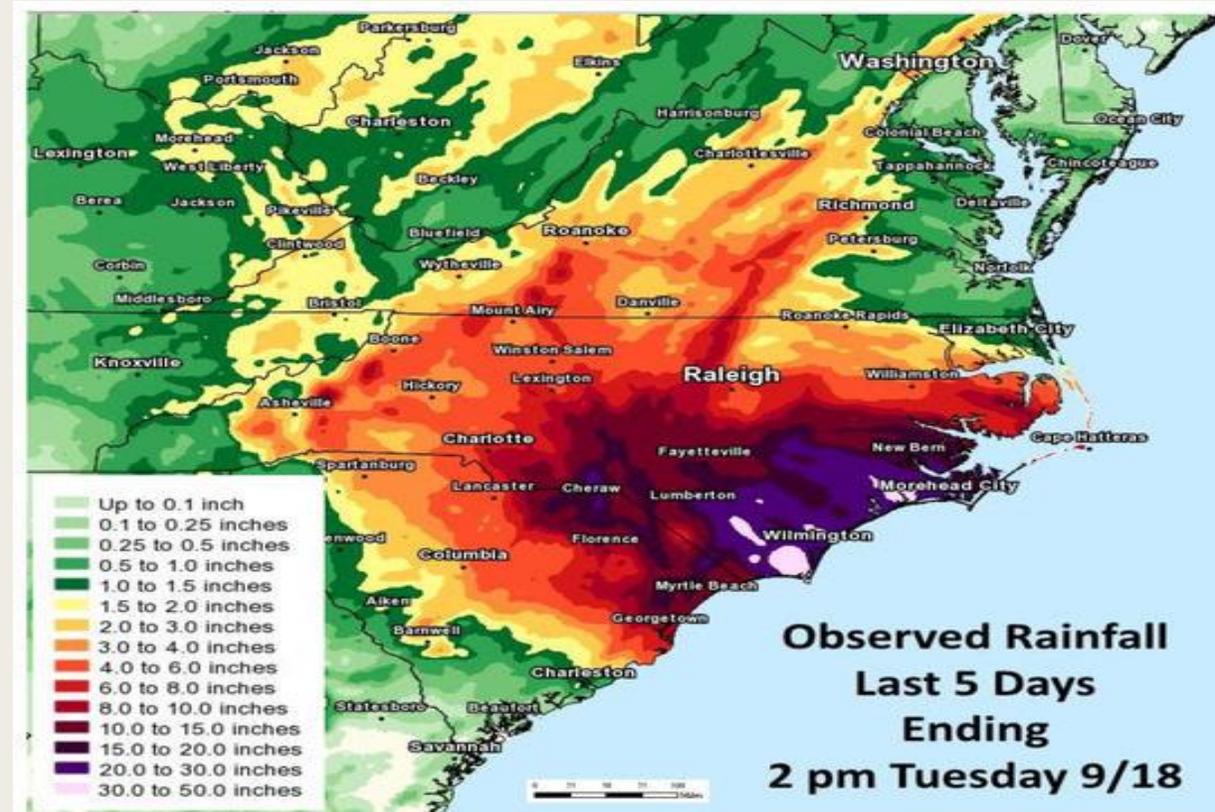


Hurricane Florence
 Thursday September 13, 2018
 5 AM EDT Advisory 56
 NWS National Hurricane Center

Current information: x
 Center location 32.8 N 74.7 W
 Maximum sustained wind 110 mph
 Movement NW at 15 mph

Forecast positions:
 ● Tropical Cyclone ○ Post/Potential TC
 Sustained winds: D < 39 mph
 S 39-73 mph H 74-110 mph M > 110 mph

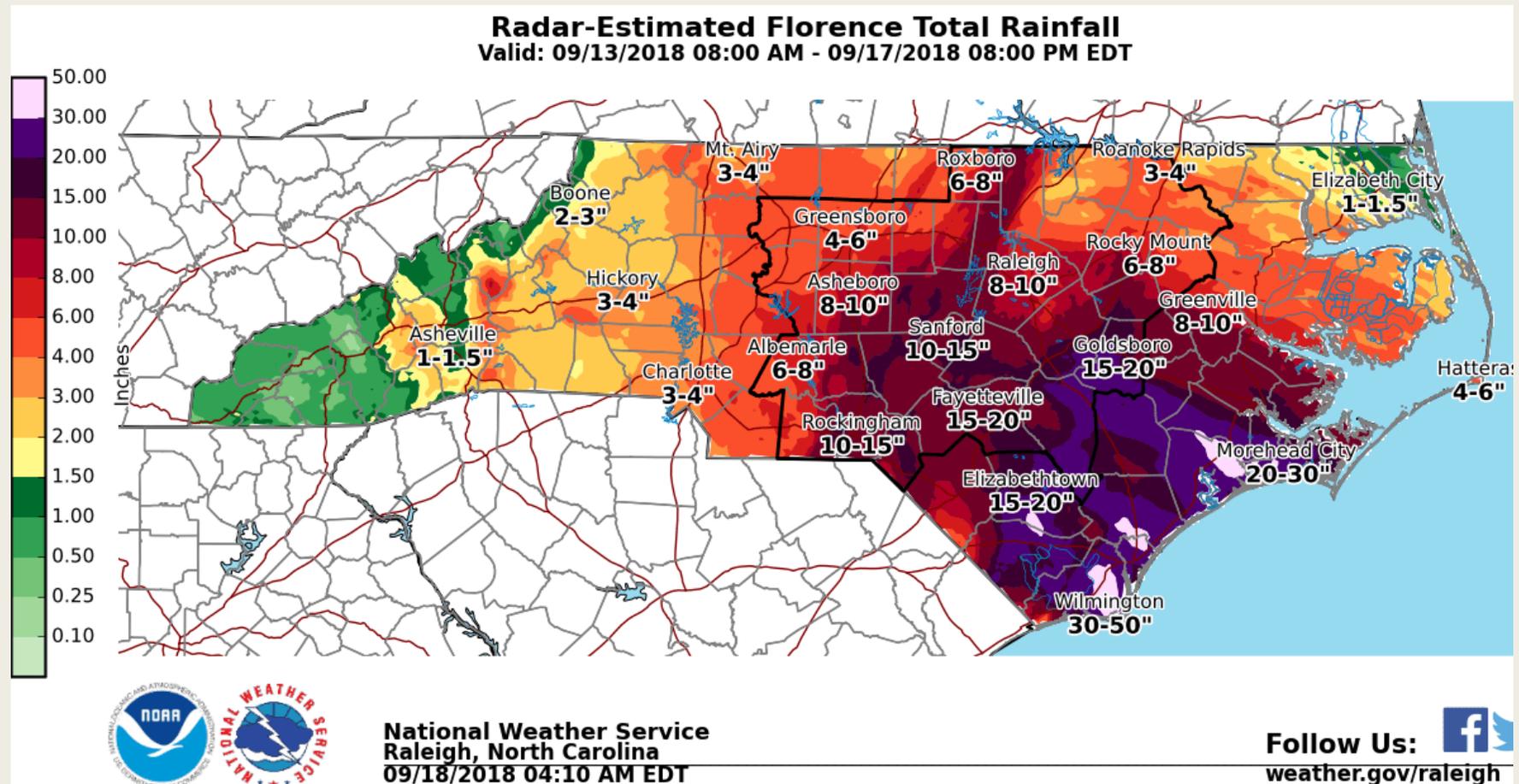
Potential track area: Day 1-3 (dotted), Day 4-5 (stippled)
Watches: Hurricane (pink), Trop Stm (yellow)
Warnings: Hurricane (red), Trop Stm (blue)
Current wind extent: Hurricane (brown), Trop Stm (orange)



**Observed Rainfall
 Last 5 Days
 Ending
 2 pm Tuesday 9/18**

Hurricane Florence

- Continued to linger for several days, dropping several inches of rain.



Governor Cooper Orders Mosquito Control for Disaster Counties

- Governor Roy Cooper allocated \$4 million to fund mosquito control efforts counties under a major declaration after Hurricane Florence 2018
- Those counties include:
 - *Bladen, Beaufort, Brunswick, Carteret, Columbus, Craven, Cumberland, Duplin, Harnett, Hoke, Hyde, Johnston, Jones, Lee, Lenoir, Moore, New Hanover, Onslow, Pamlico, Pender, Pitt, Richmond, Roberson, Sampson, Scotland, Wayne, and Wilson*
- The allocations for each county is based on their share of total acreage requiring mosquito treatment within the 27 counties



What is being done to control these potential threats?

- Begins at local levels in environment and public health programs.
 - *Vector Control*
 - Environmental/Public Health Departments, Public Works, etc.
 - Private Companies
- Lack of support/funding for mosquito control programs
 - Lack of mosquito and pathogen surveillance
 - Slow to no response post-hurricane
 - Lack of community/political support

Why do mosquito control programs need financial support?

- Insecticides, equipment, other supplies
- Emergency response may require additional funding
 - Hiring additional staff from the outside (temporary or permanent positions)
 - Overtime hours
 - Additional insecticide applications

Potential Federal Sources of Financial Support

- *Centers for Disease Control and Prevention (CDC)*
- *Federal Emergency Management Agency (FEMA)*



FEMA's Responsibilities are...

- Establishing and facilitating disaster-related provisions
- Ensuring state and local public health organizations are financially and resourcefully functional
- Enabling mosquito control PROFESSIONALS to reduce mosquito populations to manageable levels
 - Allows emergency and recovery responders to do their jobs



Plans for Graduate Thesis Project

■ Study Objectives:

- *Investigate emergency response of 5 NC counties impacted by Hurricane Florence in 2018*
- *Develop guidelines that will aid in assisting counties in applying for and receiving FEMA reimbursement for emergency mosquito control*

Plans for Data Collection/Analysis

- Assess “disaster” counties impacted by Hurricane Florence and their needs
 - *Are there established mosquito control programs?*
 - *Did these counties apply for FEMA aid?*
 - *How did counties spend the money allocated in the disaster response?*
 - *Addressing perceived barriers to FEMA funding.*

Developing Guidelines: Analysis of the Decision-Making Process Post-Hurricane

- *What course of action will be most effective in achieving mosquito control goals?*
- *Resource (financial, personnel) availability?*
- *Time of year? Risk assessment for arboviral disease.*
- *Is it more appropriate to implement aerial spraying or ground-based spraying?*



Discussion of Project Design

- Feedback from audience?
- Fieldsme12@students.ecu.edu



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