

Evacuations from Hurricanes

Federal Support, Best Practices and Examples

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Hurricane Program and GIS Manager*



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FEMA at a Glance

Our Mission

Helping people before, during, and after disasters

Mission Essential Functions:

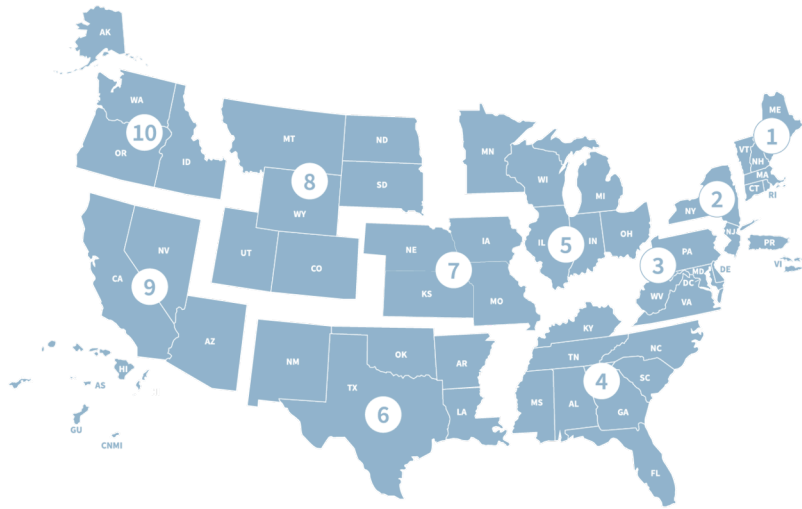
- Lead Federal Agency for Response, Recovery, and Continuity of the Federal Executive Branch
 - **Response** efforts during major disasters and emergencies
 - **Recovery** efforts following a disaster
 - Coordination Federal Executive Branch **Continuity** plans and programs, as required



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Federal Emergency Management Agency

Federally supported, State Managed, Locally Executed



FEMA Region 4



- Population of more than 66 million people
- comprised of eight states and six federally recognized tribes
- over 400,000 square miles of area to cover
- with more than 2,000 miles of coastline
- risks include hurricanes, tornadoes, flooding, droughts, ice storms, earthquakes, wildfires...
- Six of our eight states are hurricane-prone



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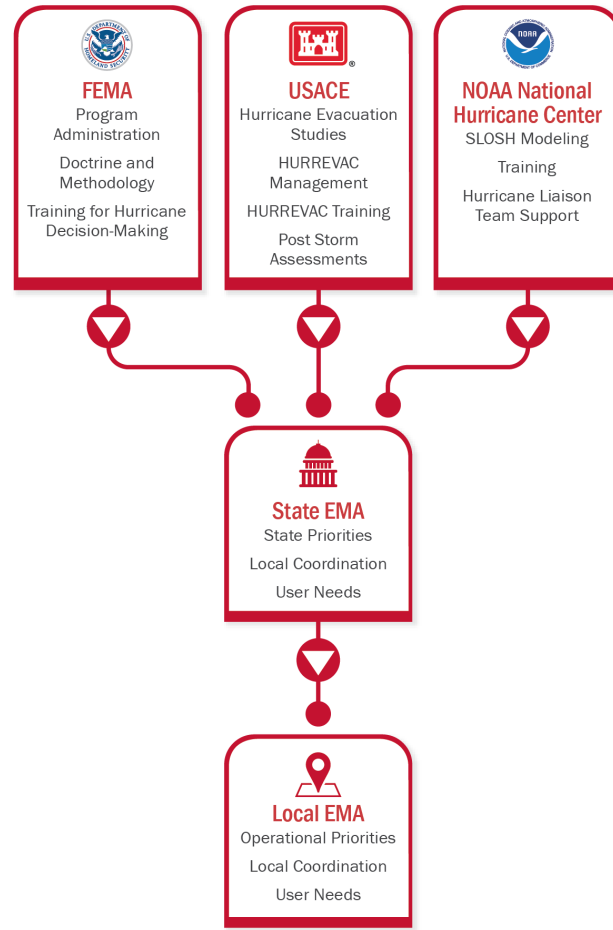


Devastating Hurricanes

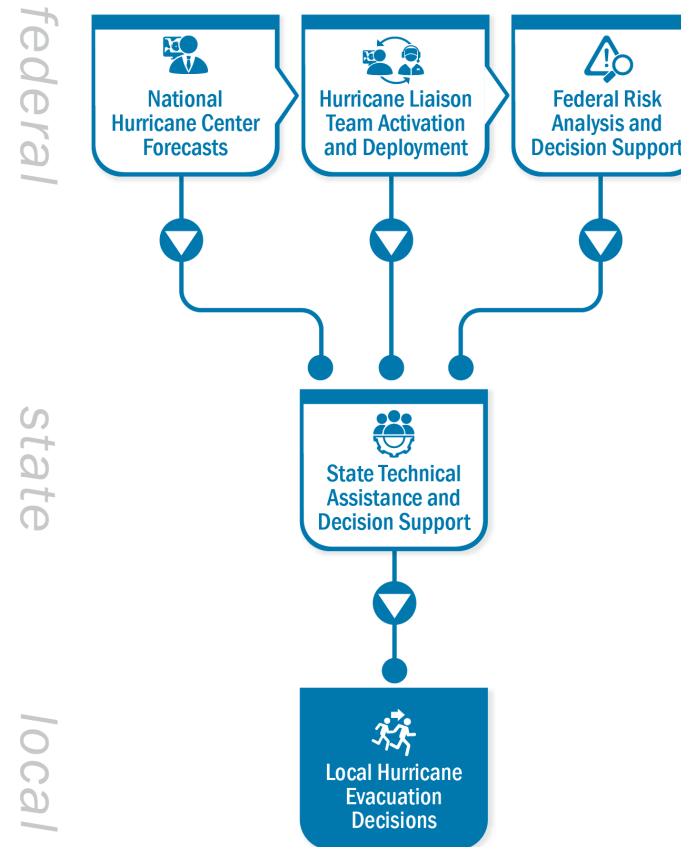
- Storm Surge is an incredible force
- What is left, the winds can “take”
- The area will be left uninhabitable

National Hurricane Program –Partners and Roles

planning

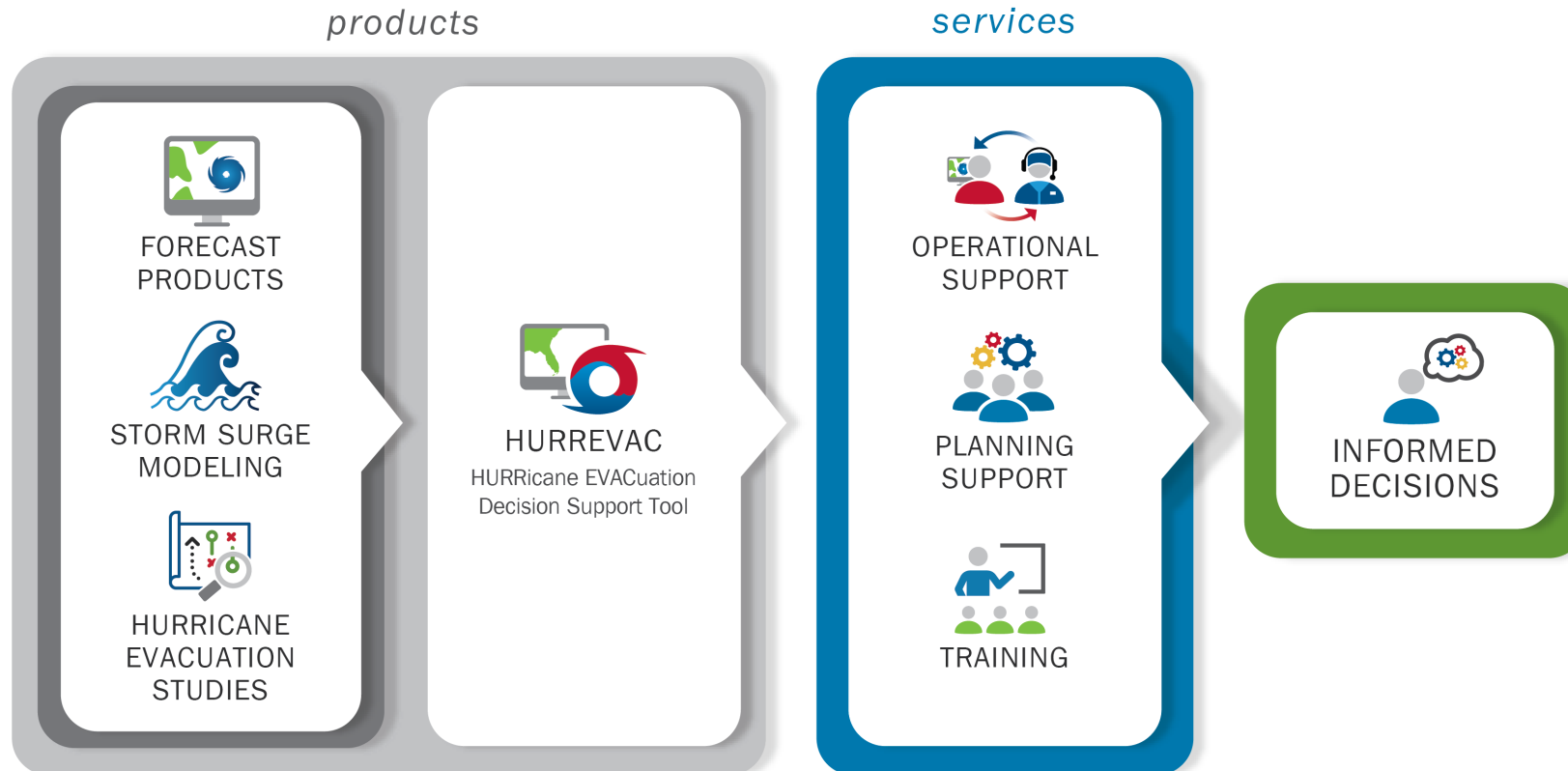


operations



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National Hurricane Program –Products and Services

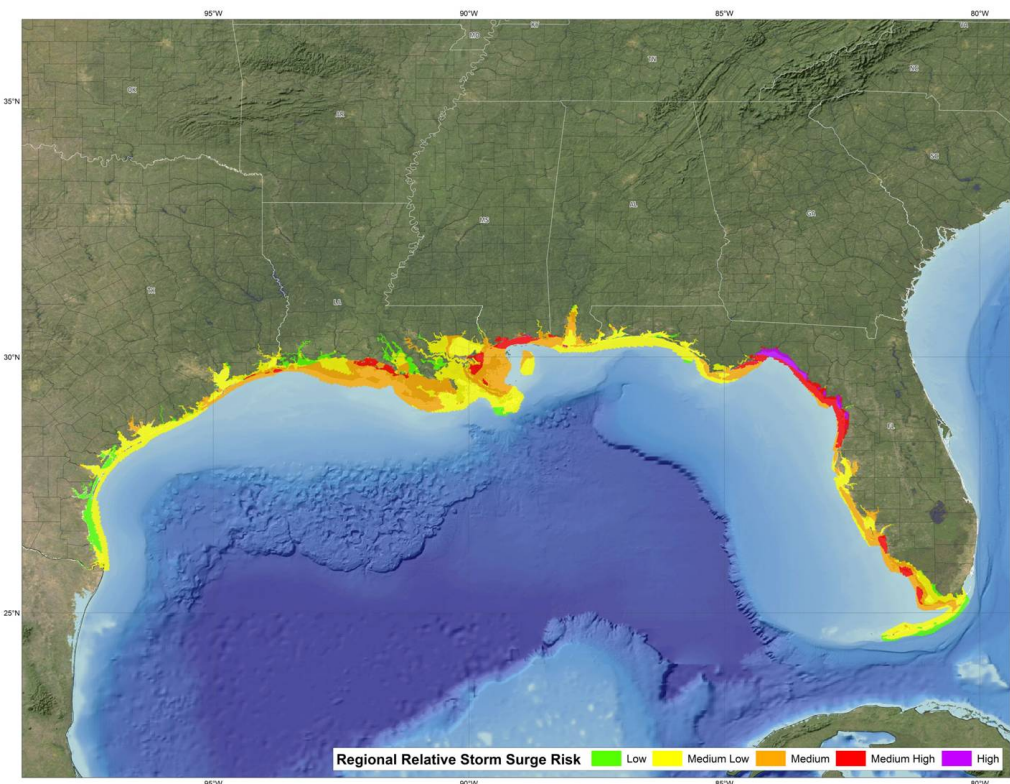


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How do we measure risk from hurricanes?

- Storm Surge has the largest potential for fatalities and loss of property
- We can successfully model it for our communities
- Storm Surge forms the basis for Evacuation Zones in Hurricane Evacuation Studies
- Hurricane Evacuation Studies provide key information for evacuation planning
- This information needs to be communicated well before the threat appears



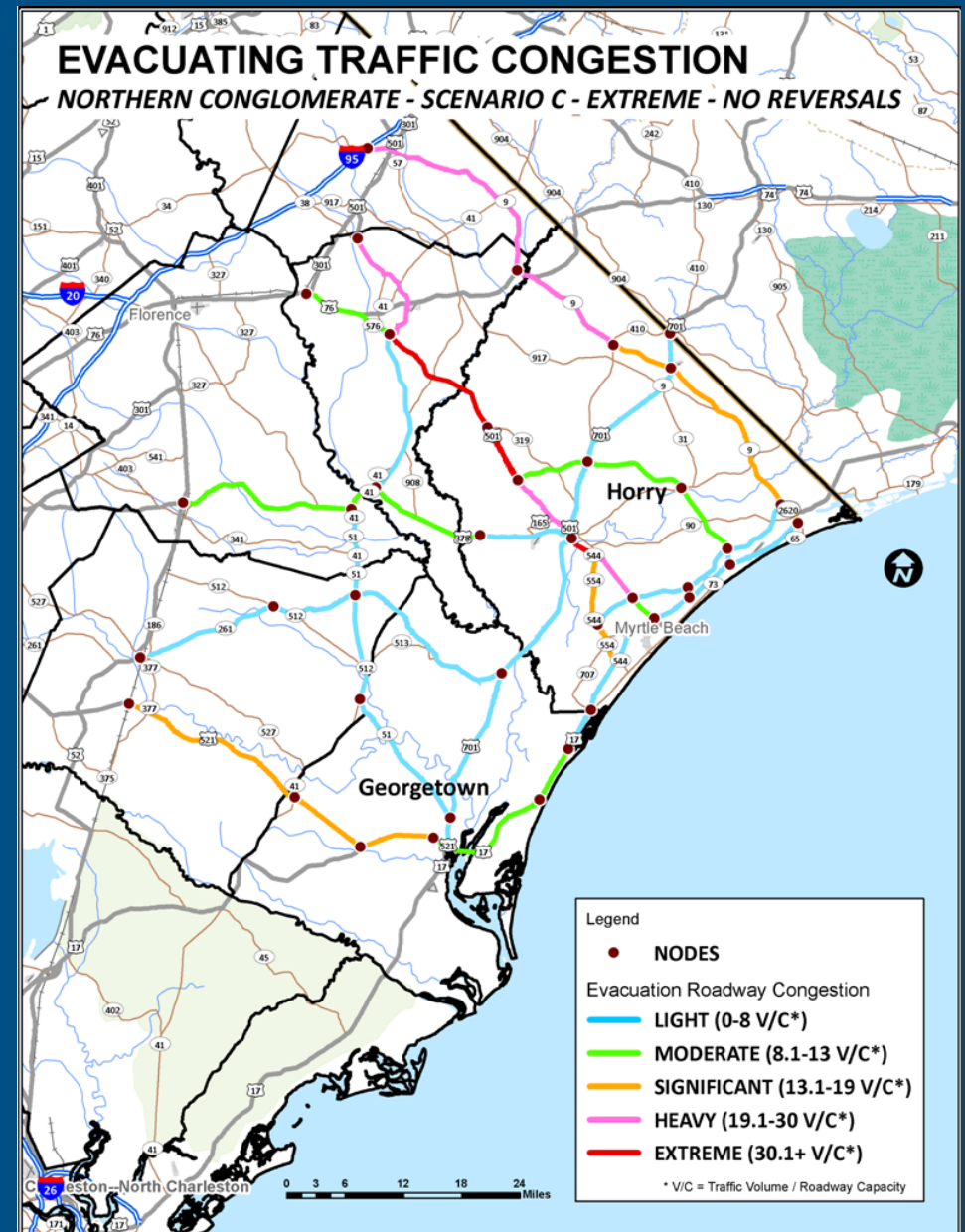
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Hurricane Evacuation Studies

- A standard process for understanding the threat from Hurricanes
- Key output
 - Surge Maps
 - Evacuation Zones
 - Clearance times
- Authoritative source of analyses for evacuation planning (not always standard products!)



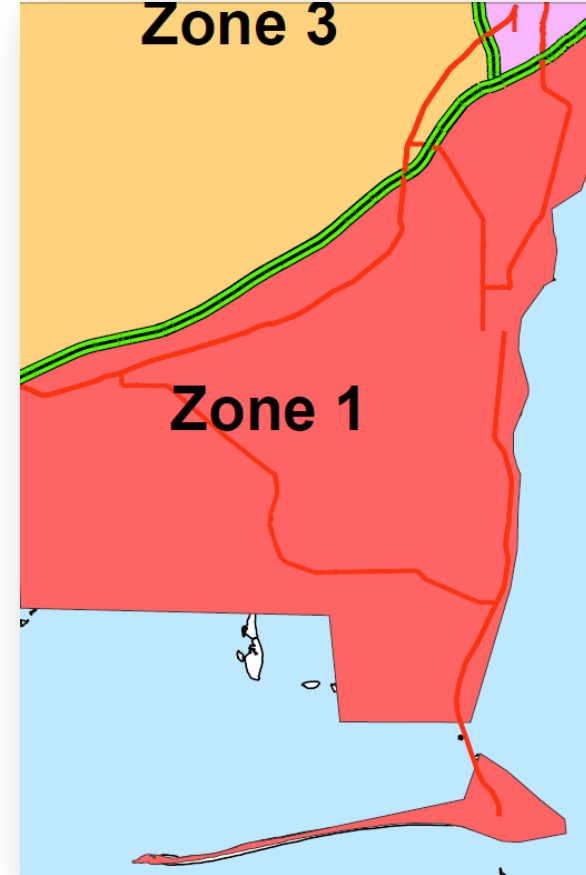
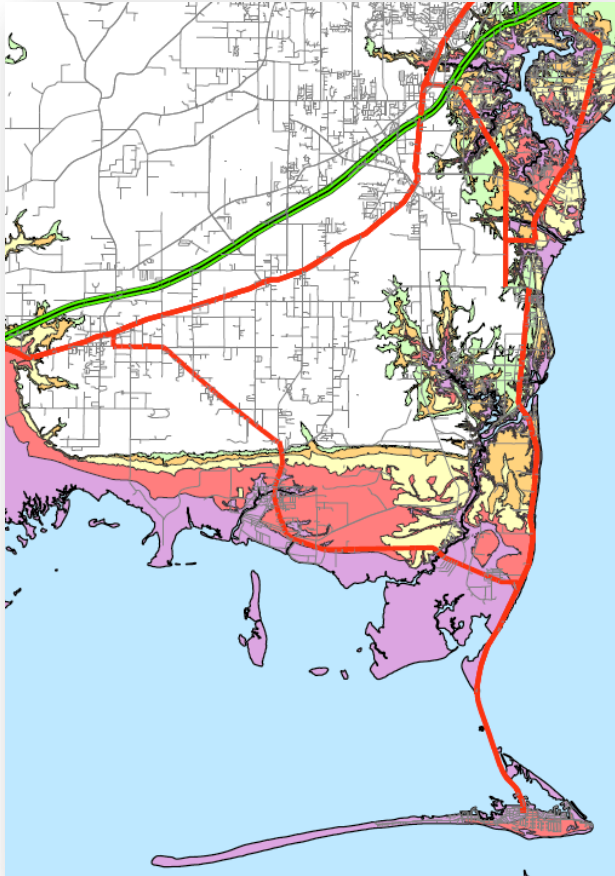
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South Carolina Hurricane Evacuation Study- 2014

Federal Emergency Management Agency

Storm Surge building Evacuation Zones- State and Local



Alabama Hurricane Evacuation Study- 2013



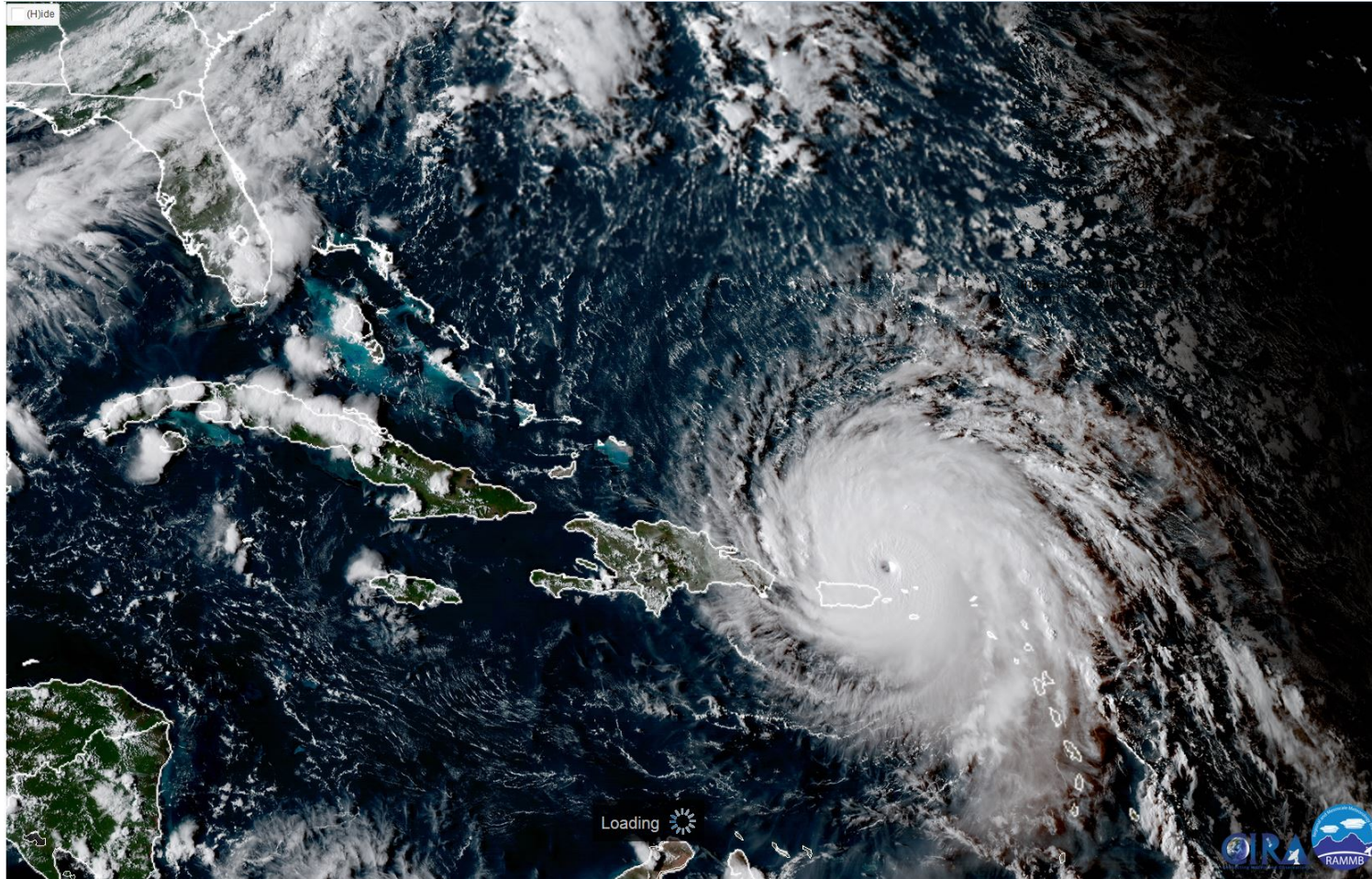
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Why do people evacuate?*

- They think they are at risk
- They were told to evacuate

*Jay Baker, FSU Geography Department

Hurricane Irma ~ 2 days from landfall



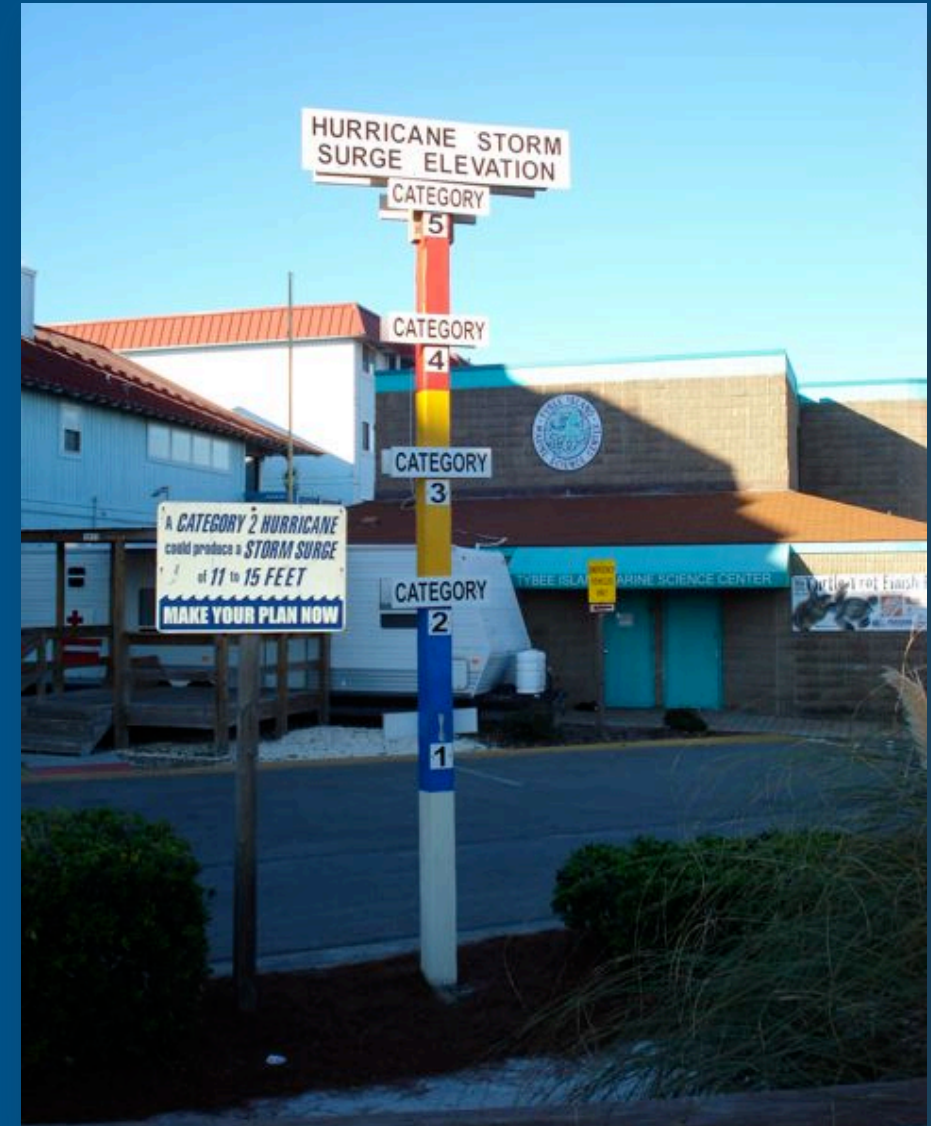
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Getting the word out

- Pre-season campaigns
 - National, State and Local
- Social media
 - Apps
 - Websites
 - Sign-up notifications
- Realtime – Media, Social media push, private notifications



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Pinellas County, Florida -Know Your Zone Website

Pinellas County EMERGENCY MANAGEMENT **KNOW YOUR ZONE**
Should You Stay or Should You Go?

Questions about your Evacuation Zone please contact Emergency Management at (727) 464-3800
Difficulties with the application please contact the Customer Support Center at (727) 453-HELP (4357)

Pinellas County is not currently under an Evacuation Order

Legend:
Hurricane Shelter
Special Needs Shelter
A
B
C
D
E
Non Evac

Evacuation Zone: The Evacuation Zone is: C
For the Address:
[This is NOT your FEMA Flood Zone Designation](#) [Link to the Emergency Management Website](#)

Shelters:

Name	Address	Status
1.) Campbell Park Elementary School (2.16 miles)	1051 7th Ave S, St Petersburg	Closed
2.) St Petersburg High School (2.45 miles)	2501 5th Ave N, St Petersburg	Closed

Special Needs Shelters:

Name	Address	Status
1.) John Hopkins Middle School (2.44 miles)	701 16th St S, St Petersburg	Closed
2.) Oak Grove Middle School (13.04 miles)	1370 S Belcher Rd, Clearwater	Closed

Accommodations (closest 50):

Name	Address	Phone Number	Evacuation Zone
1.) Landmark Motel (0.57 miles)	1930 4th St N	727-895-1629	X
2.) Rusty Anchor Motel (0.58 miles)	2301 4th St N		

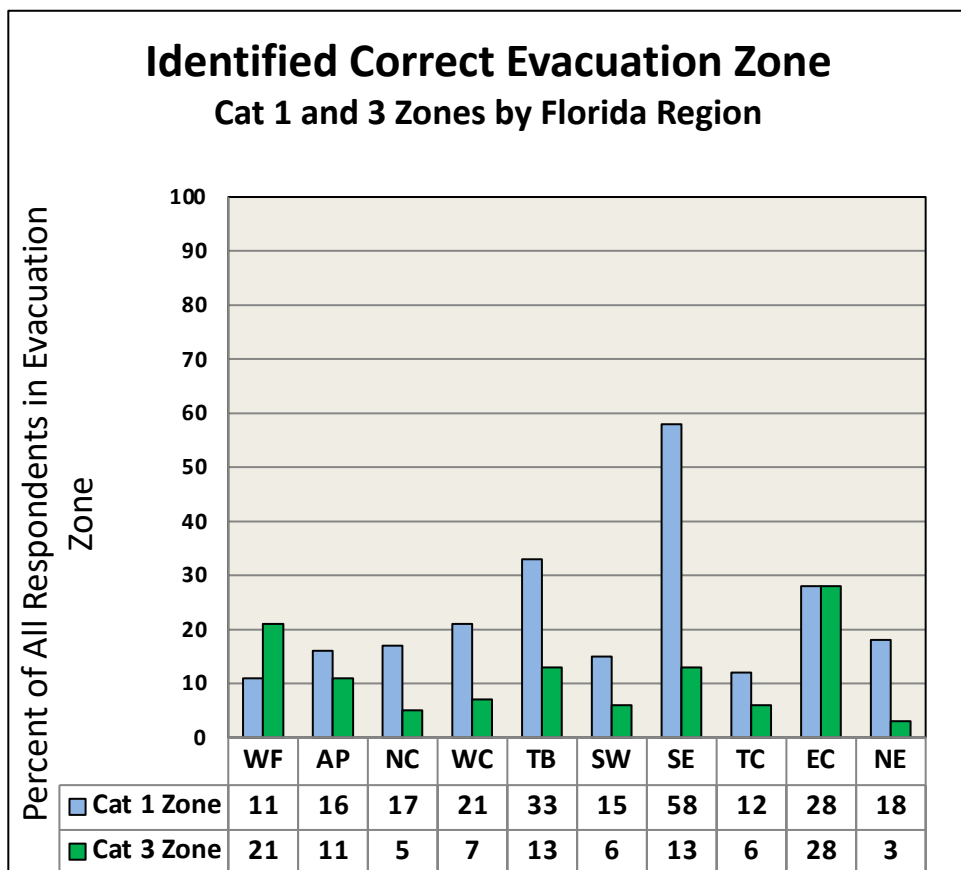
Evacuation Zone | Shelters | Special Needs Shelters | Accommodations (closest 50) | Municipality | Police District | Fire Provider



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Efforts to reach the public aren't working that well...



Credit: Jay Baker FSU Geography Dept

- Even the best responses to the most vulnerable areas are “low”
- In Southeast Florida- under 60% correctly identified their evacuation zone.
- Most other areas are around the 20% mark

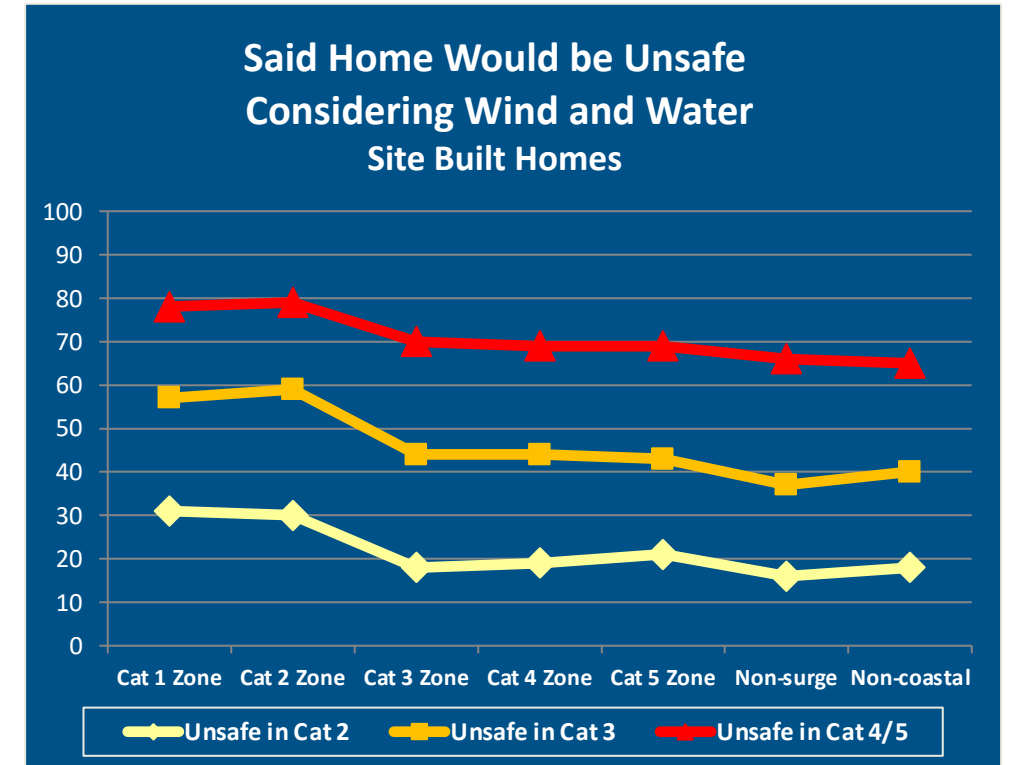


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The public underestimates their risk from storm surge

- They think their home is safe (even near water)
- They have never seen the water get that high
- They think it doesn't apply to them
 - Wasn't that bad last time
 - Focused on the track forecast
 - Focused on intensity (category) of storm
- They don't know how to use a map



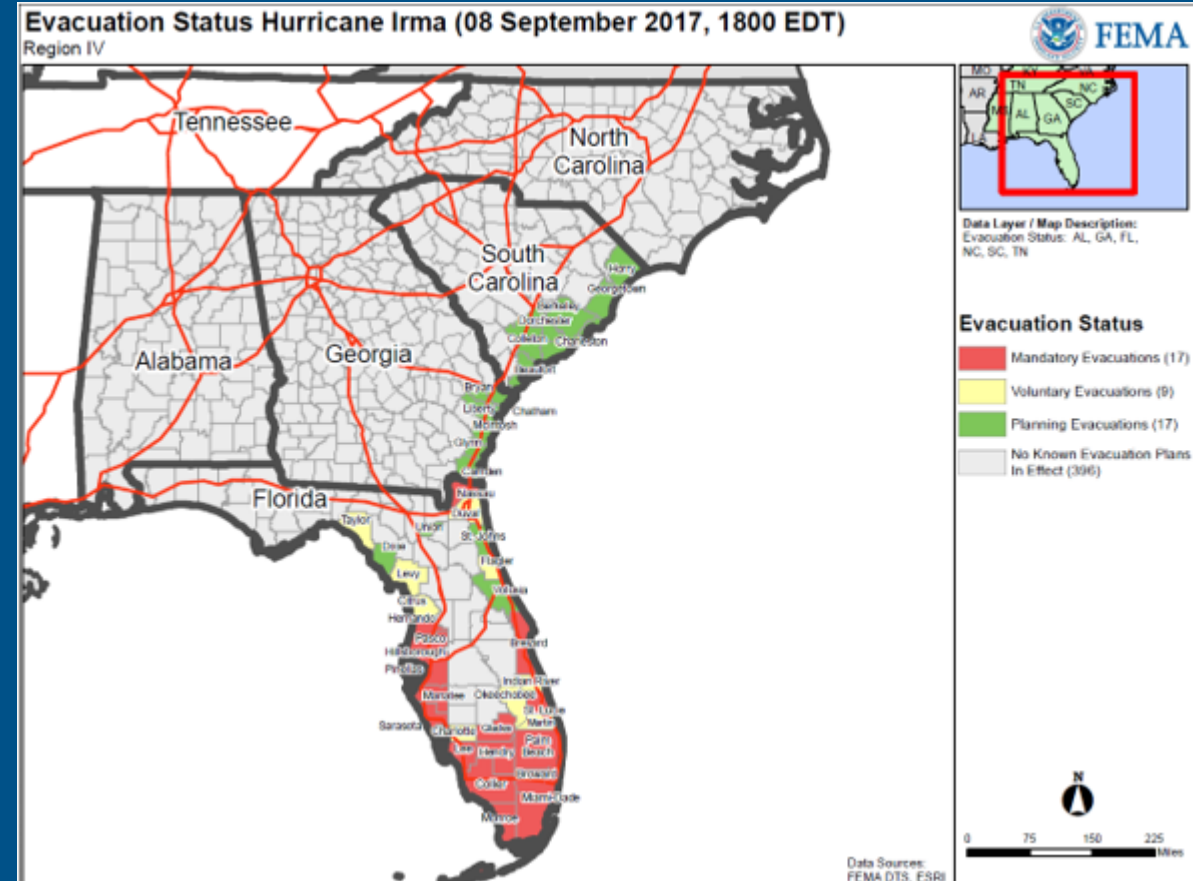
Credit: Jay Baker FSU Geography Dept



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Summary of Public Surveys

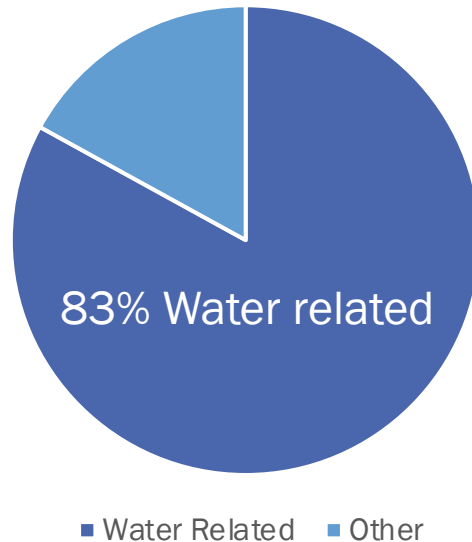
- Serious under-concern about surge
- Evacuation intent often overstated
- Evacuation intent highest for:
 - Major Hurricanes
 - Mandatory/Ordered Evacuations
 - Households with children
 - People with recent real hurricane experience
- Often get 'False Experience' effect





Storm Surge deaths are less than other “hazards”- lately

U.S. tropical cyclone fatalities from 2016-2018



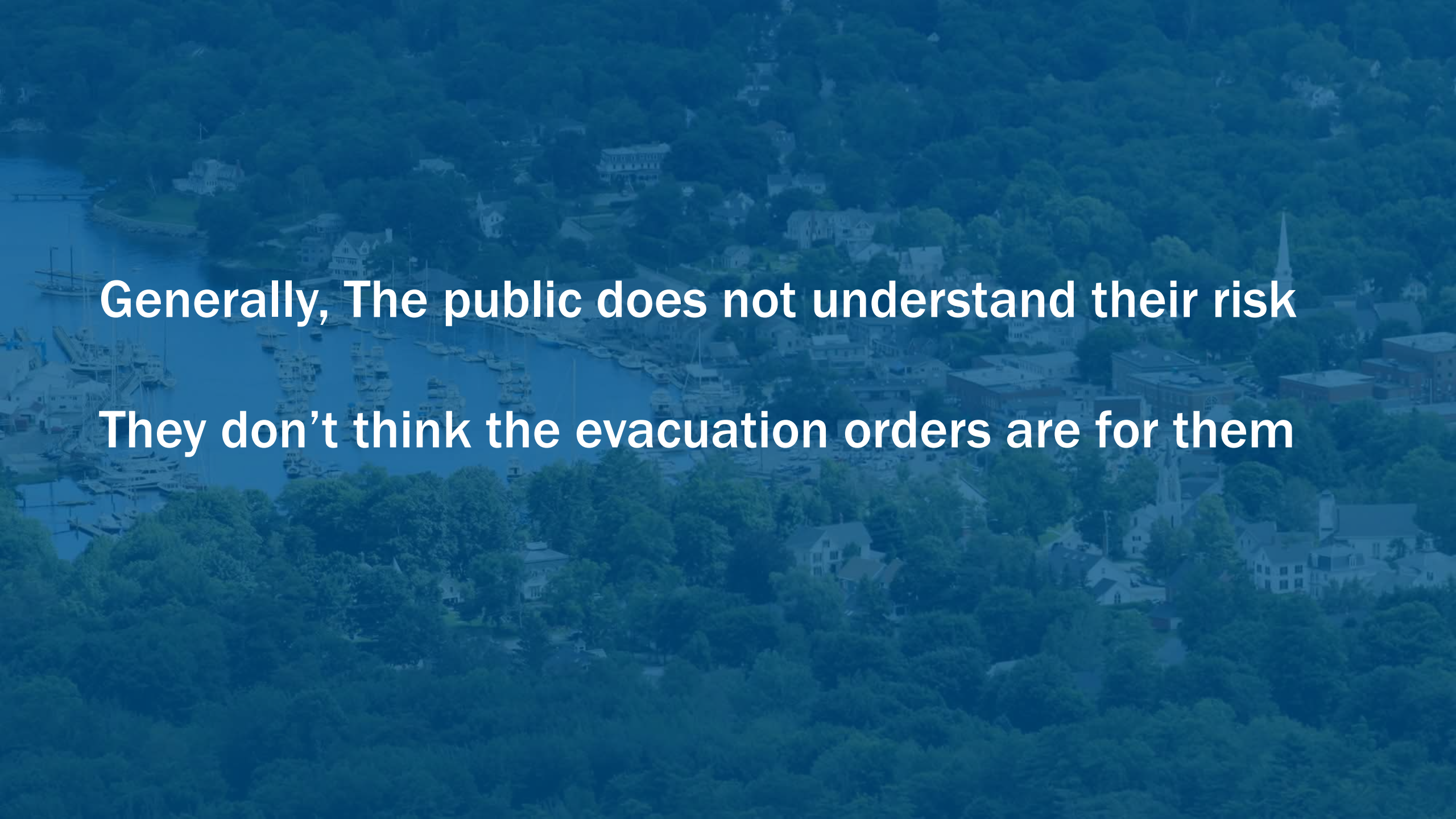
4% of the fatalities were from Storm Surge

Credit: the National Hurricane Center

- While Storm Surge has the highest potential for loss of life, recently numbers are down
- Forecasts for the track and hazards are better than ever
- Dense population areas have been spared
- More than 50% of the water related fatalities are vehicle related



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An aerial photograph of a coastal town, likely in New England, featuring a large marina filled with sailboats and yachts. The town is nestled between dense green forests and the water. Several buildings, including a prominent church with a tall steeple, are visible. The entire image is overlaid with a semi-transparent blue filter.

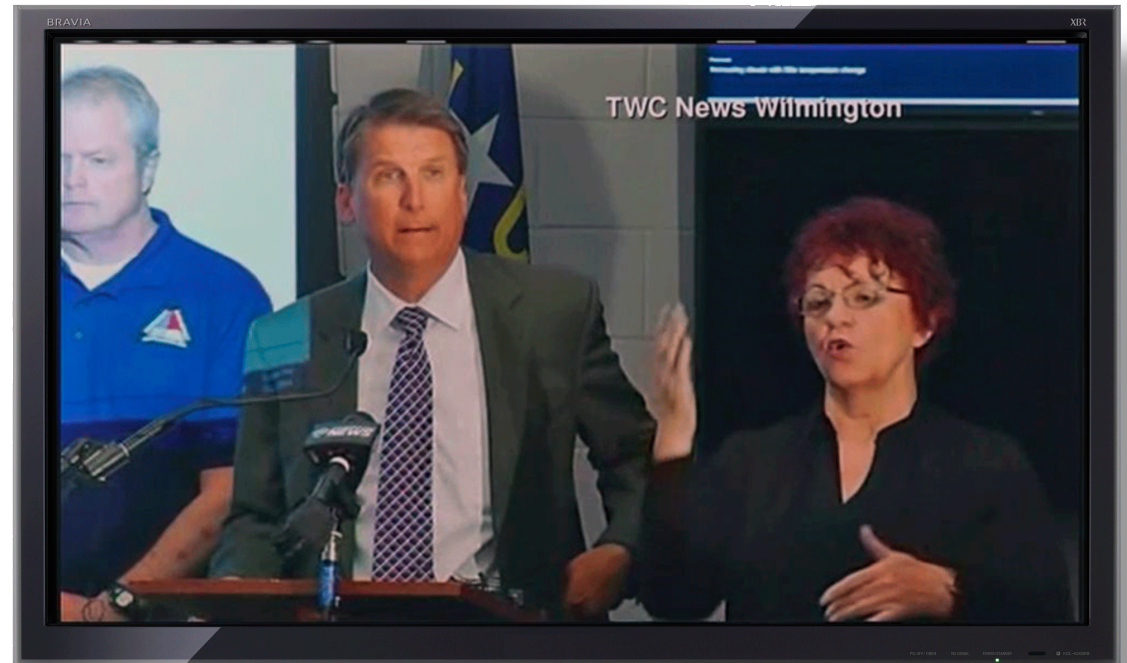
Generally, The public does not understand their risk
They don't think the evacuation orders are for them



Best Practices for Evacuations

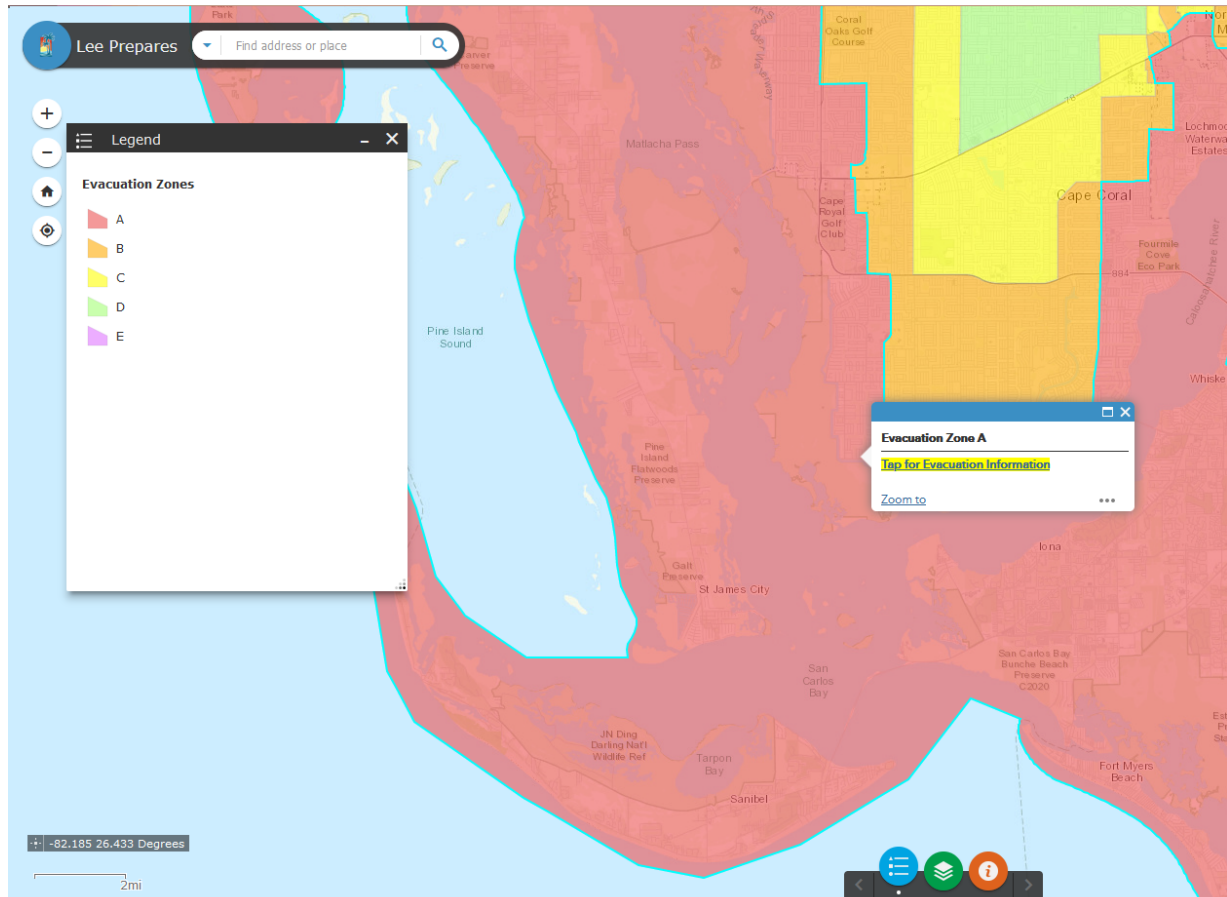
A consistent, strong message

- Consistency among officials
 - Standard wording helps
- “Mandatory” or “ordered” evacuations
- The “Why” factor





Best Practices for Evacuations



Communicate early and often

- It starts early
 - Look to some of the most successful “safety” campaigns
- Decision makers are familiar to the community
 - Trust and recognition



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Best Practices for Evacuations



Think of Phased evacuations

- Start with the slowest movers and the most vulnerable
 - Areas have to go every time
 - Areas have multi hazard threats
 - Hard to evacuate “islands”
 - Public that is fragile and those that need assistance in evacuations



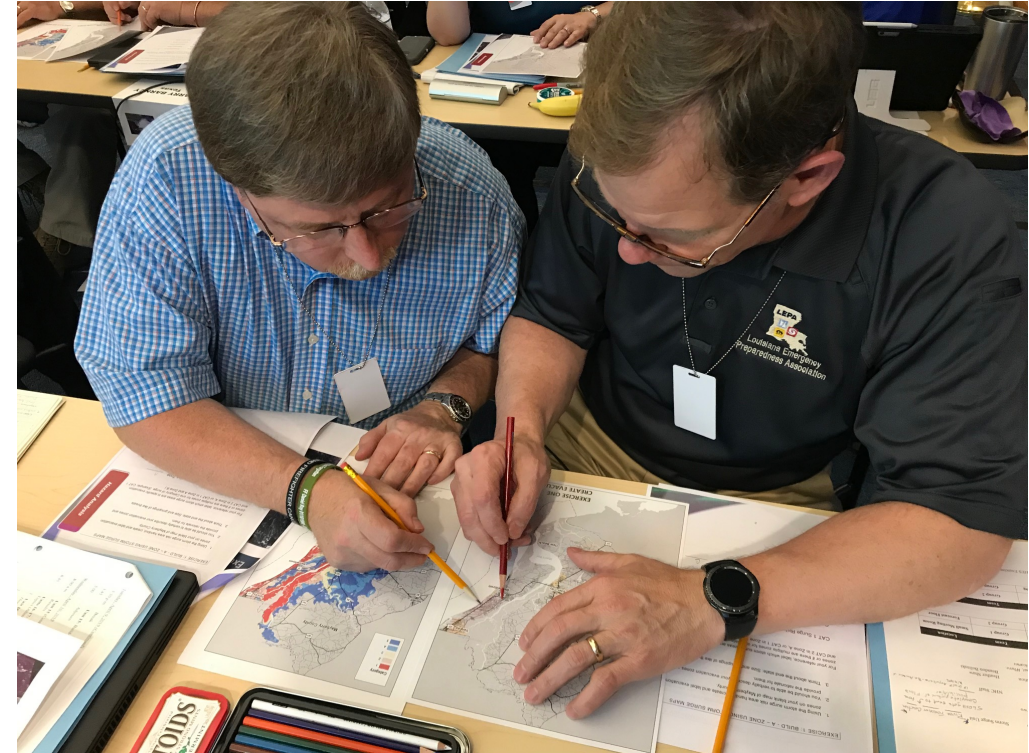
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Best Practices for Evacuations

Knowledge transfer to successors

- Many times the “why” was lost
- The momentum on outreach can be dropped
- Written plans only go so far
- Institutional and Community knowledge is invaluable



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Best Practices for Evacuations

Get everybody on the same page/plan

- Preseason planning and operational decisions
 - From different levels of government
 - Supporting partners
 - Private sector/business partners
 - Public groups



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Best Practices for Evacuations



Evacuate 10's of miles not 100's

- It is easier to plan and host
- Costs should be less for the public
- Close to home community
- Can be tough due to geography and housing options



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Best Practices for Evacuations

Summary

- A consistent, strong message
- Communicate early and often
- Think of Phased evacuations
 - Most vulnerable/slowest out first
- Knowledge transfer to successors
- Get everybody on the same page/plan
- Don't evacuate too far



**Thank you for the opportunity, your
interest and time!**



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