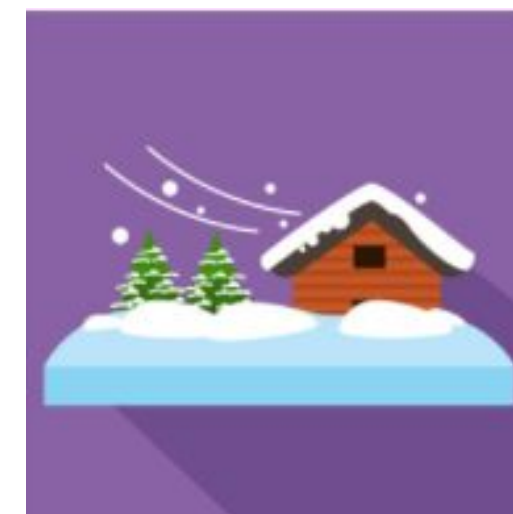
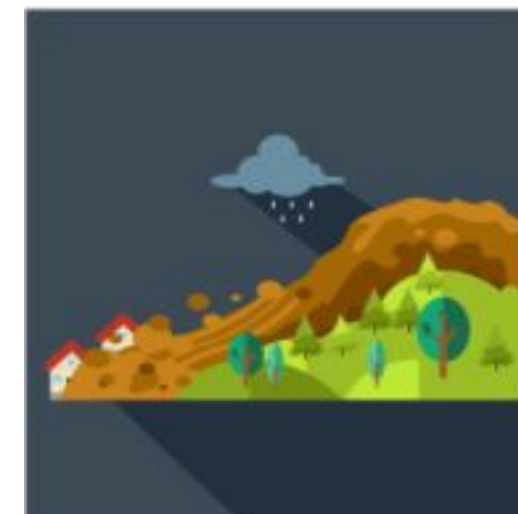
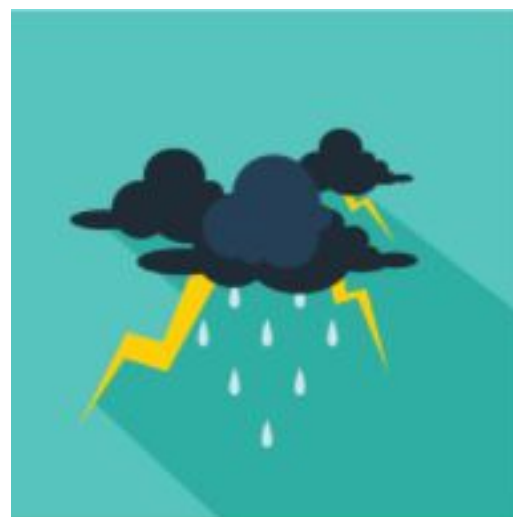


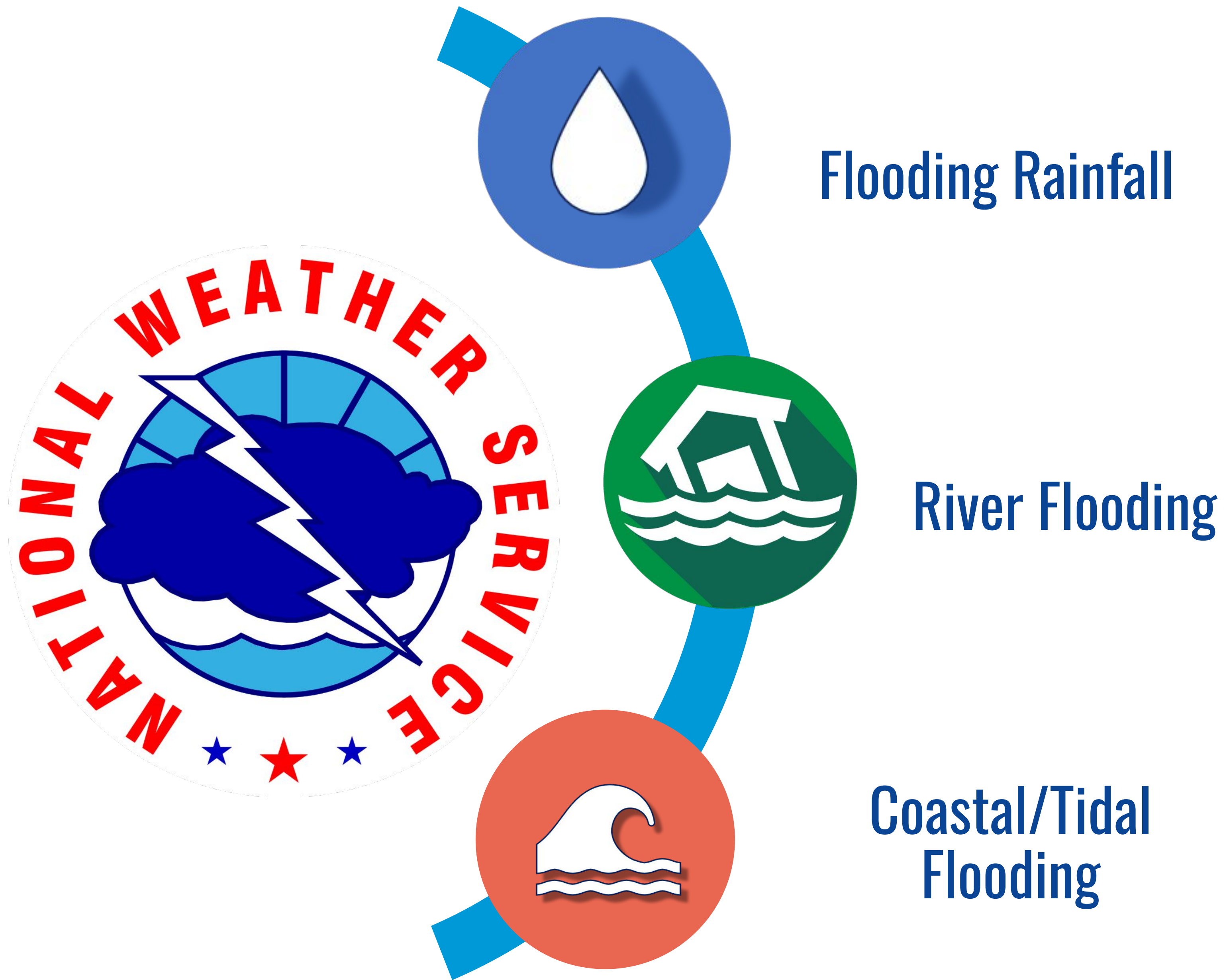


# NWS JAX Lunch-and-Learn Series

## October 2025

Angie Enyedi  
[angela.enyedi@noaa.gov](mailto:angela.enyedi@noaa.gov)





**2024 Debby Flooding Rain Impacts**  
Image c/o Jeff Davis EM



# Rainfall Flooding

# Flooding Rain Risk Assessment

## Antecedent Conditions

Saturated Ground, More Flooding

## Wind Fetch

Training Bands from Gulf or Atlantic

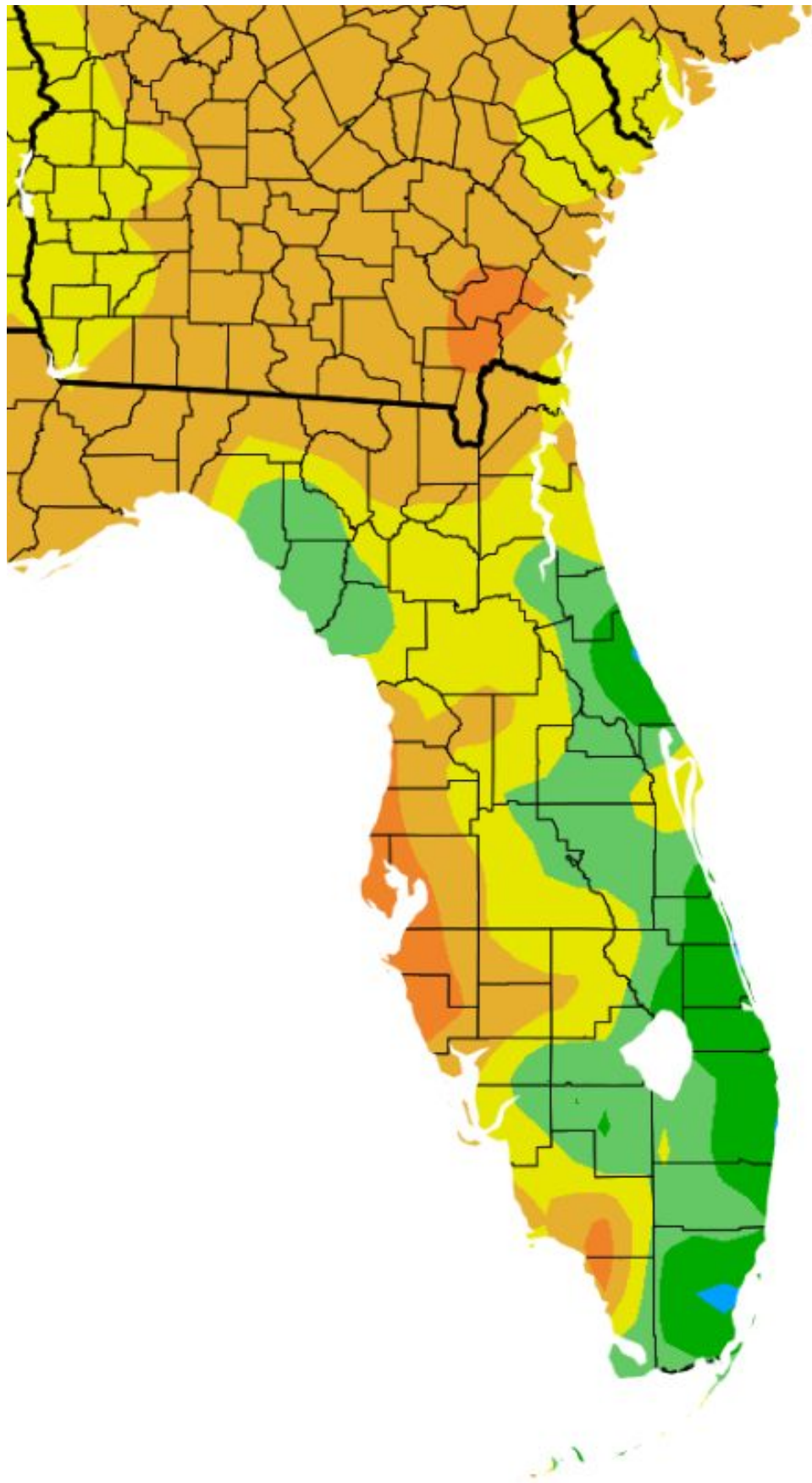
## Surface Receiving Rainfall

Urban or rural? Clay or sandy soil?



# Recent Rainfall

Past 30 days of Rainfall  
as of 10/6/25 (inches)

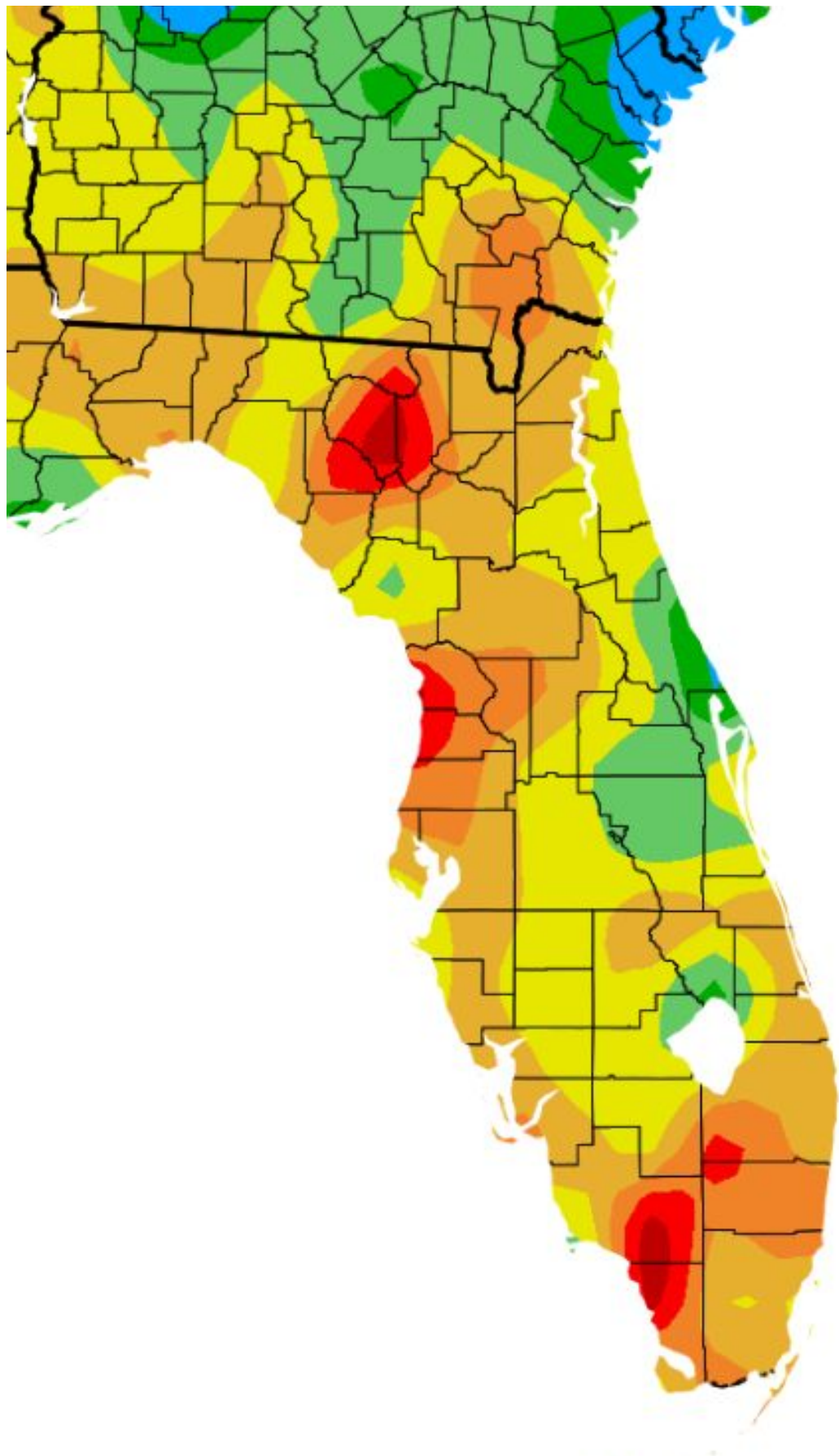


<https://hprcc.unl.edu/maps.php?map=ACISClimateMaps>



ACIS Climo

Departure from Average Rainfall  
Past 6 months as of 10/6/25



# Tropical & Coastal Flooding Risk Assessment

## Threat Regardless of Tropical Category

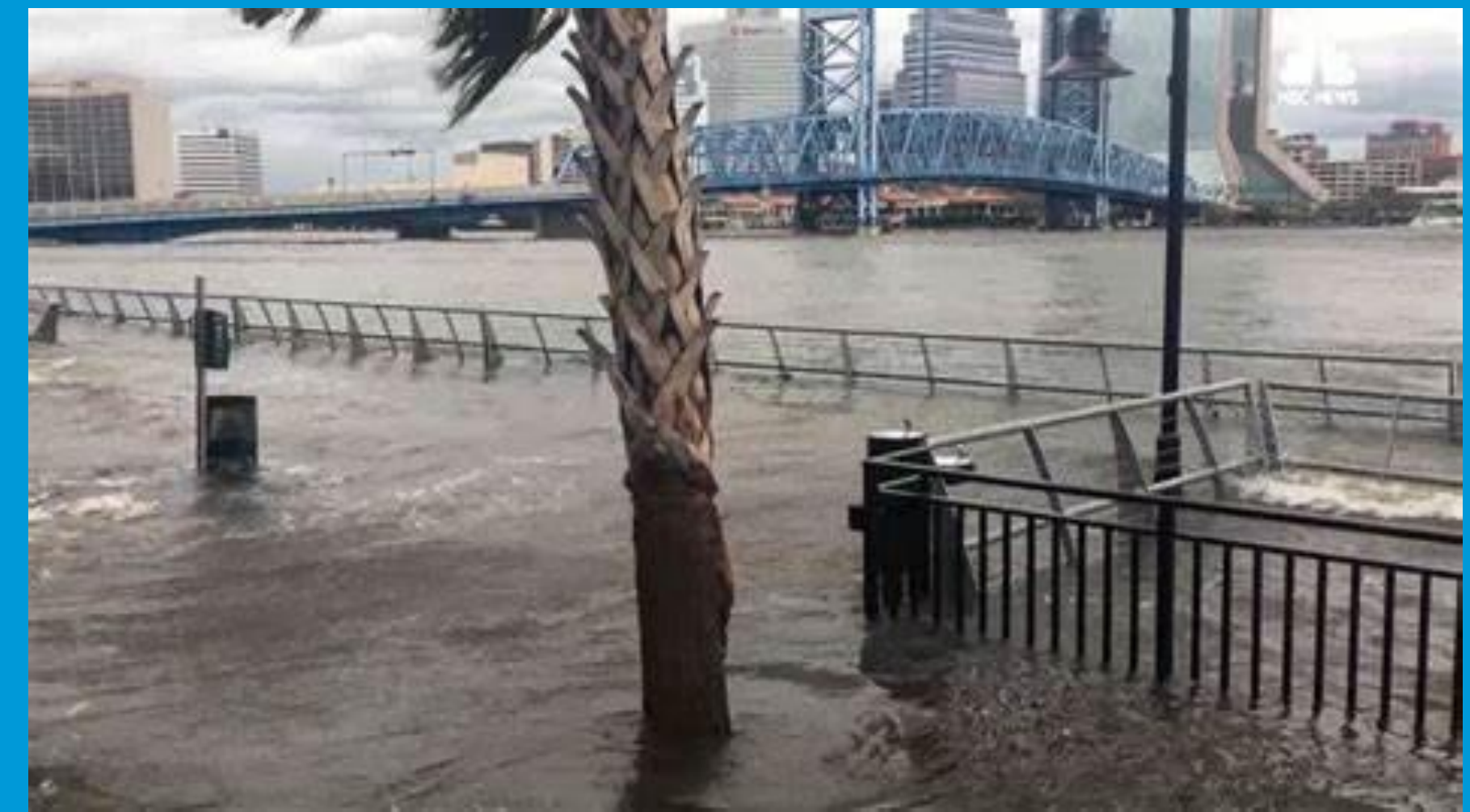
Slower storm, higher flood threat

## Trapped Tides & High Tides

Drainage Inhibited

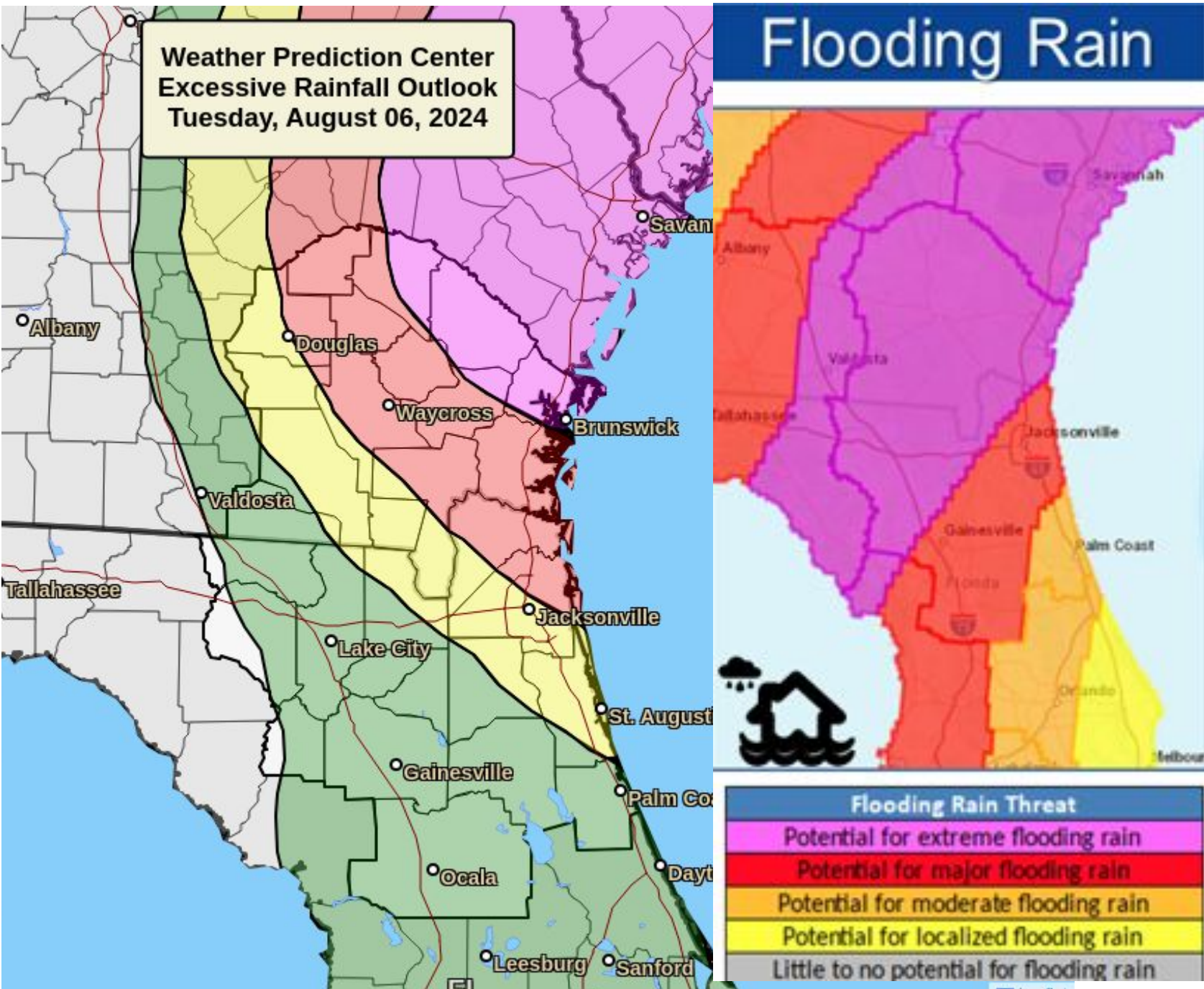
## Interaction with Fronts

More lift = more rain

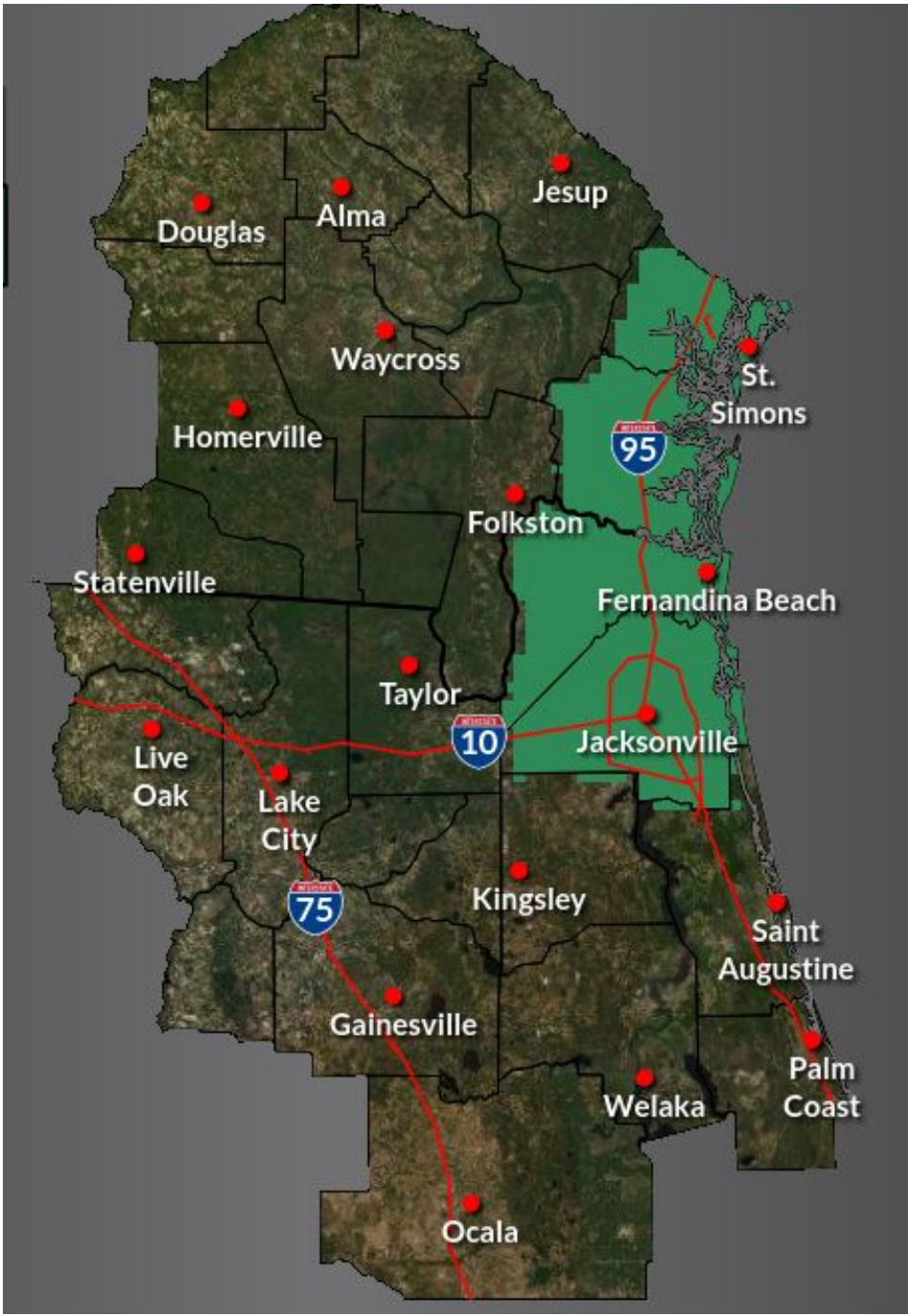


# Communicating Flooding Rainfall Risk

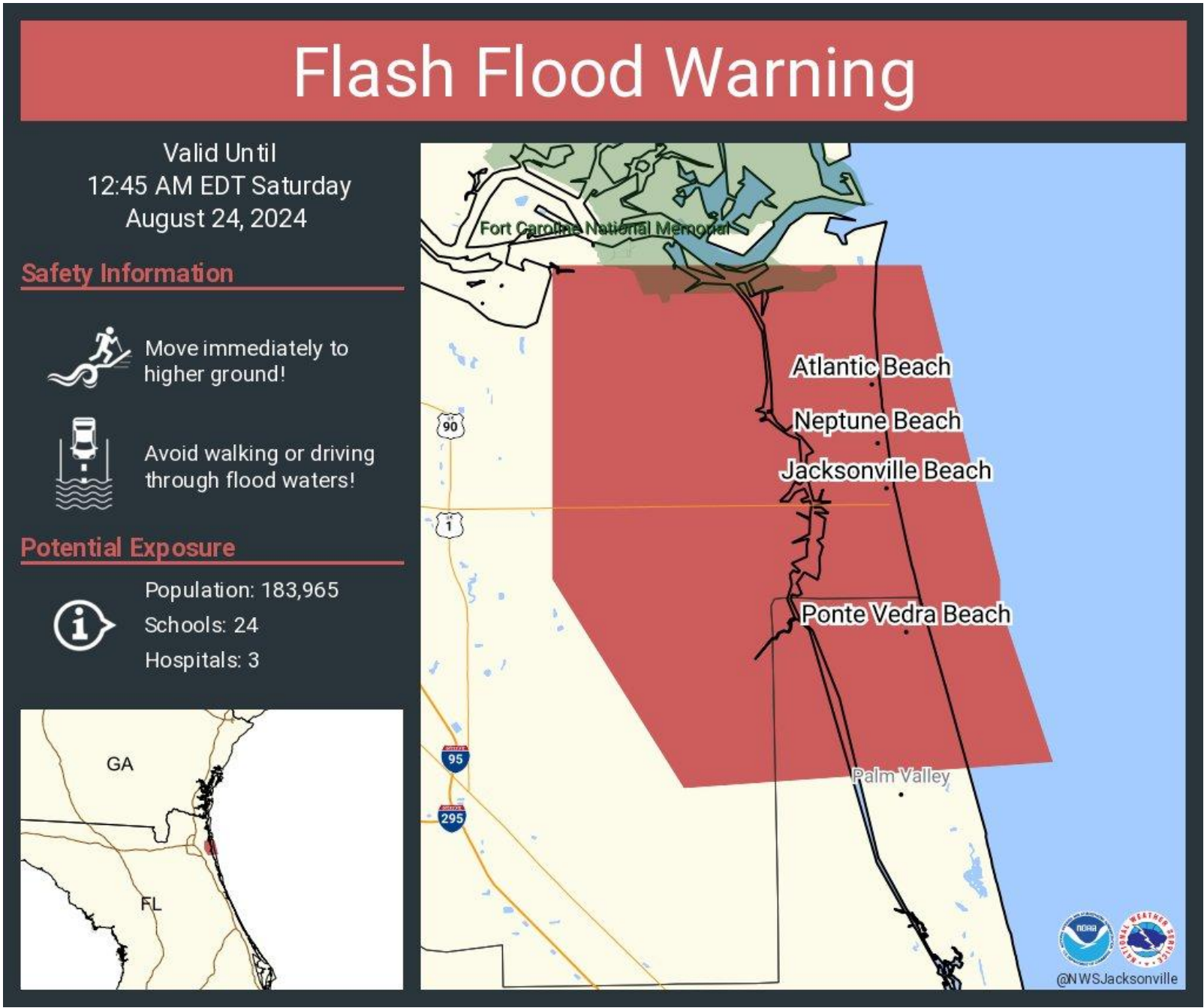
## Days in Advance Excessive Rainfall Outlooks



## Within 48 hrs Flood Watches



## Imminent Flooding Flash Flood Warnings

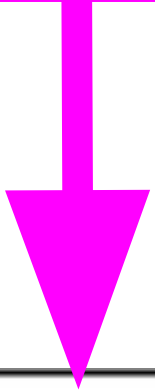
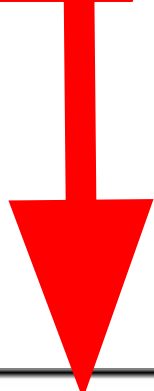








# Excessive Rainfall Outlooks

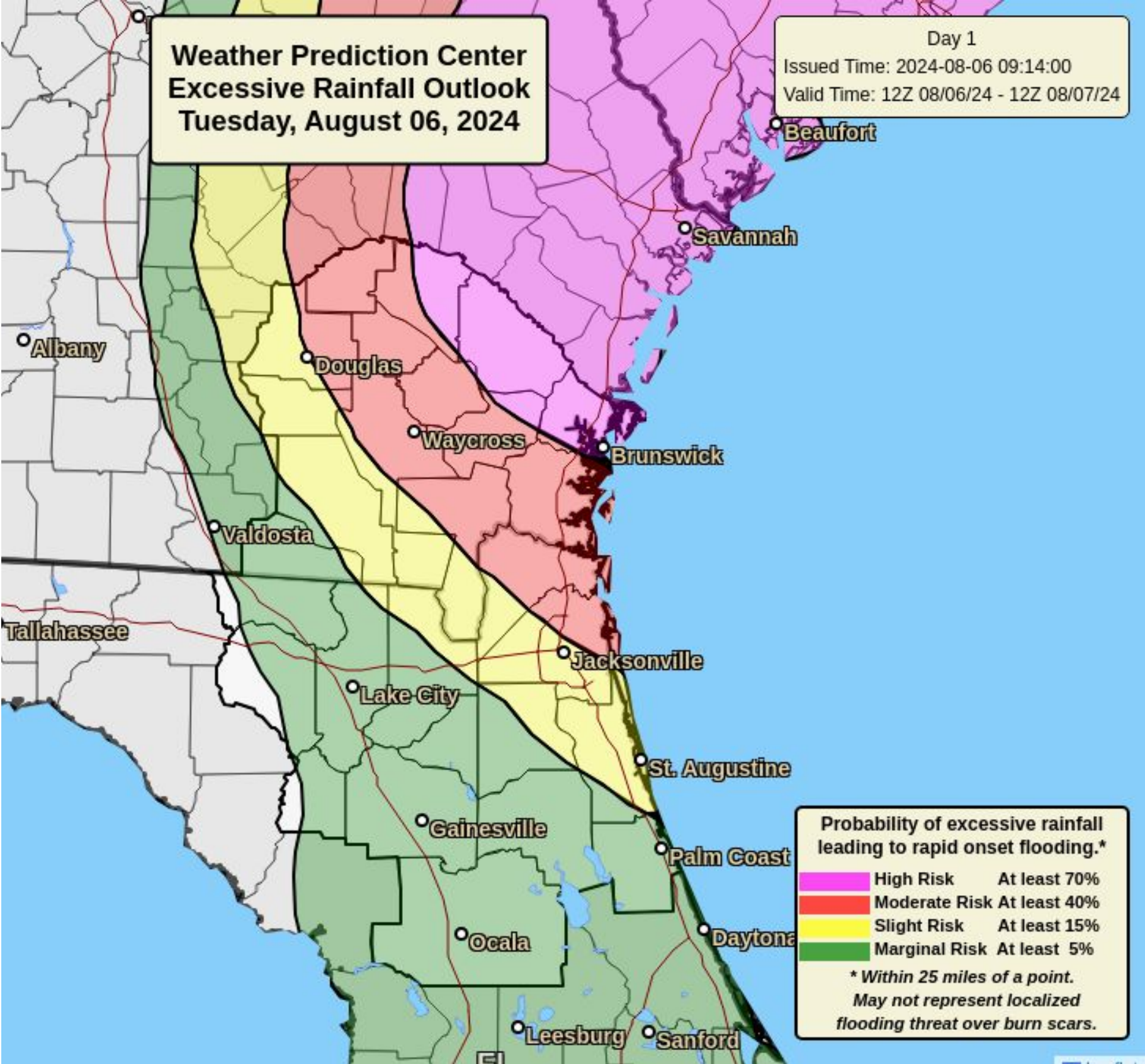
<https://www.wpc.ncep.noaa.gov>

Issued 25 times for  
NWS JAX since 2016

Issued 9 times for  
NWS JAX since 2016



Understanding WPC Excessive Rainfall Risk Categories				
No Area/Label	MARGINAL (MRGL)	SLIGHT (SLGT)	MODERATE (MDT)	HIGH (HIGH)
Flash floods are generally not expected.	Isolated flash floods possible	Scattered flash floods possible	Numerous flash floods likely	Widespread flash floods expected
	Localized and primarily affecting places that can experience rapid runoff with heavy rainfall.	Mainly localized. Most vulnerable are urban areas, roads, small streams and washes. Isolated significant flash floods possible.	Numerous flash flooding events with significant events possible. Many streams may flood, potentially affecting larger rivers.	Severe, widespread flash flooding. Areas that don't normally experience flash flooding, could. Lives and property in greater danger.
<a href="https://www.wpc.ncep.noaa.gov">www.wpc.ncep.noaa.gov</a> @NWSWPC				
Flash flooding near me?	Flash Flooding			
	NO Flash Flooding			
  WEATHER PREDICTION CENTER				

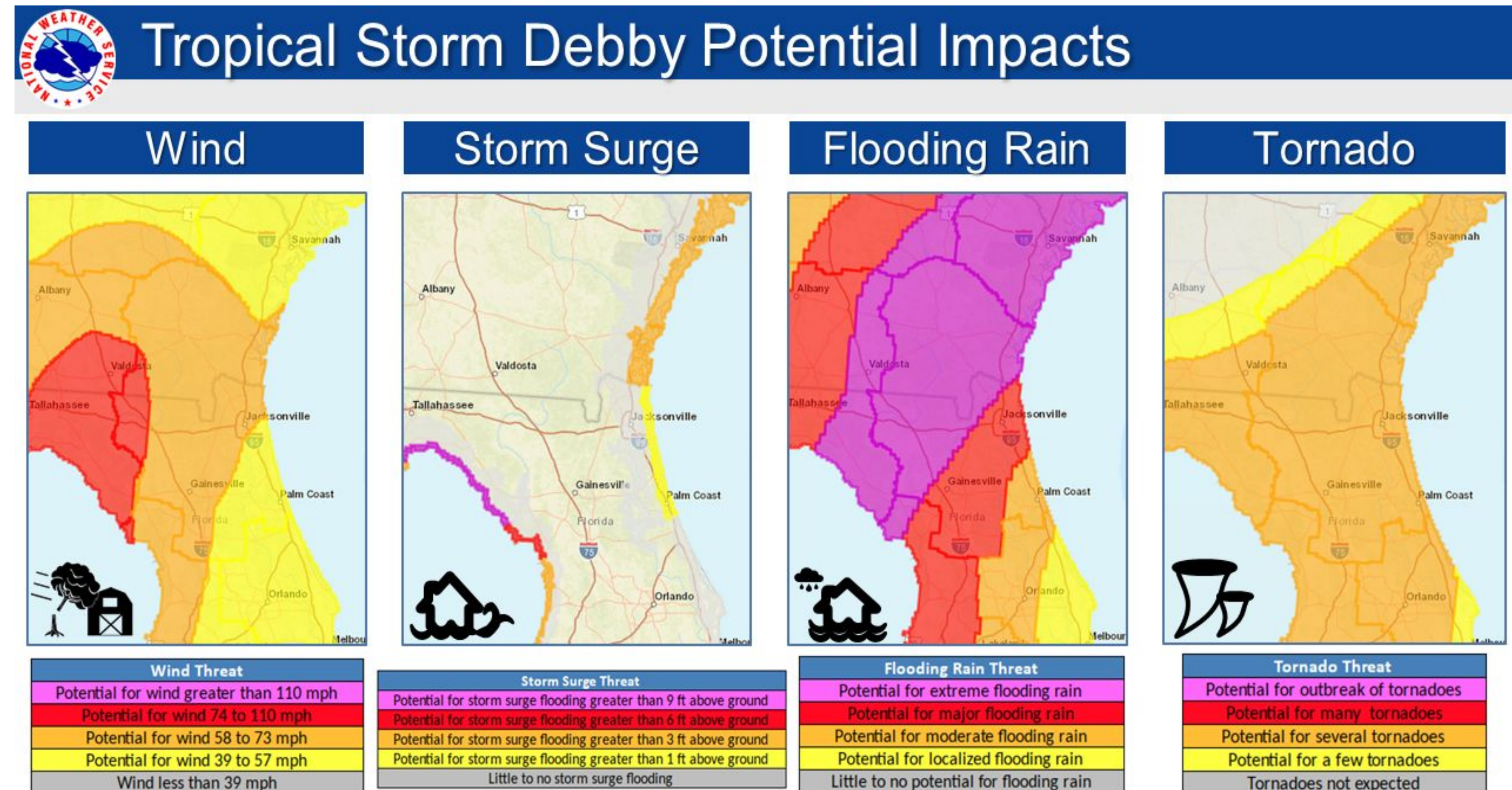


# Tropical Event Flooding Rainfall Risk

<https://www.weather.gov/srh/tropical?office=jax>



- 3+ Days out will use Excessive Rainfall Outlooks to message flooding rain threat from tropical systems
- Closer to event impact, we transition to Hurricane Threat & Impact Graphic (includes Excessive Rainfall Outlook input)
- Reminder: The tropical website above is a 'one stop shop' for assessing Tropical System Threats



# Flash Flood Products


Product	Meaning & Issuance Timing	WEA Activation
Flash Flood Watch	<ul style="list-style-type: none"><li>• Elevated confidence of Flash Flood Guidance being exceeded</li><li>• Issued hours to days in advance of threat – confidence driven</li></ul>	NO
Flash Flood Warning	<ul style="list-style-type: none"><li>• Fast accumulation of water that threatens life &amp; property</li><li>• Flooding imminent ☐ seek shelter immediately from flood water</li><li>• Warning forecaster assigns ‘ranking’ which defines severity of flash flooding:</li></ul> <div><div>BASE</div><div>→</div><div>CONSIDERABLE 1-2 Rescues</div><div>→</div><div>CATASTROPHIC Swift water rescues</div></div>	YES  <b>FOR Considerable &amp; Catastrophic Tags</b>

# Flash Flood Products


## Flash Flood Warning

Valid Until  
11:15 AM EDT Wednesday  
September 4, 2024

### Safety Information




Move immediately to higher ground!

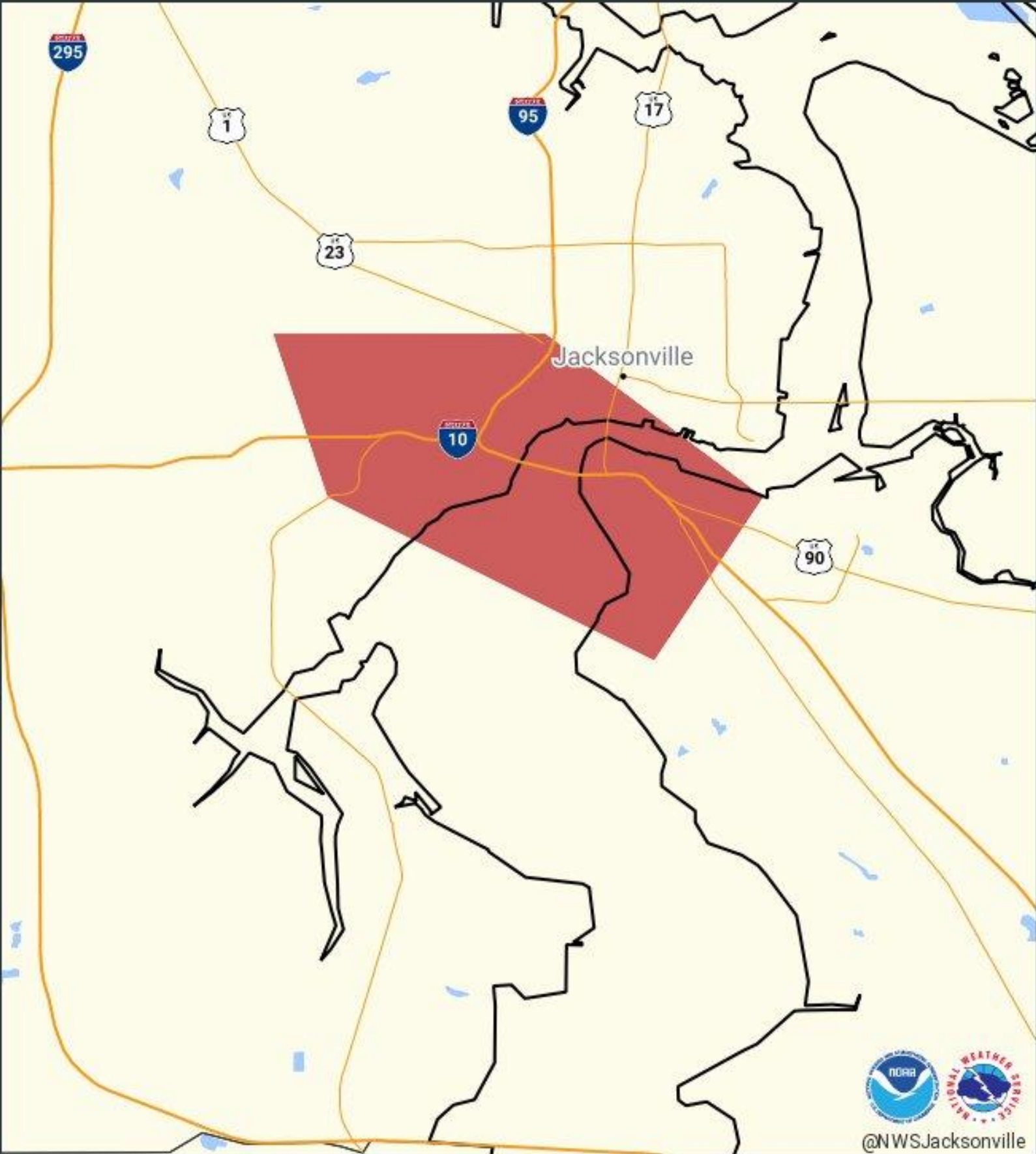



Avoid walking or driving through flood waters!

### Potential Exposure



Population: 74,995  
Schools: 17  
Hospitals: 3







# Flood Products

Product	Meaning & Issuance Timing	WEA Activation
Flood Advisory	<ul style="list-style-type: none"><li>Elevated stream flow, ponding water, rainfall accumulation warrants public attention – nuisance flooding</li><li>Imminent hazard</li></ul>	NO
Flood Watch	<ul style="list-style-type: none"><li>Elevated confidence of Flash Flood Guidance being exceeded</li><li>Issued hours to days in advance of threat – confidence driven</li></ul>	NO
Flood Warning	<ul style="list-style-type: none"><li>Follow-up after Flash Flood Warning</li><li>Flooding imminent ☐ seek shelter immediately from flood water</li></ul>	NO



# Rainfall Forecasts - Expected vs Potential



<https://www.weather.gov/jax/probabilistic>

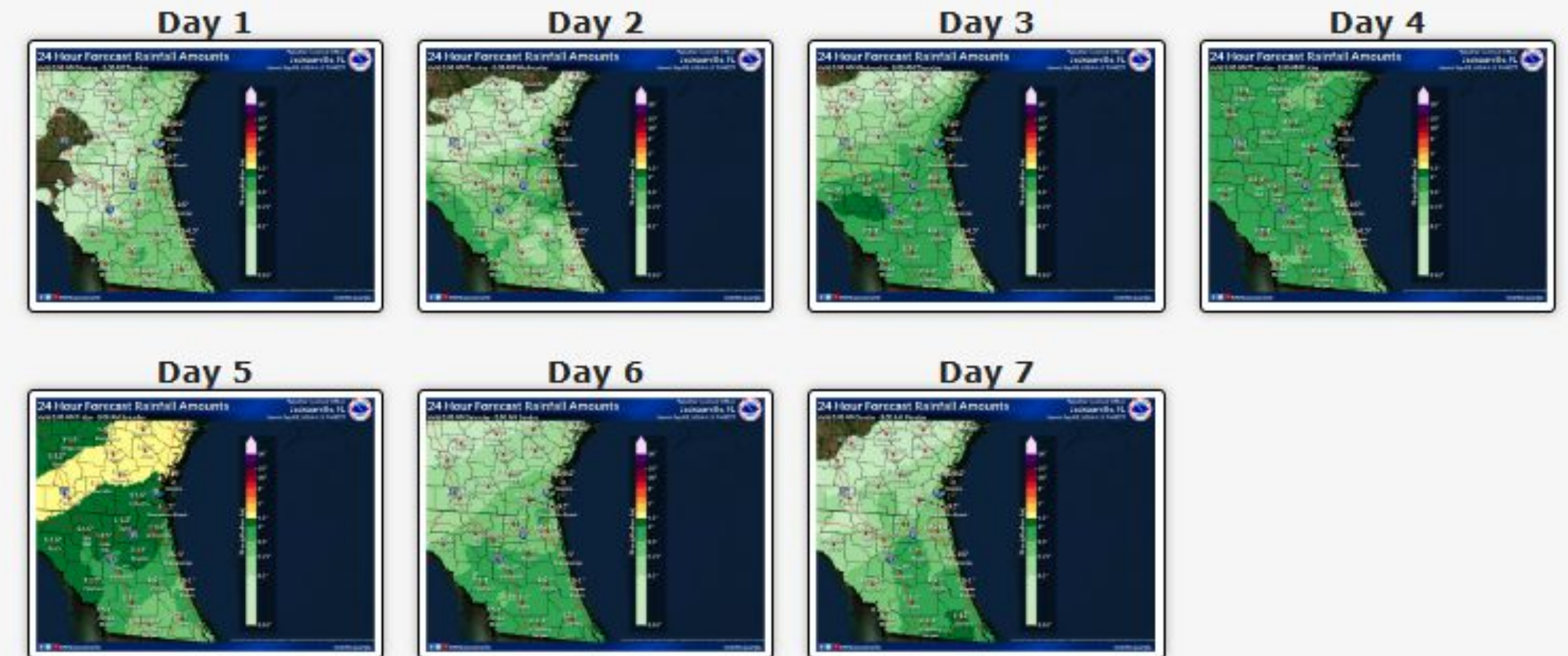


NATIONAL WEATHER SERVICE

Overview High Temp Low Temp Prob  $\geq 90^{\circ}\text{F}$  Prob  $\geq 100^{\circ}\text{F}$  Prob  $\leq 32^{\circ}\text{F}$  Prob  $< 28^{\circ}\text{F}$  12hr Rain 24hr Rain Misc QPF

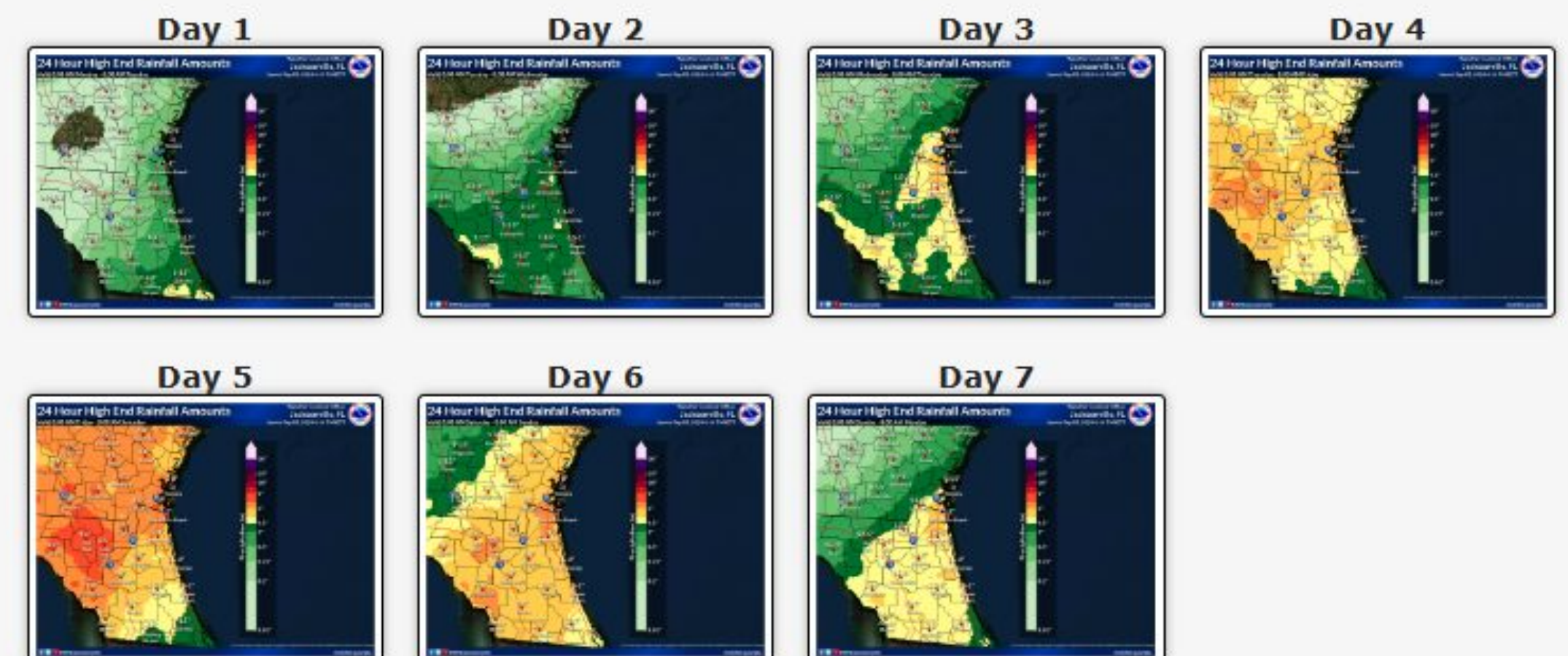
## Expected 24 Hour Rainfall (in.)

These maps are the official NWS rainfall forecast in inches during the time period shown on the graphic. These rainfall amounts are determined by NWS forecasters to be the most likely outcome based on evaluation of data from computer models, satellite, radar, and other observations.

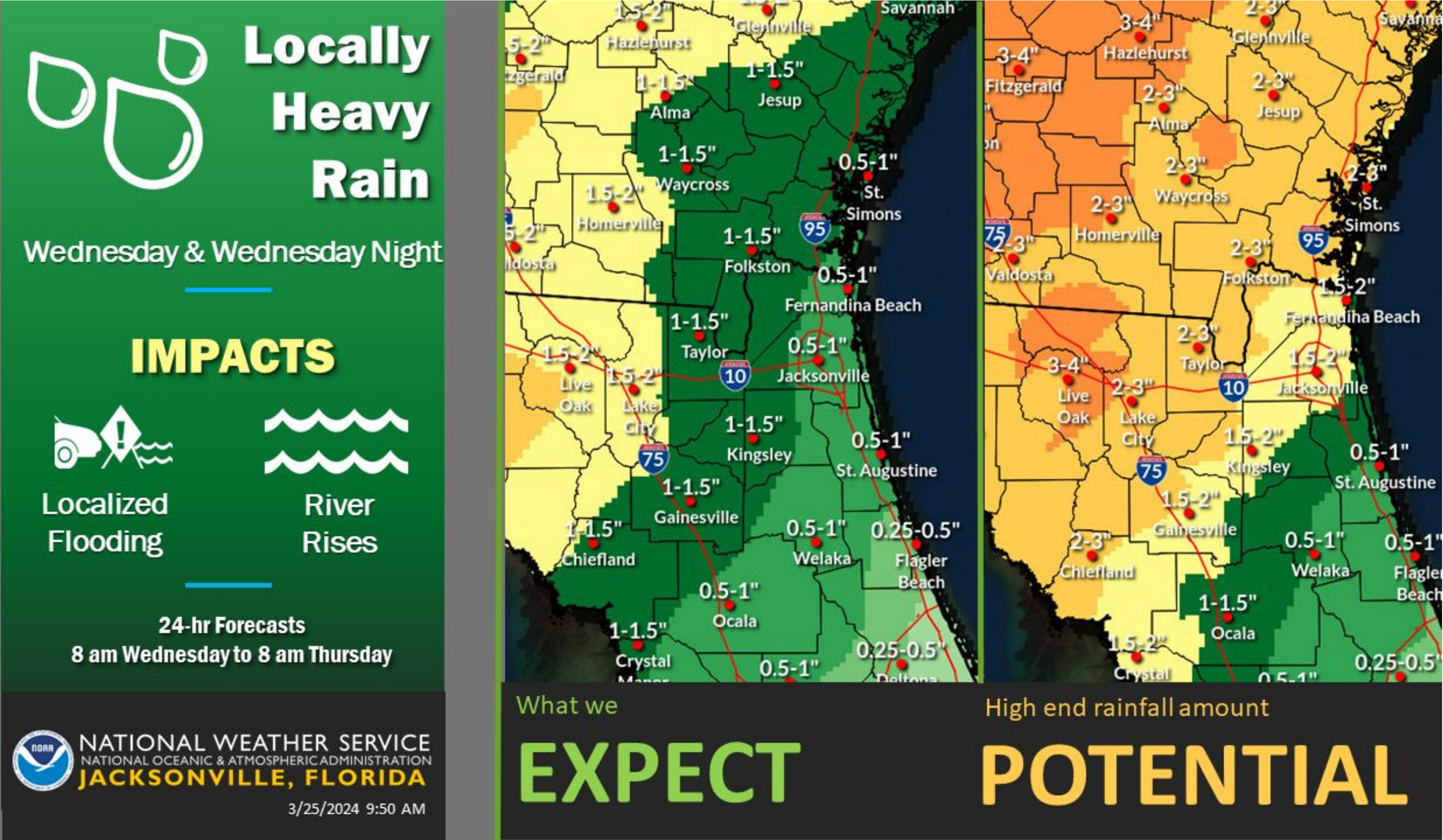


## Greatest 24 Hour Possible Rainfall (in.)

These maps depict a reasonable upper-end rainfall amount for the time period shown on the graphic, based on many computer model simulations of possible rainfall totals. These higher amounts are an unlikely scenario, with only a 1 in 10, or 10% chance that more rain will fall, and a 9 in 10, or 90% chance that less rain will fall. These amounts can help serve as an upper-end scenario for planning purposes.

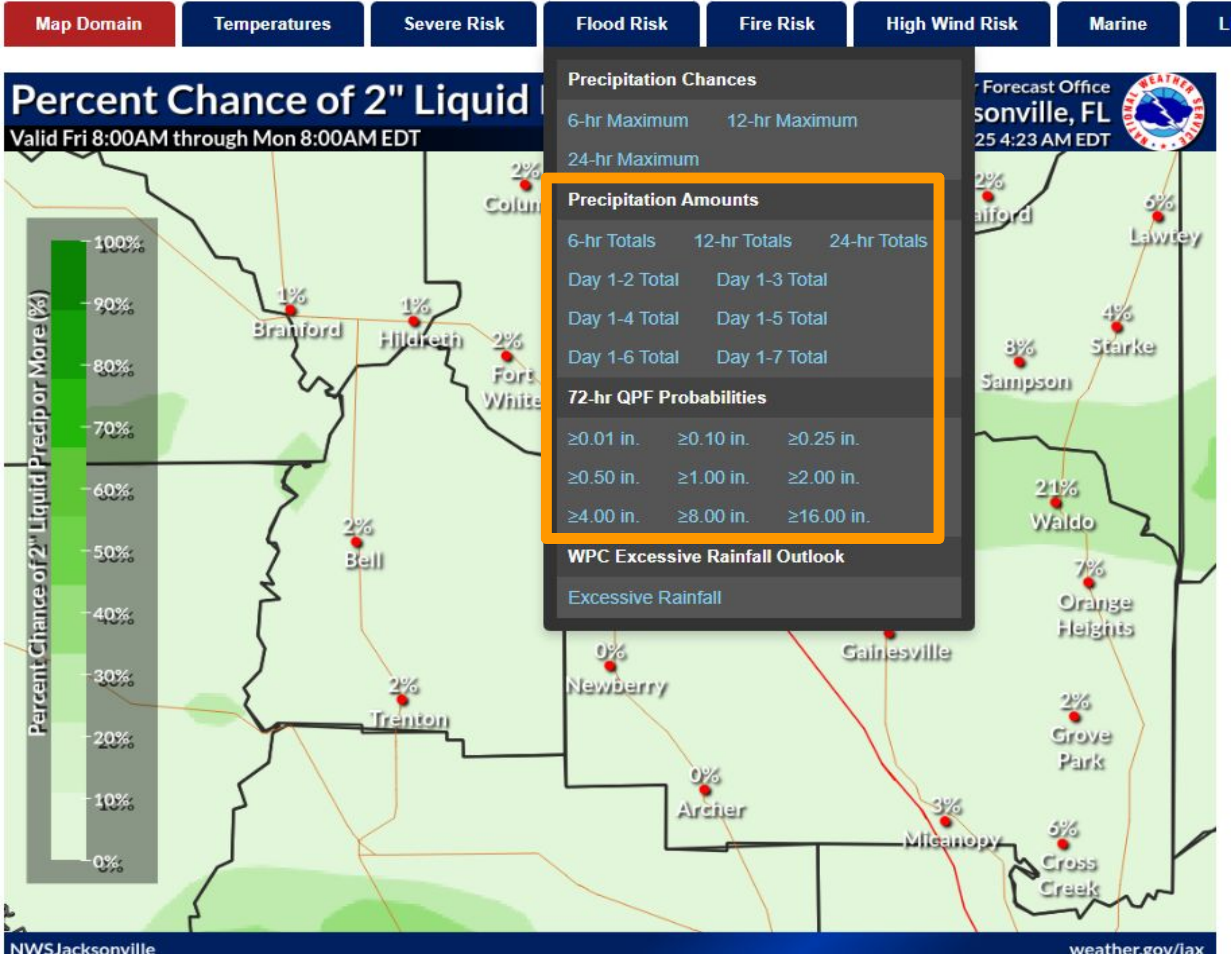


# Rainfall Amount Outlooks - Expected vs Potential



- **EXPECTED:** The 40-60% range of what we anticipate for rainfall
- **POTENTIAL:** The 10% chance of exceedance of rainfall (only 1 model of NBM)

# Downscaled Rainfall Forecasts



- Choose your area of interest on the below website (example zooms in on Gilchrist, Alachua, Union & Bradford counties)
- Interface provides ability to see localized forecast in details, but also a range of forecast possibilities for a specific time frame (probabilistic information)



<https://www.weather.gov/jax/graphics>

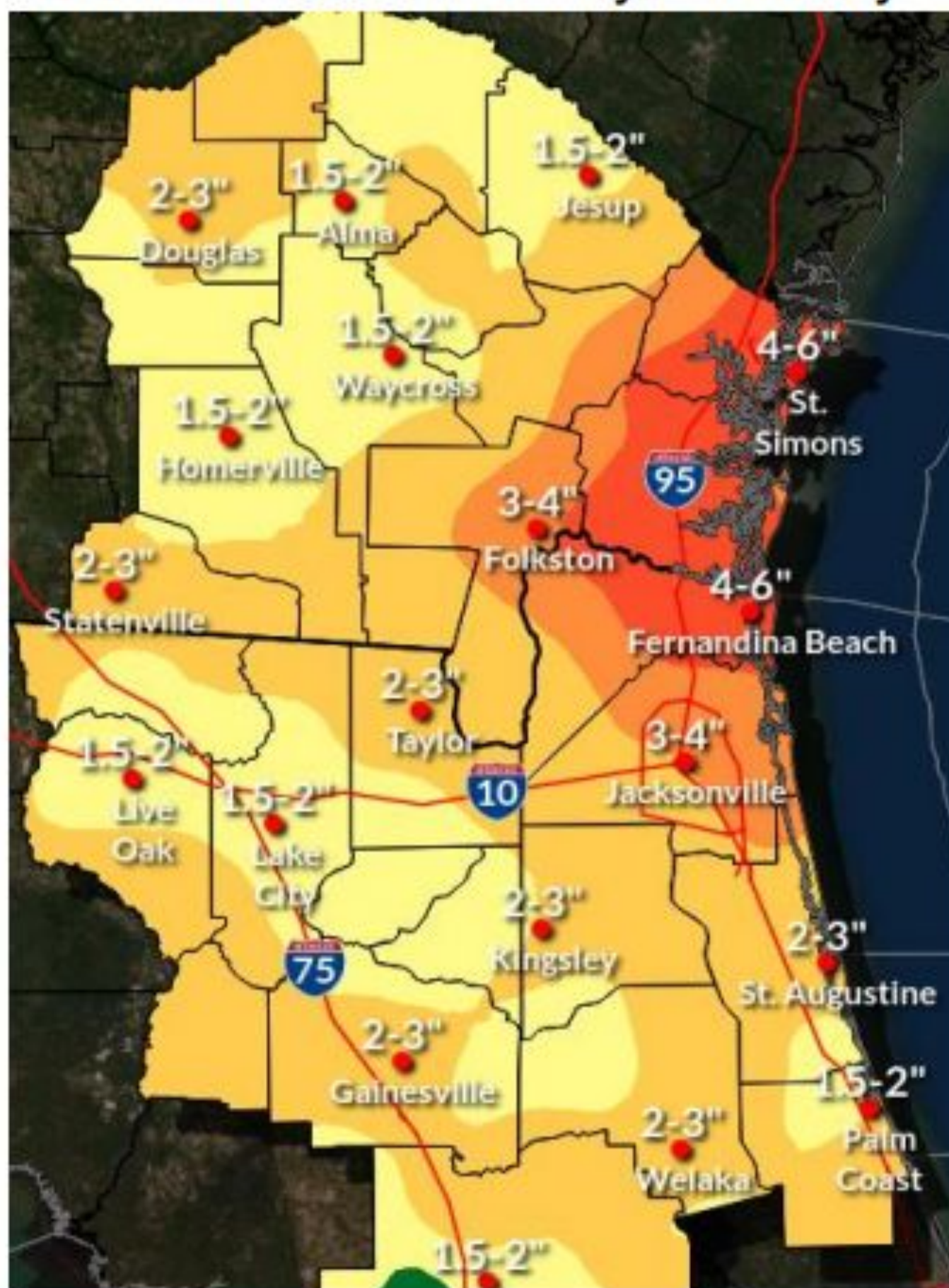
# Flooding Rain Potential Through The Weekend



**NEVER DRIVE THROUGH FLOODED ROADS**  
**MOVE OBJECTS TO HIGHER GROUND**

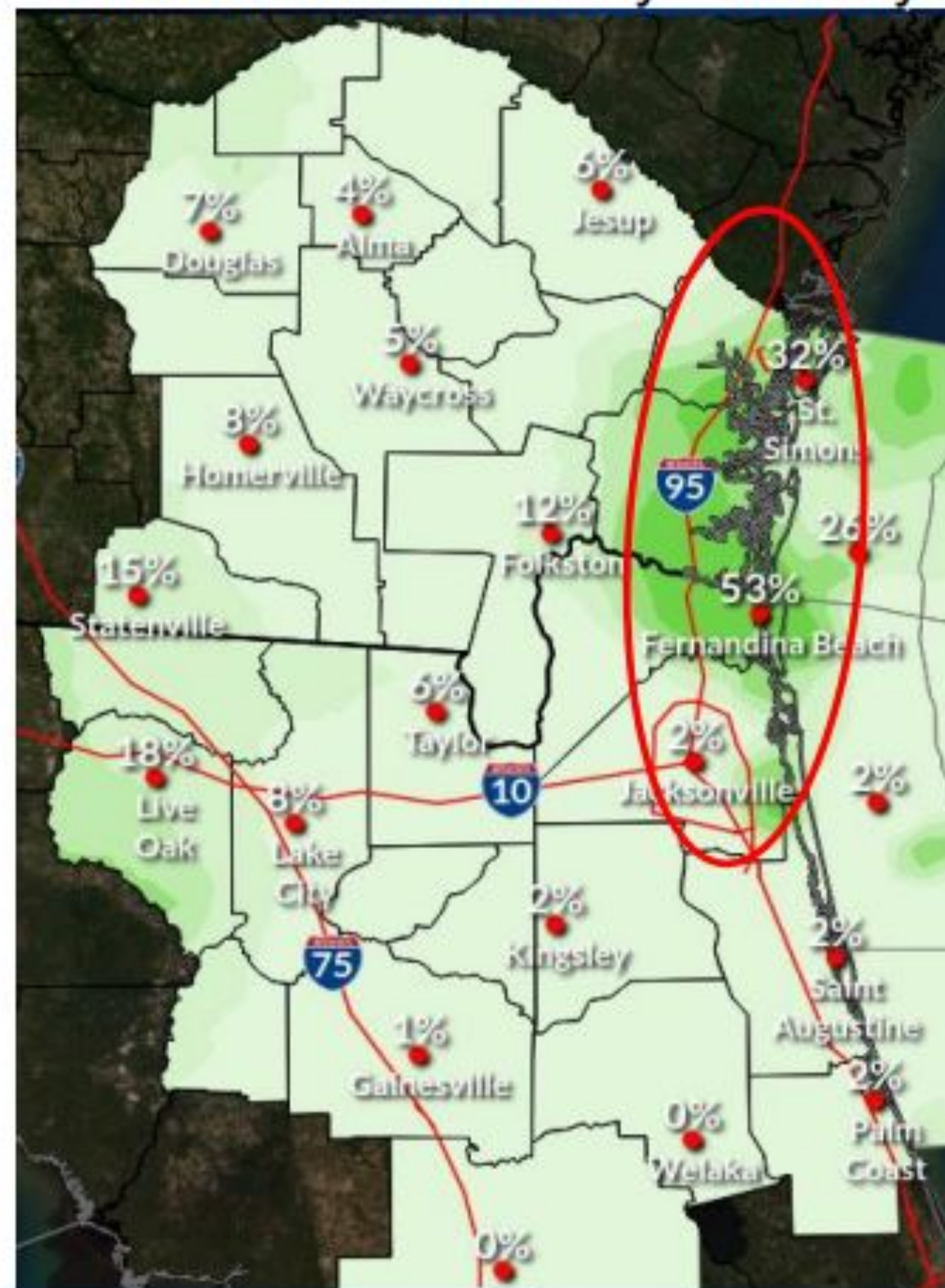
## Official Rainfall Forecast

Total Rainfall Thursday - Sunday



## % Chance of Rainfall > 4"

Total Rainfall Thursday - Sunday



## Key Messages



- A slow moving front will bring several rounds of rainfall through Sunday
- Flood Watch for Duval, coastal Nassau, SE GA coast

## Potential Impacts



- Flooding of low-lying & poor drainage areas, locations that already have received plenty of rainfall
- River Rises

## Timing



- Flooding rain potential today through the weekend



NATIONAL WEATHER SERVICE  
JACKSONVILLE, FL

ISSUED: Thursday, September 5, 2024 8:35 AM



# River Flooding

# NWS River Flooding Support Structure

## National

### Water Center

- National level rainfall & river flood risk tools & products

## Regional

### River Forecast Centers

- River Forecasts for specific locations

## Local

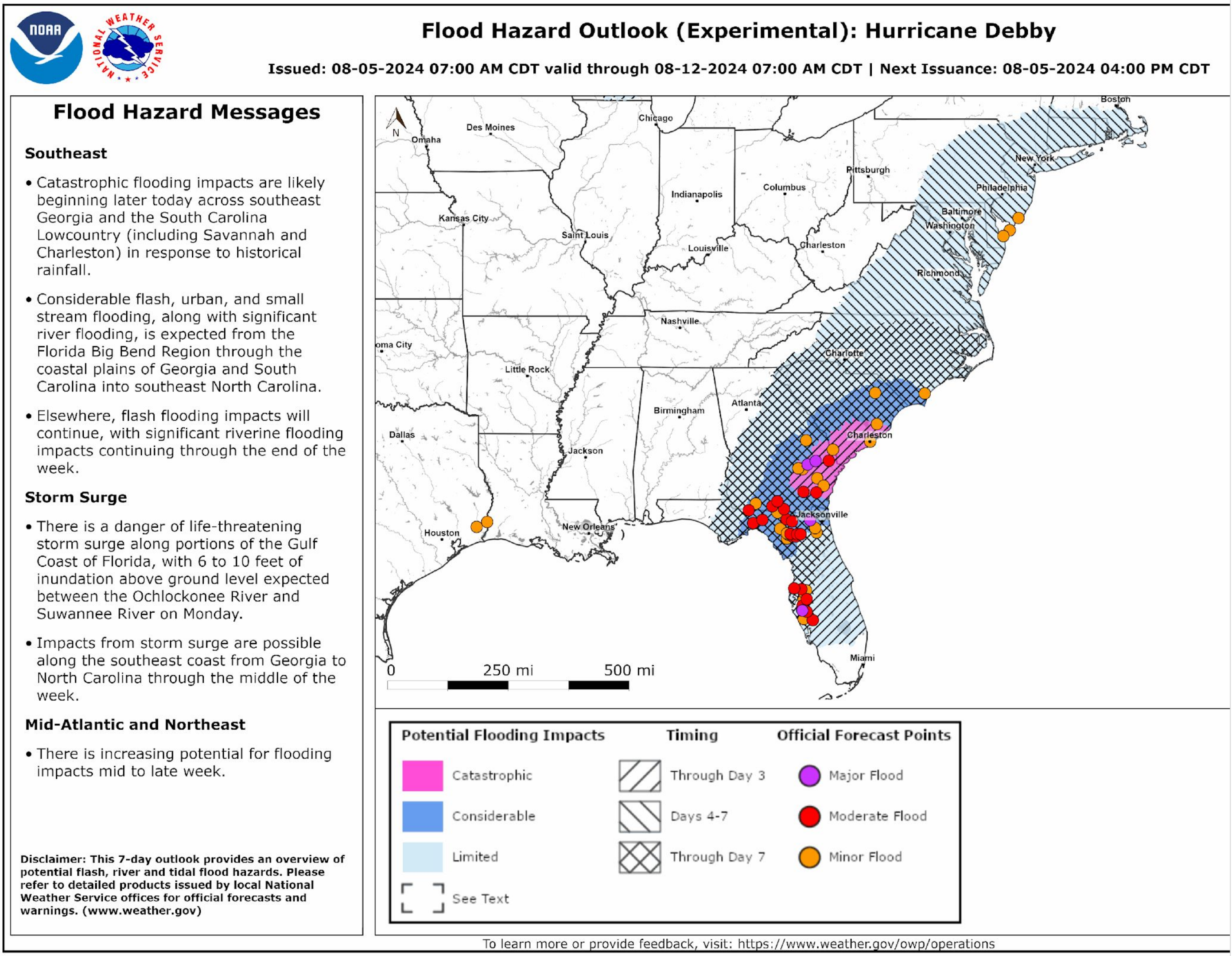
### National Weather Service Offices

- Local Hydrologist: Kelly Godsey [kelly.godsey@noaa.gov](mailto:kelly.godsey@noaa.gov)
- Local Hydrology Program Leader: Jason Hess [jason.hess@noaa.gov](mailto:jason.hess@noaa.gov)

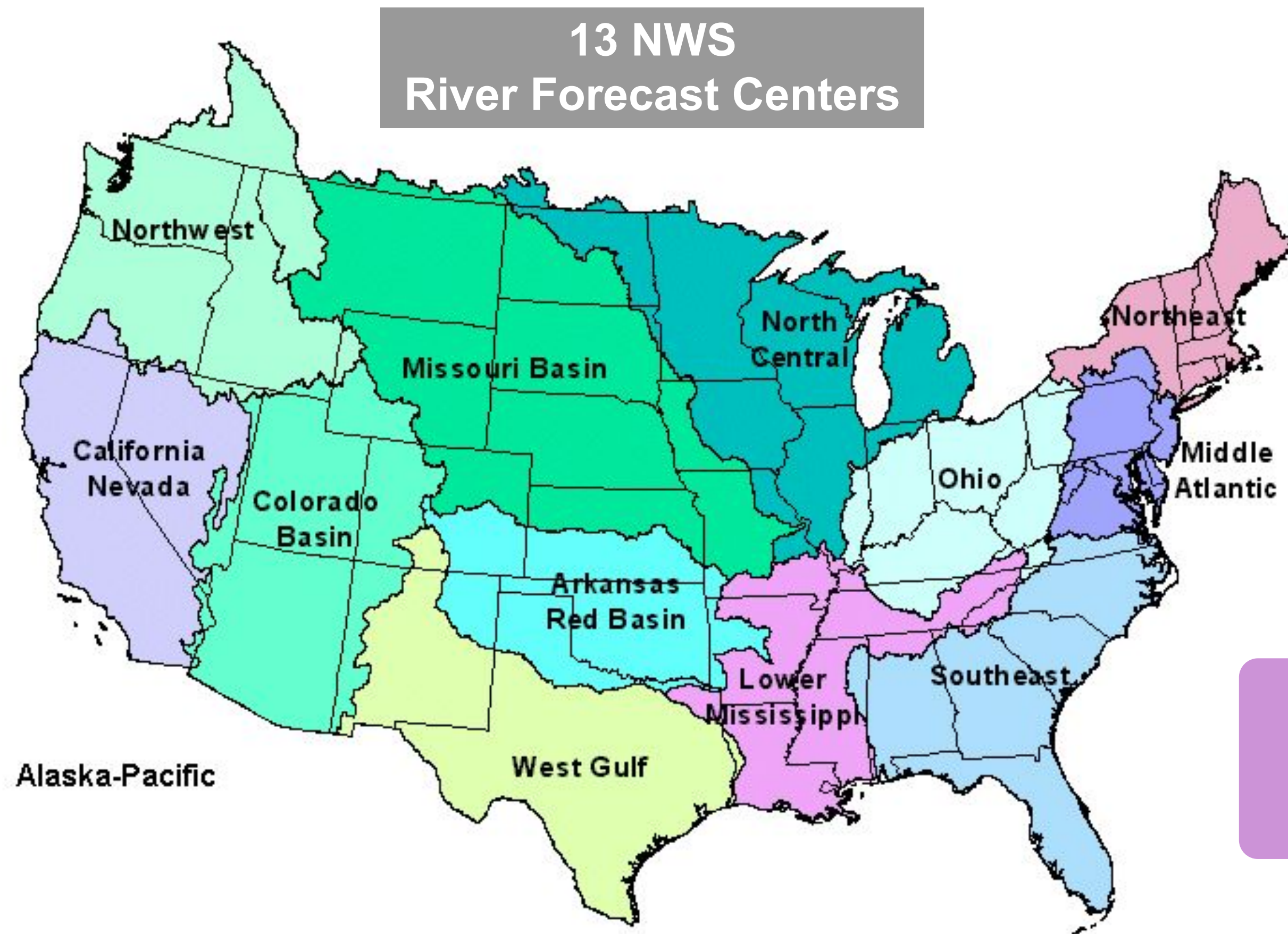
# National Water Center - Flood Hazard Outlook



<https://water.noaa.gov/operations/fho>



# Southeast River Forecast Center – River Forecasts



- River forecast center hydrologists provide river forecasts across the Southeast US
- Local NWS field offices coordinate river stages, river flood warnings & river flooding impacts to SERFC



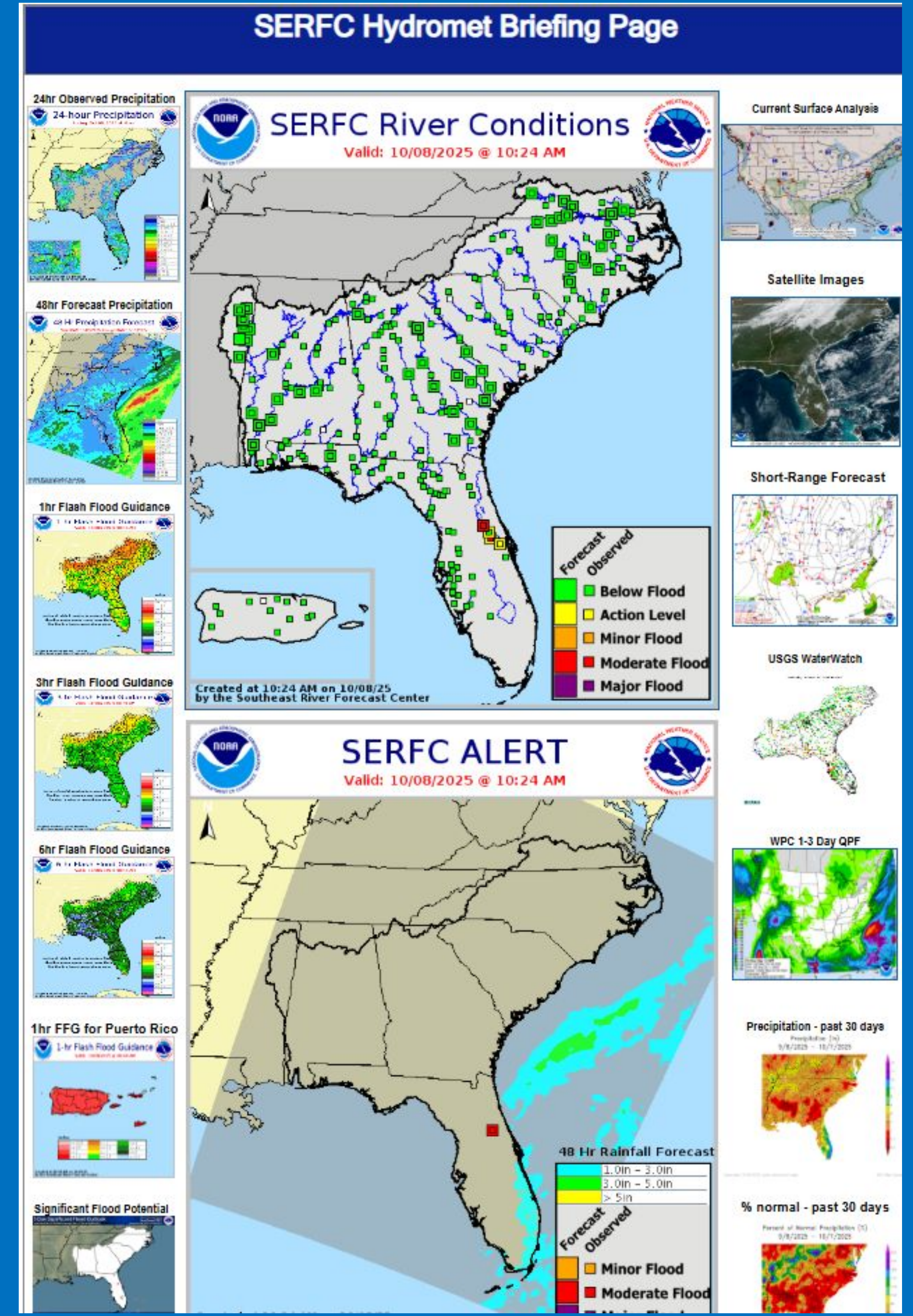
<https://www.weather.gov/serfc/>

# River Forecast Center Quick Briefing

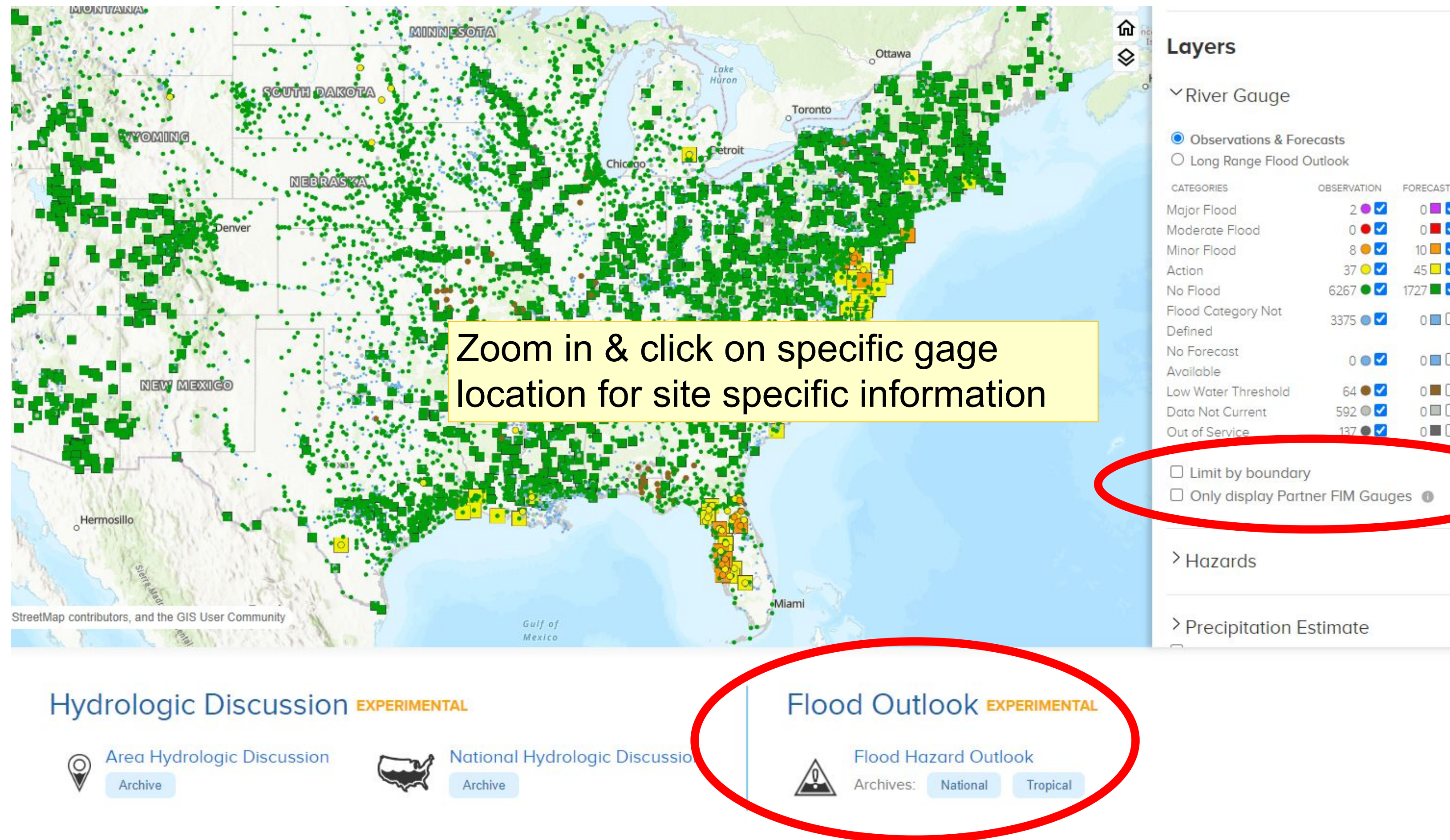


Southeast River Forecast Center

<https://www.weather.gov/serfc/quickbriefing>

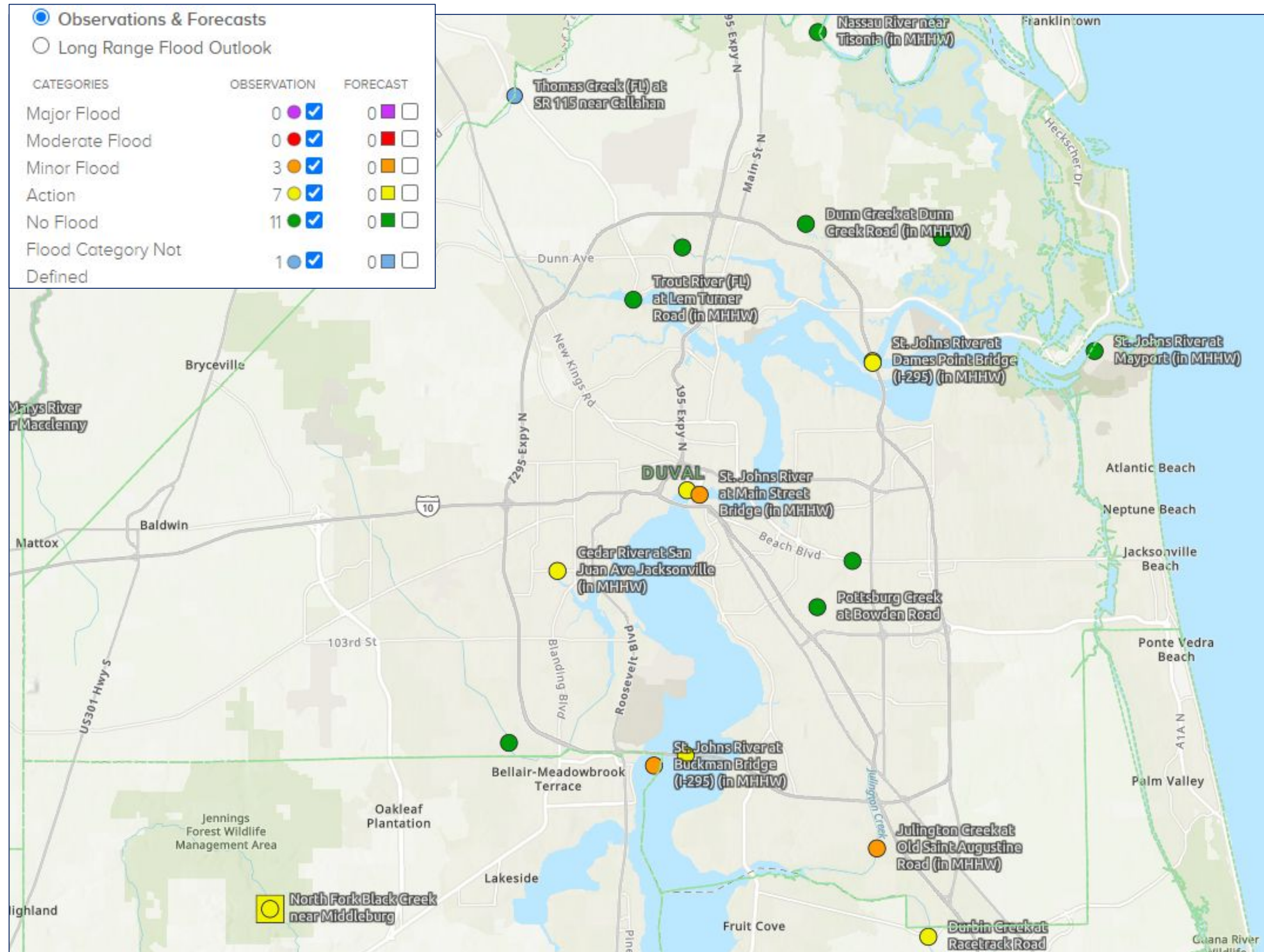


# Accessing Hydrographs



<https://water.noaa.gov/>

# Water Level Monitoring



Forecast are NOT done for tidal rivers  
(St. Johns Main Stem in NE FL)

Only use to monitor current water levels  
& past trends

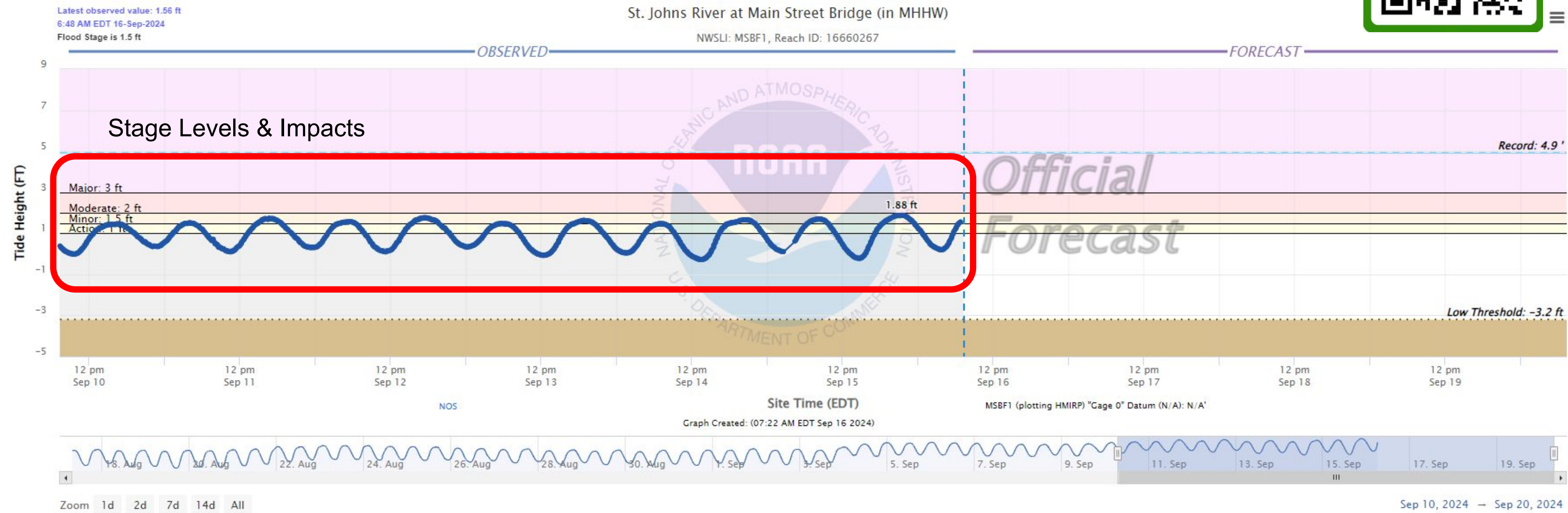
*What can we do?*

Use tide predictions + surge forecasts +  
observed river levels to predict potential  
inundation heights - More on this later!



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# River Level Monitoring - Tidal Hydrographs



☐ Scale to Flood Categories ☒ Auto Refresh

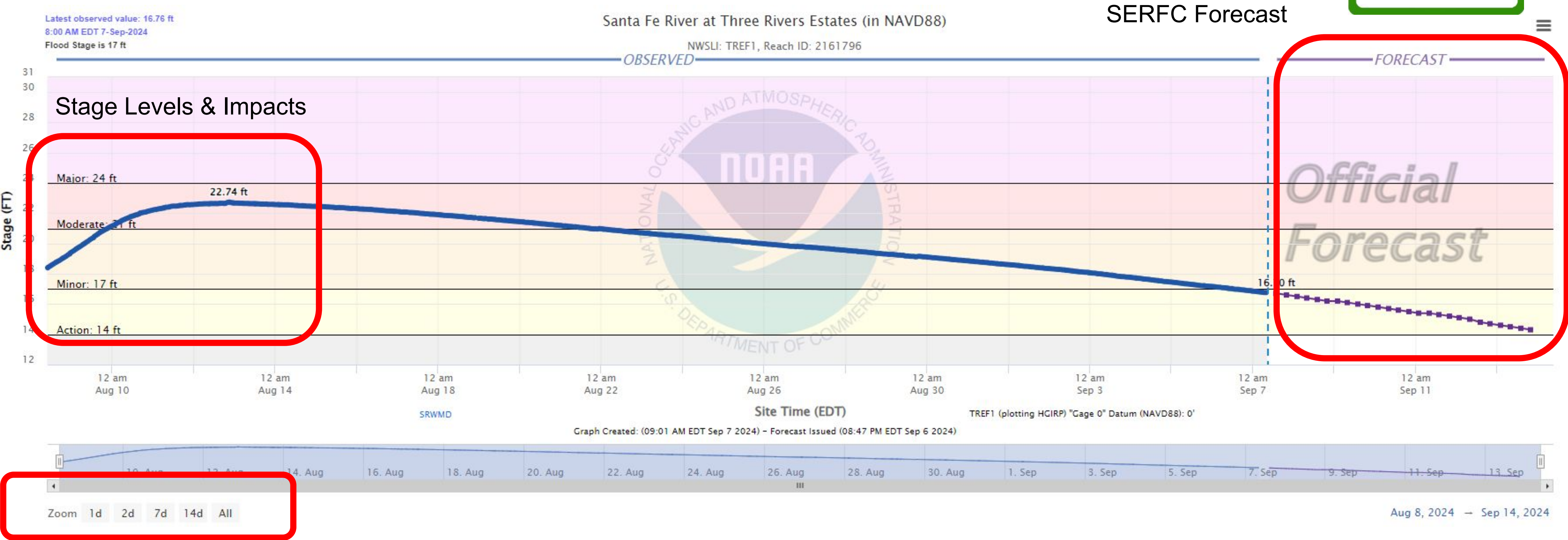
**Traces and Thresholds** Click to turn on/off display

- Observed (OBS) 09/16/2024 6:48 AM EDT
- Record: 4.9 ft
- Low Threshold: -3.2 ft

CATEGORY	STAGE
Major Flooding	3 ft
Moderate Flooding	2 ft
Minor Flooding	1.5 ft
Action	1 ft



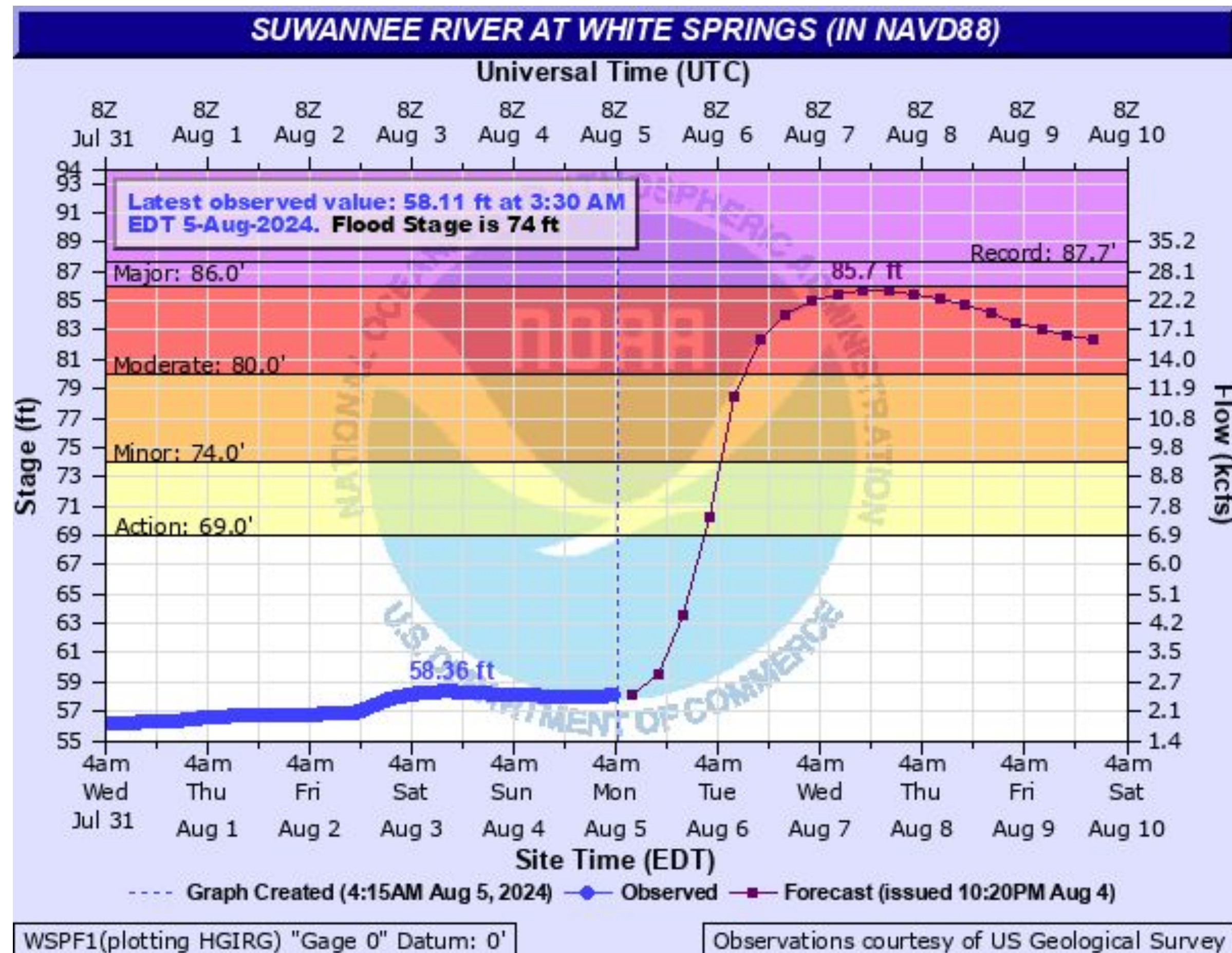
# River Level Monitoring - Inland Rivers



Recent History



# River Level Monitoring - Location Specific Hydrographs



- Hydrographs only have 48 hrs of forecast rainfall in the model
- Will NOT capture tropical rainfall event several days out

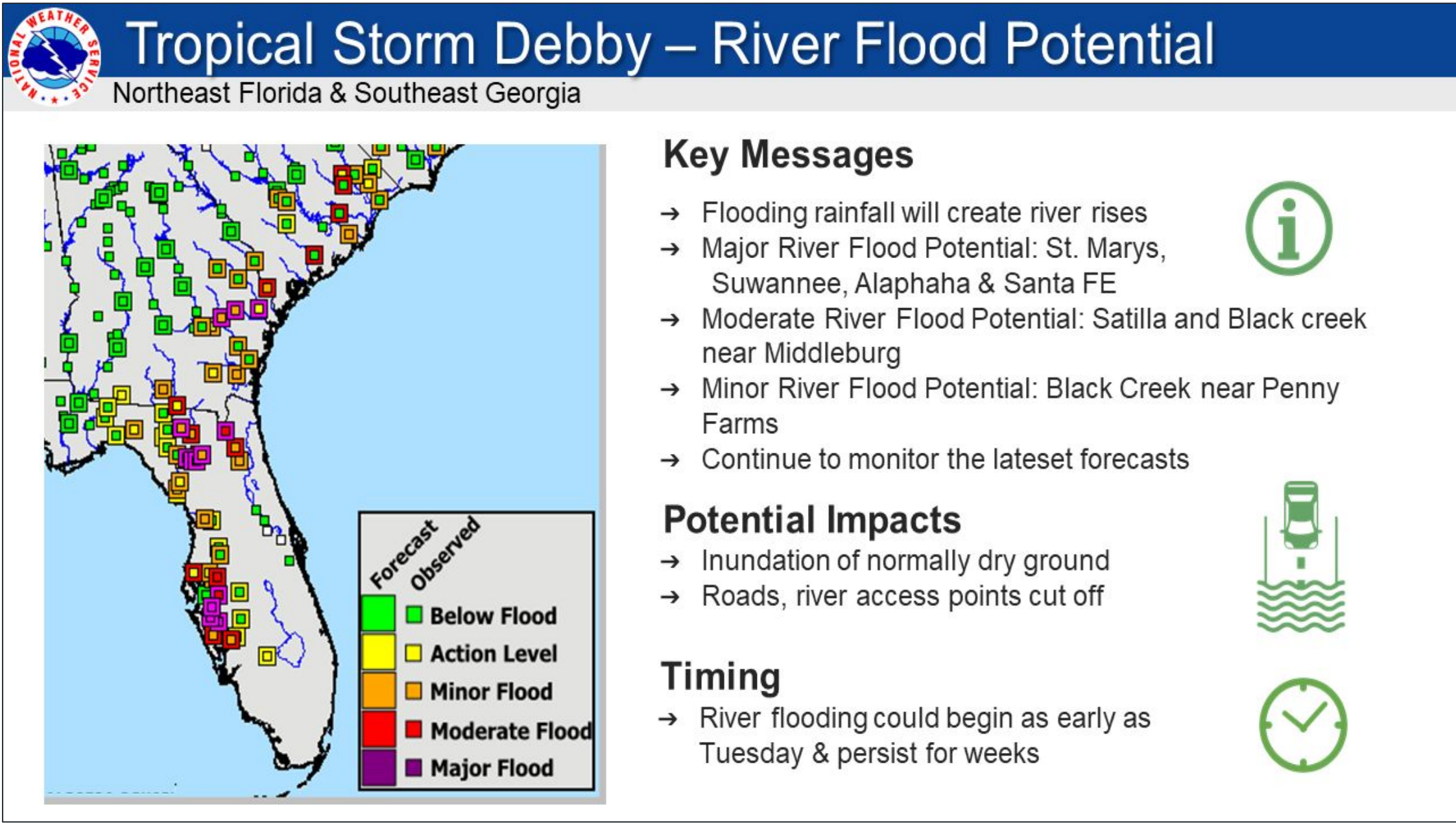
# Communicating River Flooding Risk - PUBLIC

## Days in Advance

National Water Center Outlooks, Local NWS Briefing

## 1-3 Days Imminent Flooding

River Flood Warnings – No WEA

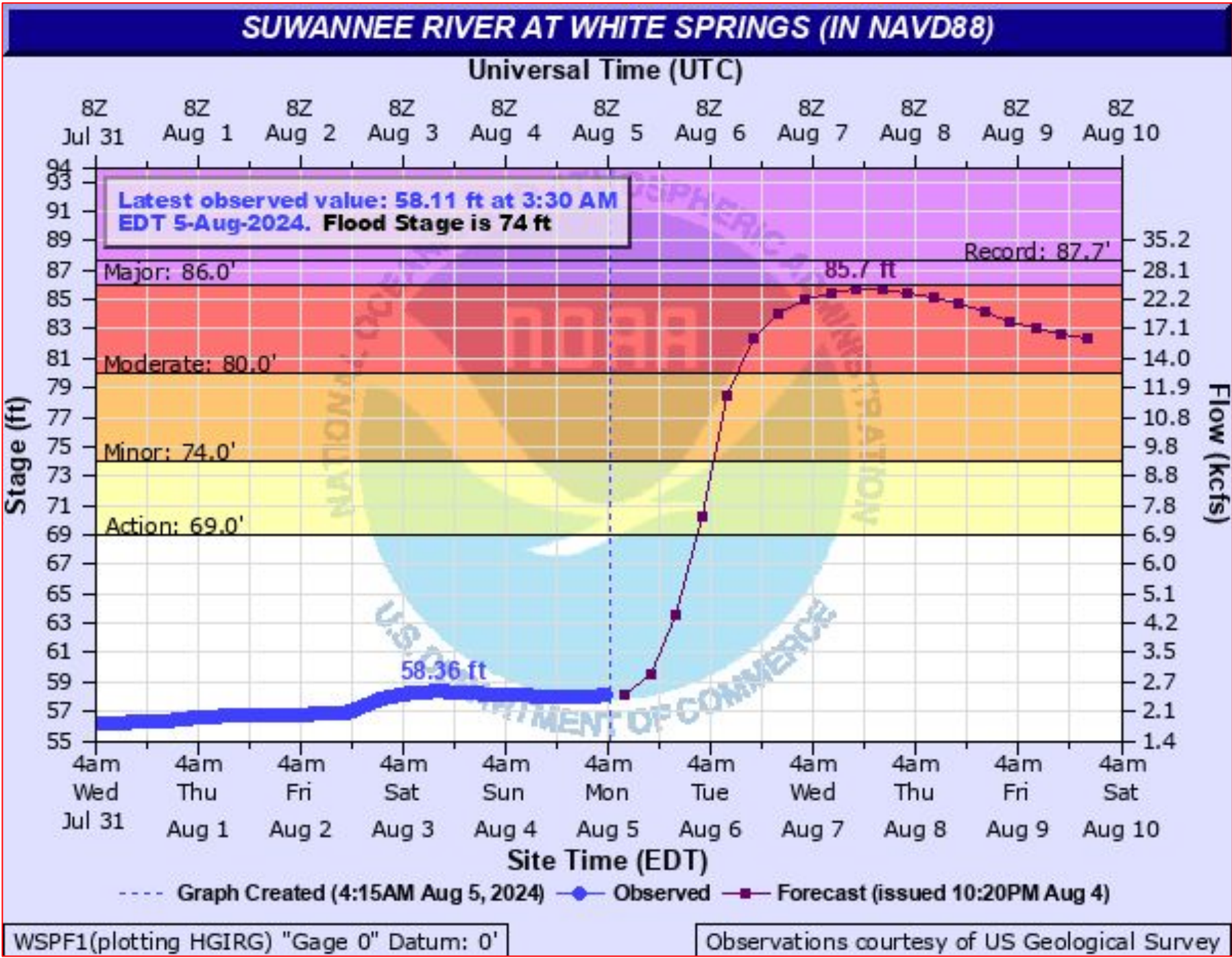


# Communicating River Flooding Risk - EM

## EXPECT

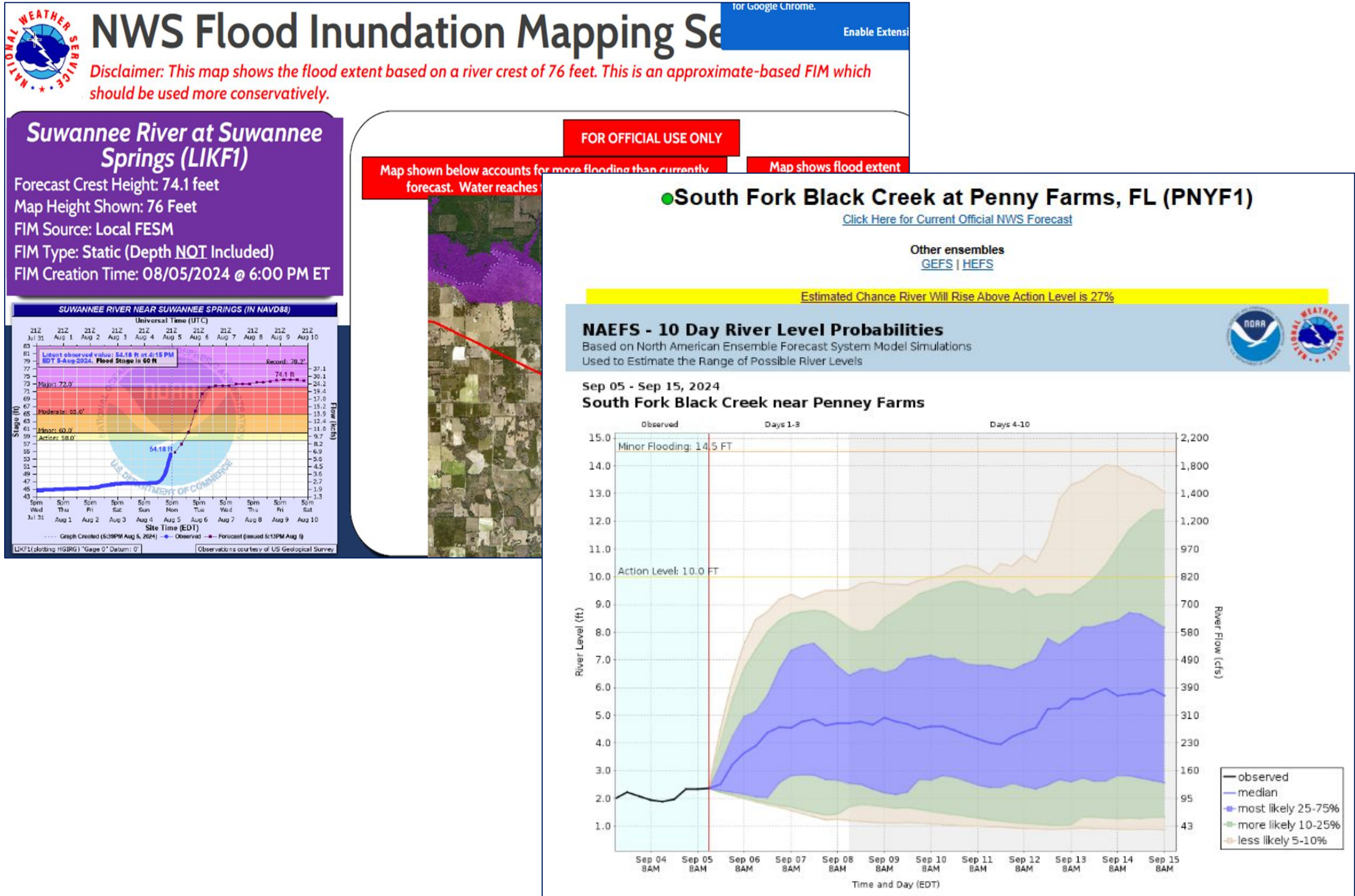
Hydrographs

CAUTION - ONLY 48 hrs of Rainfall!



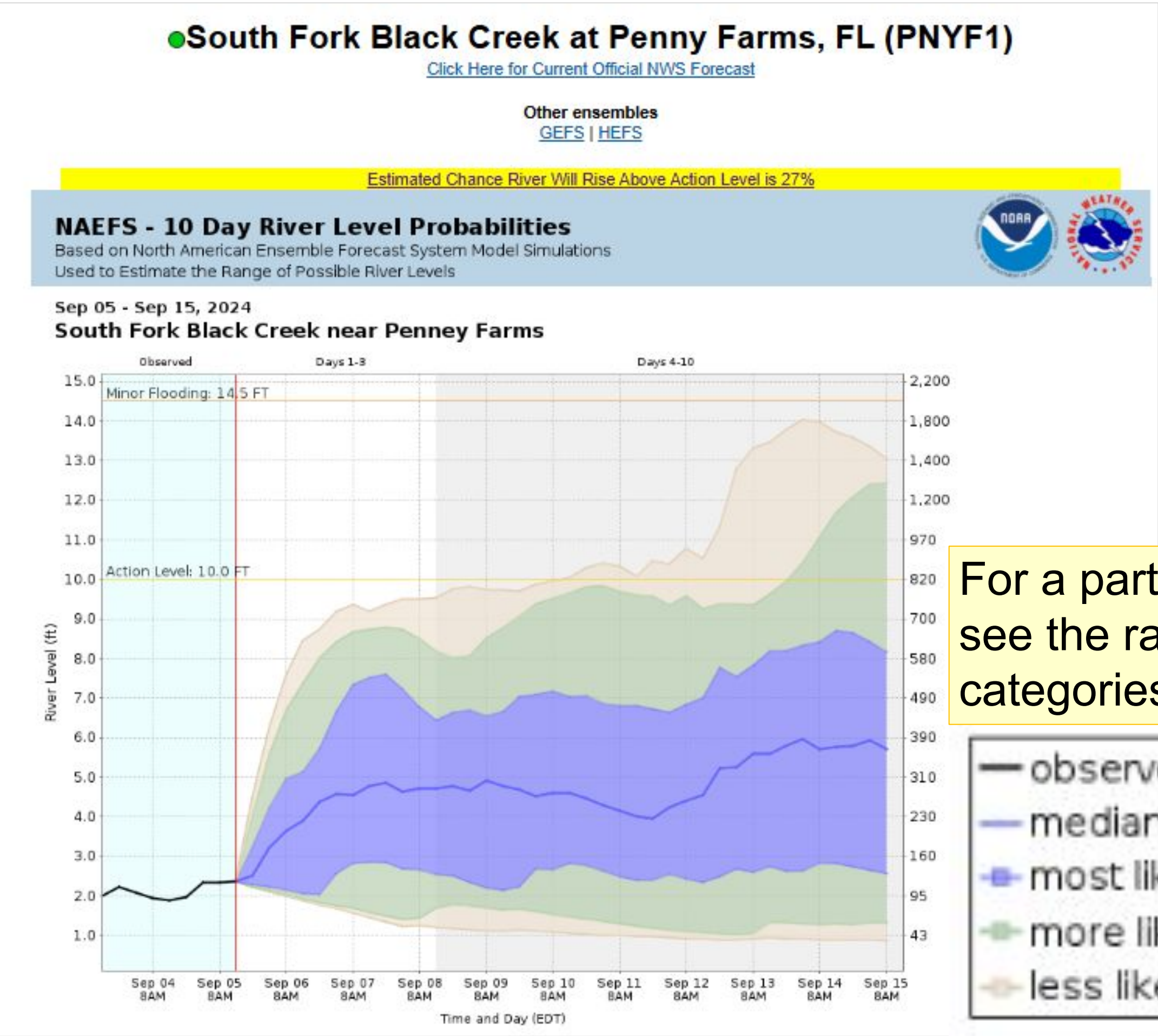
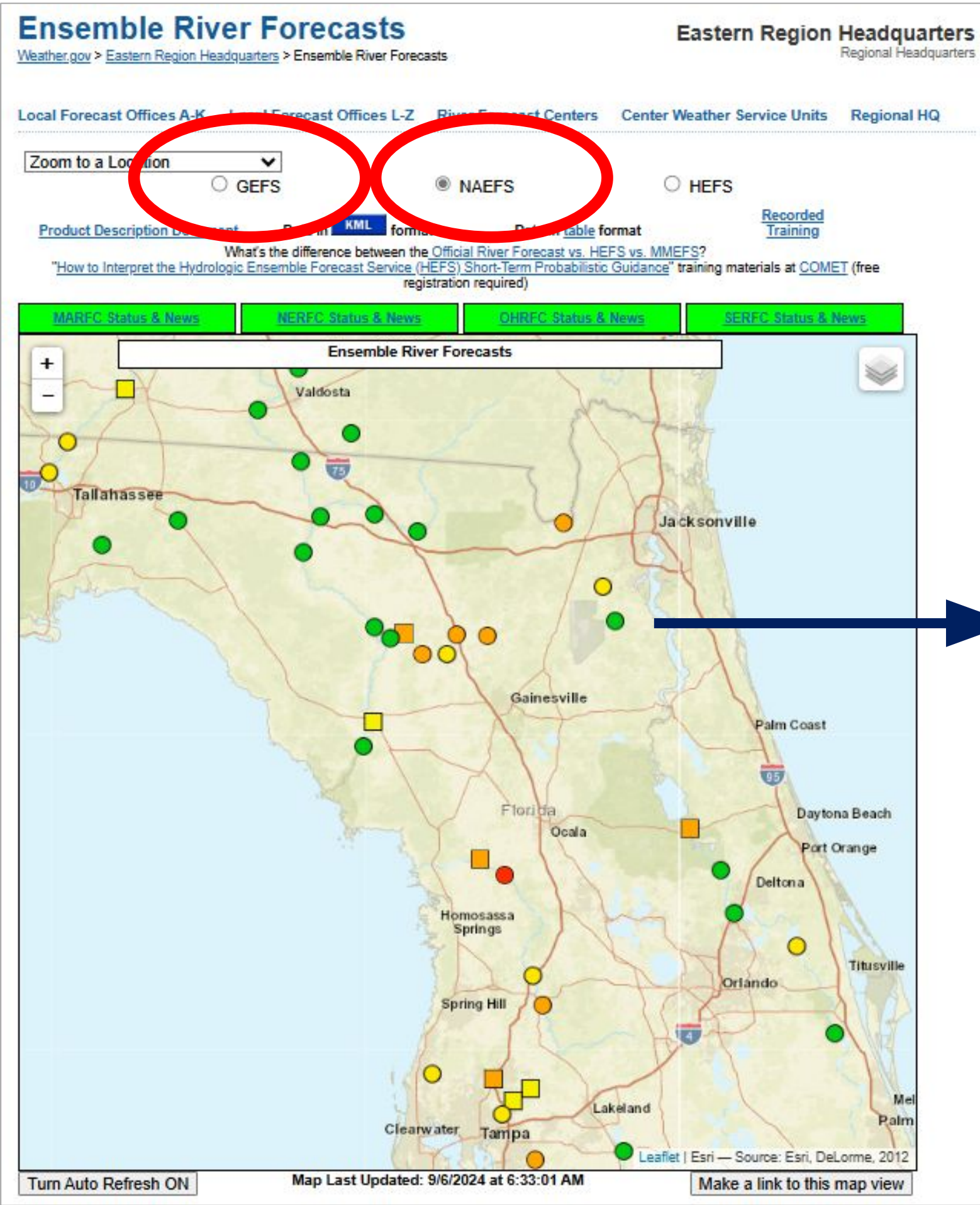
## POTENTIAL

Request Flood Inundation Mapping & Refer to Ensembles



# River Flooding Risk Potential - Ensembles

Ensemble Forecasts include varied amounts of basin rainfall for a particular event



<https://tinyurl.com/42z4f2f4>

For a particular river gage, help see the range of potential flood categories - CONFIDENCE

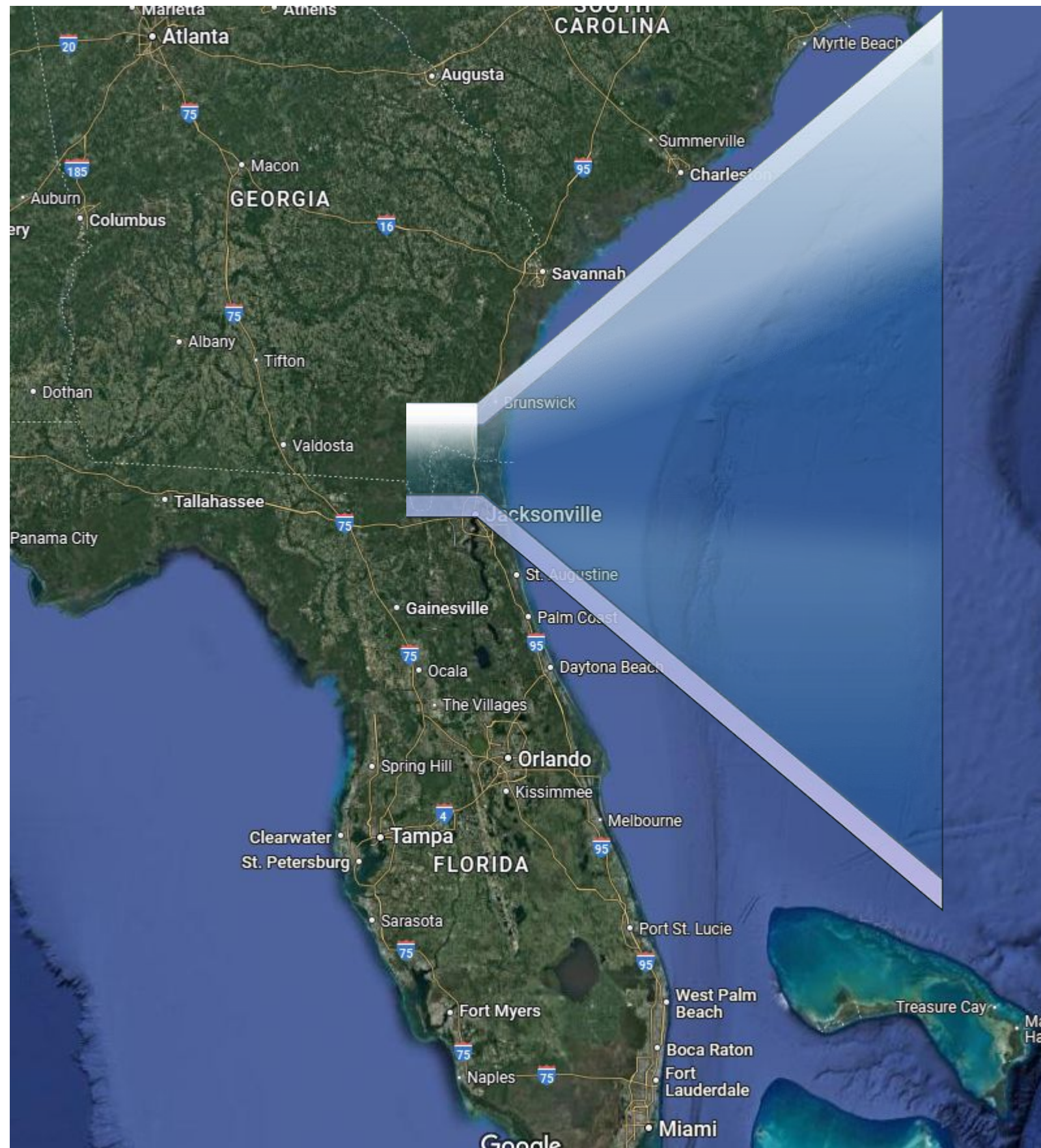




# Coastal/Tidal Flooding

# Local Geography

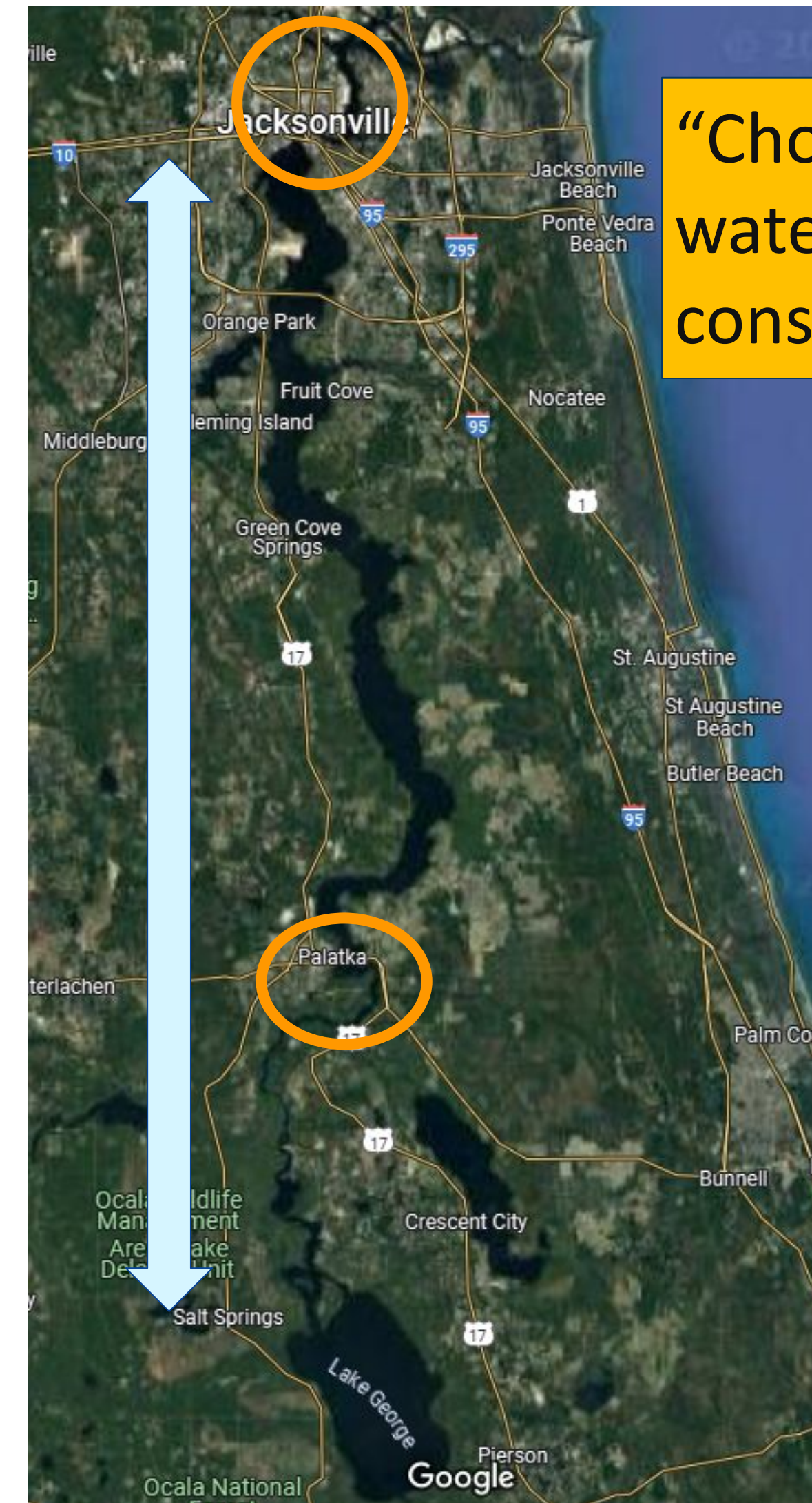
Coastal “Catchers Mitt” & Inland Funnel



Elevated trapped water will travel north to south with high tides in river - seiche effect

Called “Reverse Flow” event by SJRWMD

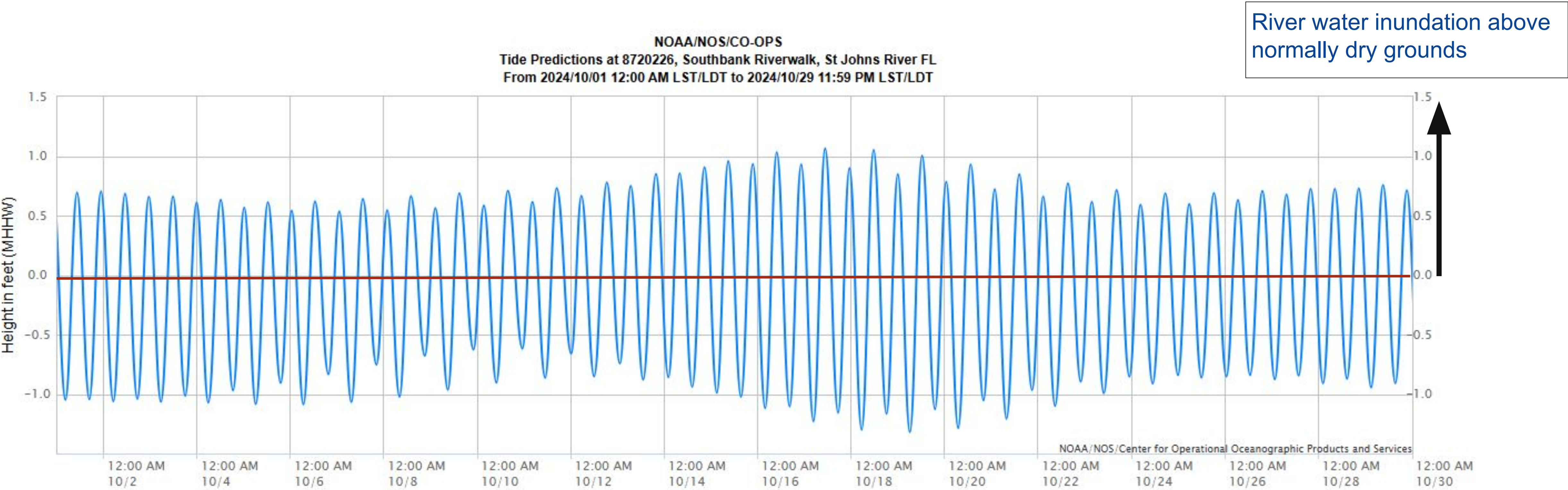
St. Johns “Bathtub” Tidal Seiche & “Choke Points”



“Choke Points” where water flow becomes constricted & overflows

# Coastal/Tidal Flooding Climatology

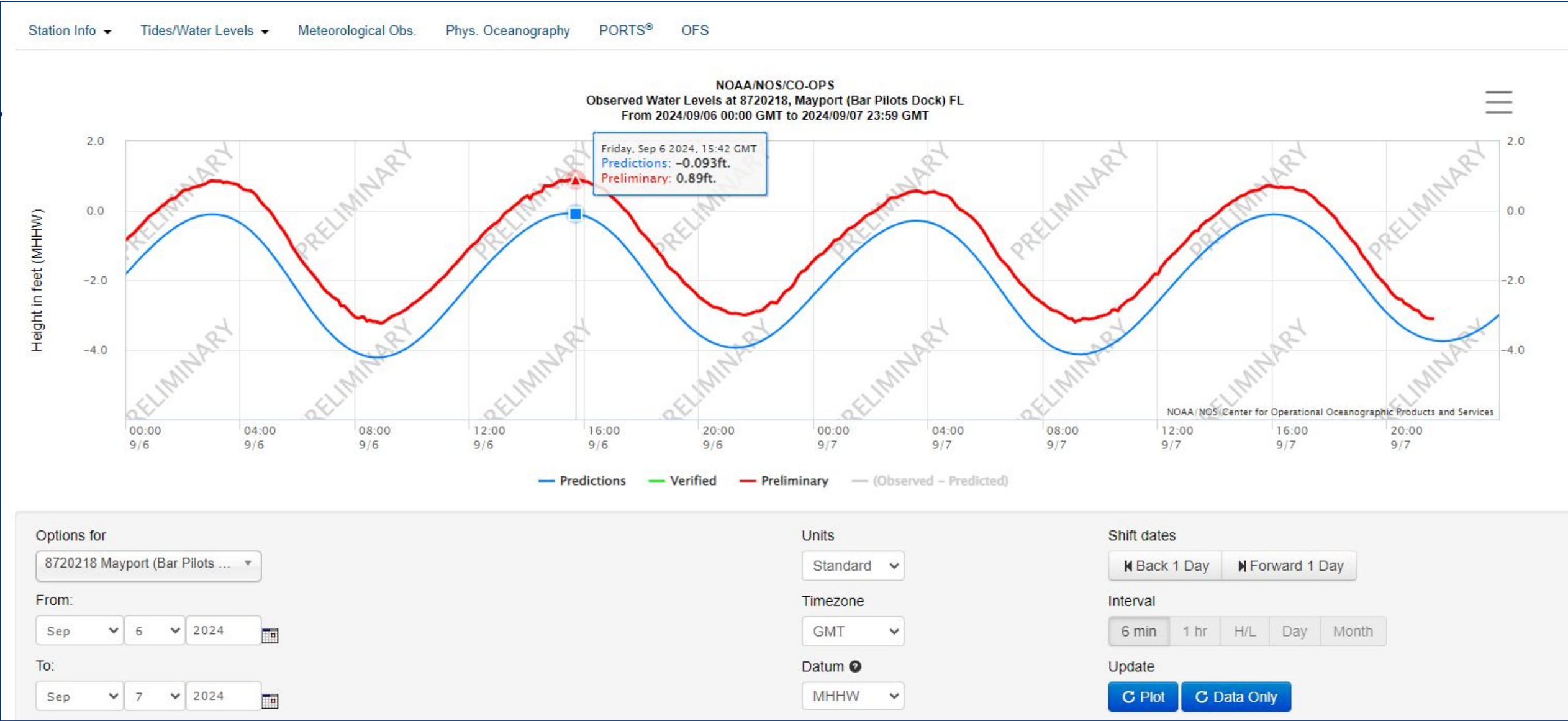
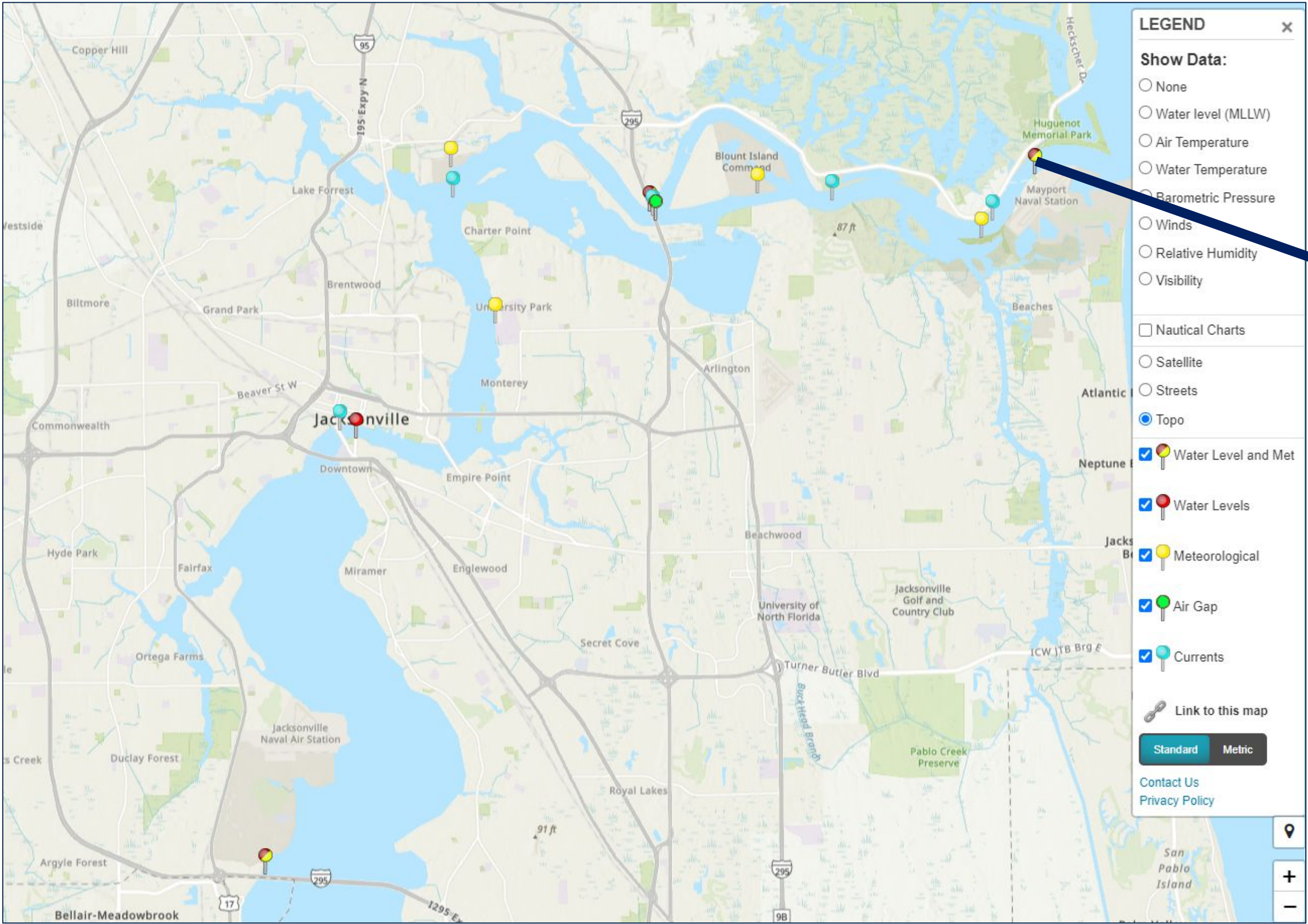
Our **HIGHEST** annual astronomical tides occur in September to November each year - Peak values mid-October  
These are called **SPRING** or **NEAP TIDES** (technically not KING tides)



# Water Level Predictions



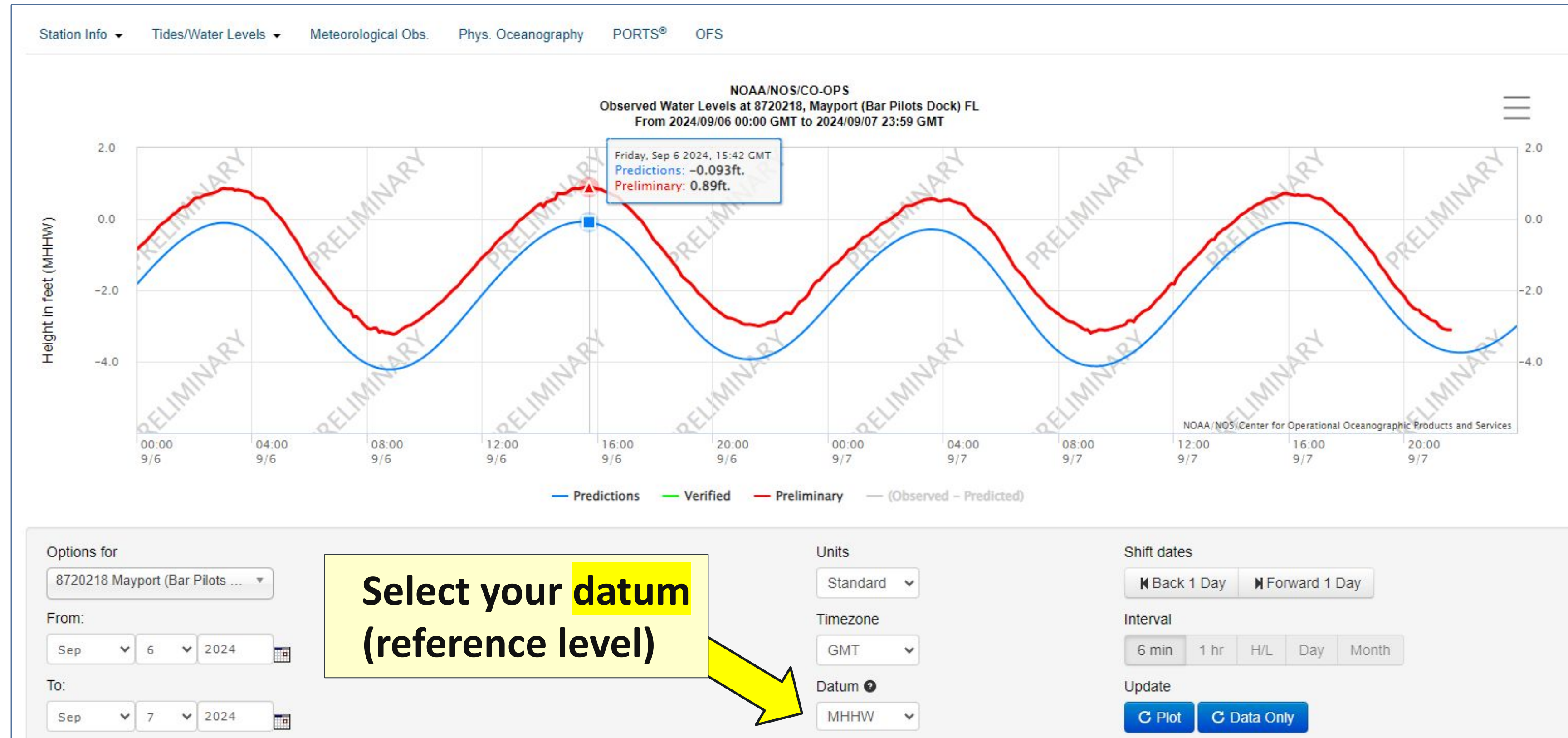
<https://tidesandcurrents.noaa.gov/>



NATIONAL WEATHER SERVICE

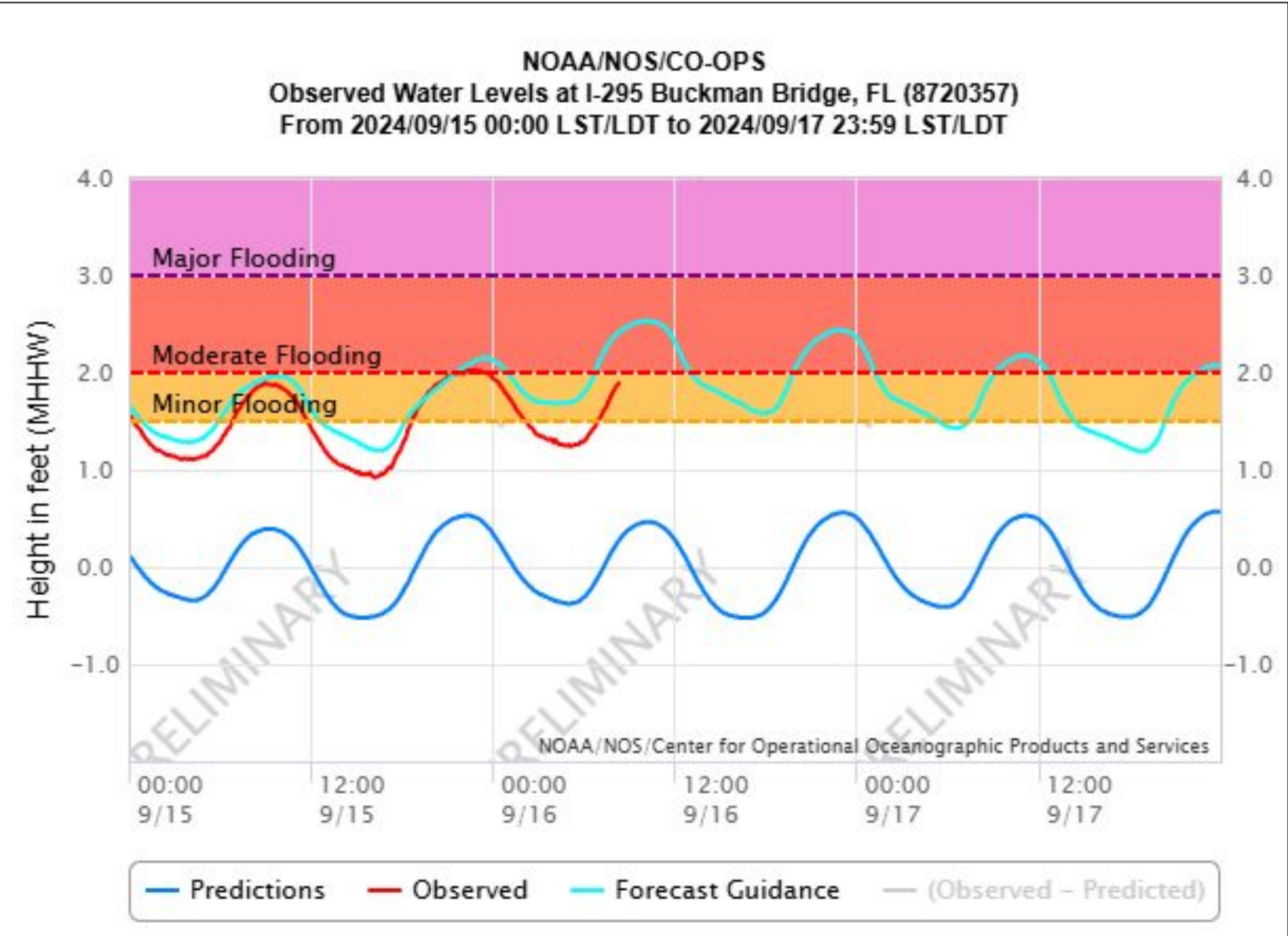
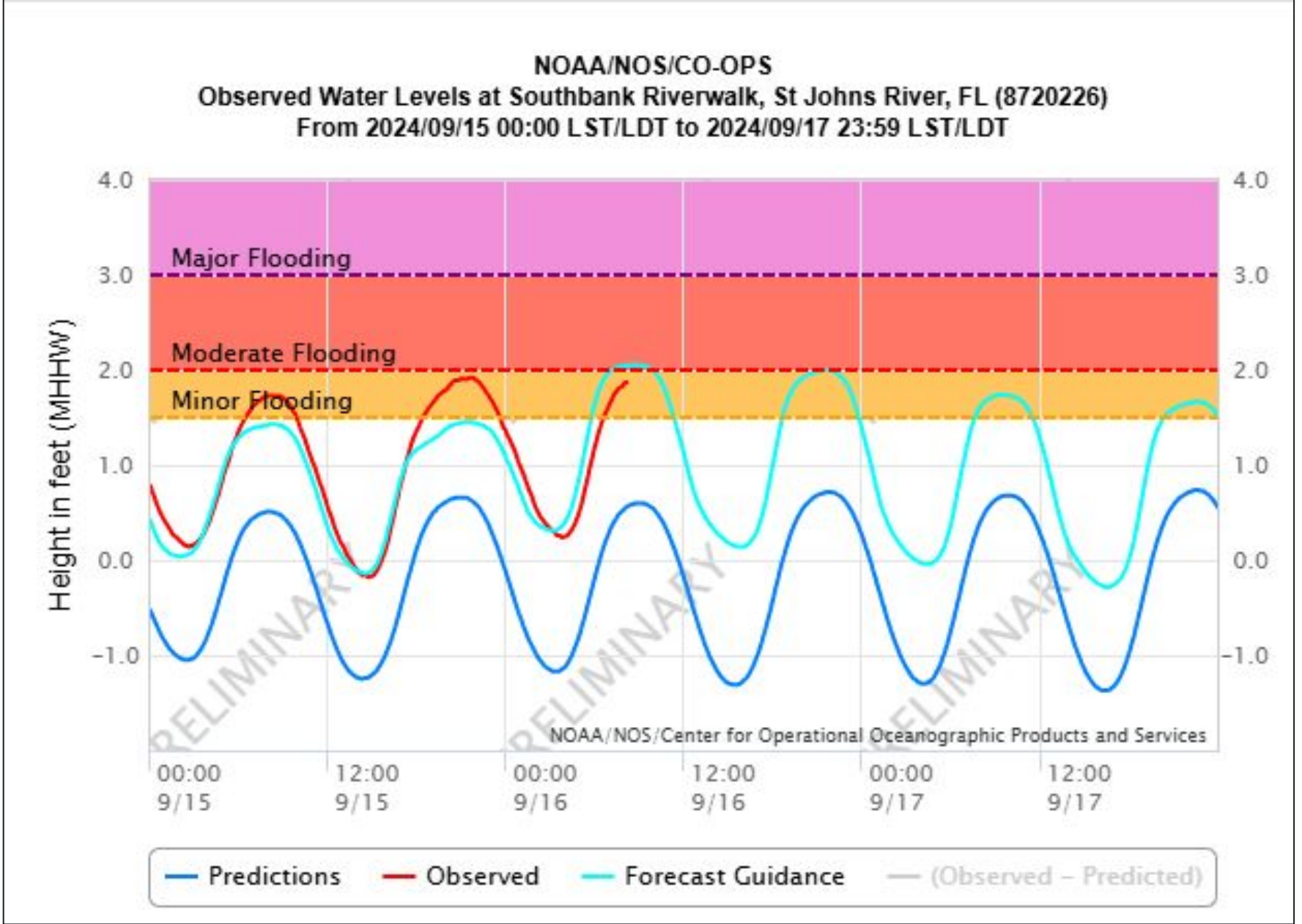
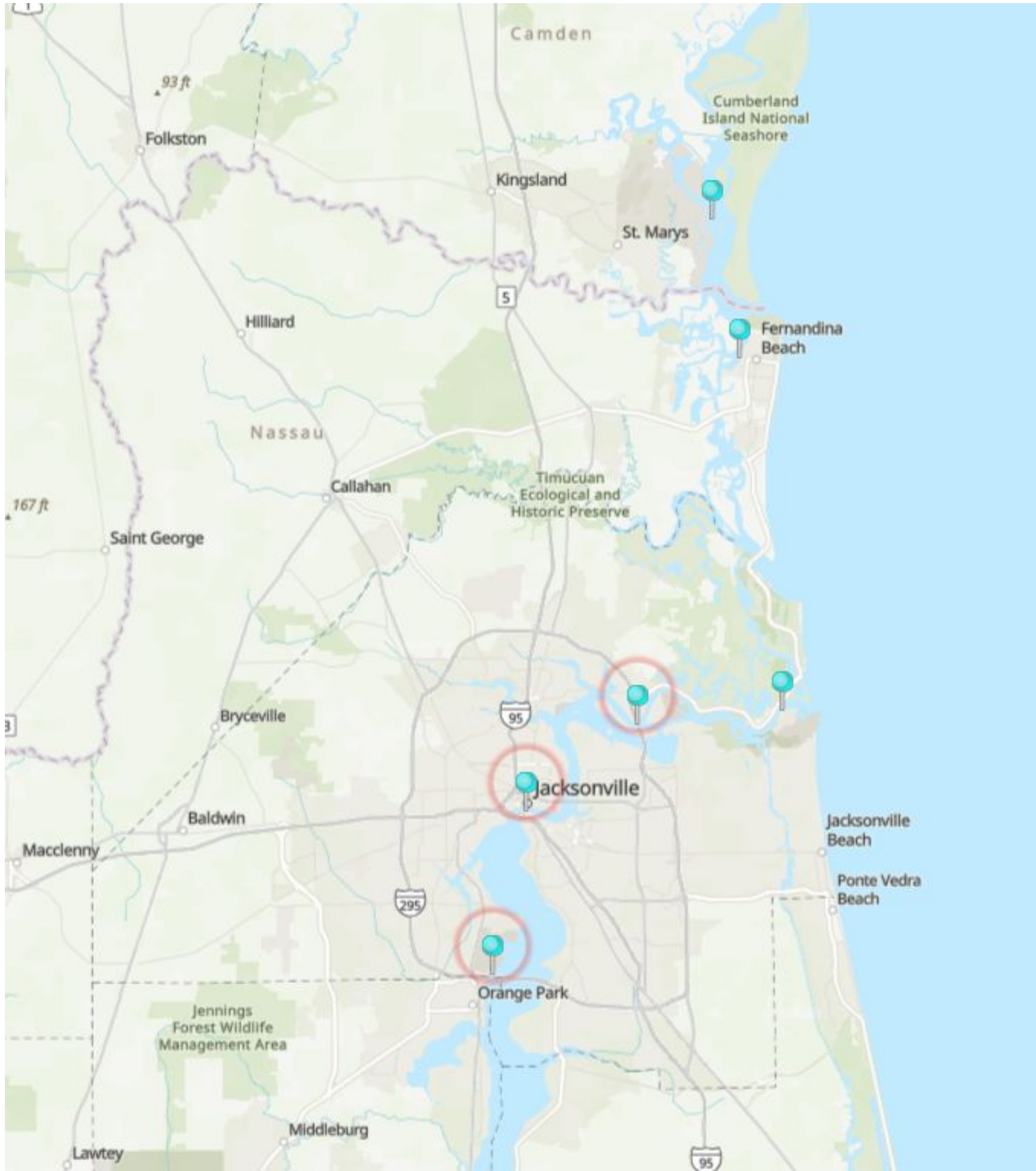
# Water Level Monitoring

TIDES



- NWS coastal / tidal water level forecasts in Mean Higher High Water (MHHW) datum
- Height above normally dry ground (above the highest daily astronomical tide)

# Coastal Inundation Dashboard

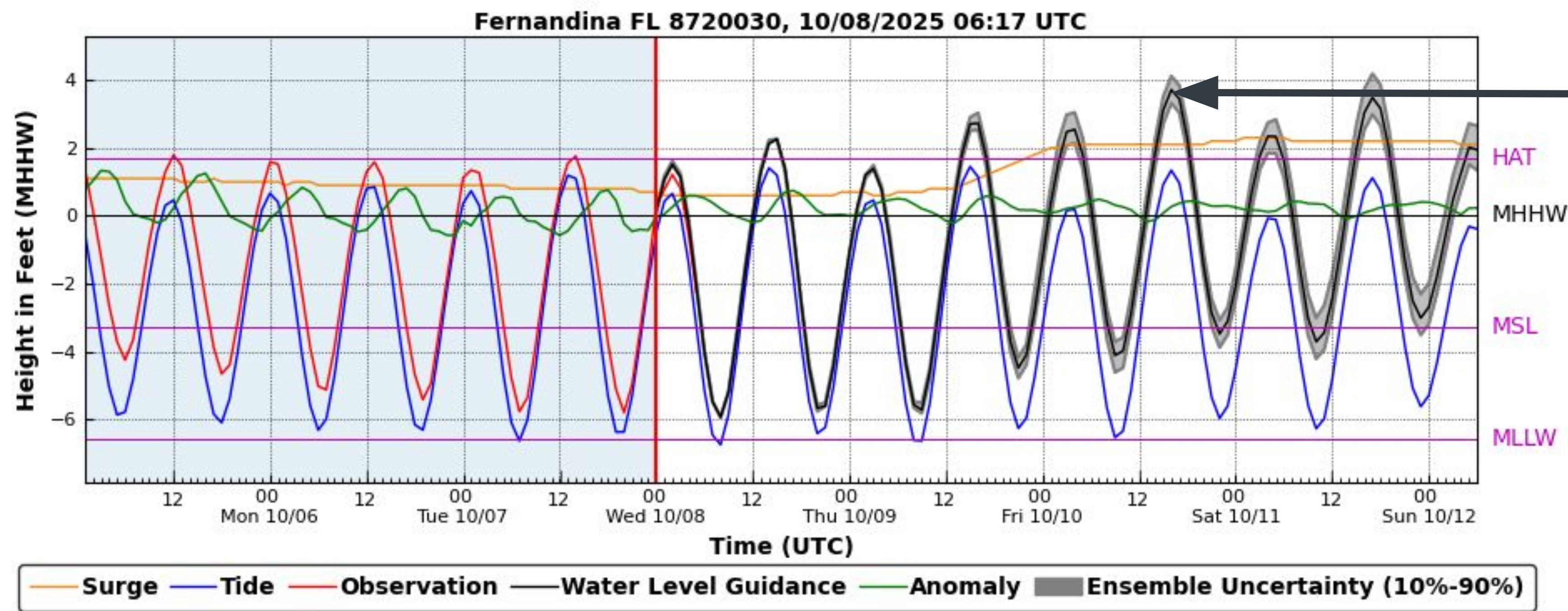


<https://tidesandcurrents.noaa.gov/inundationdb/>



NATIONAL WEATHER SERVICE

# Probabilistic Coastal/Tidal Forecasts - DEMO



“Most Likely” forecast  
(solid black line)

Probabilistic guidance  
(shaded area)  
Provides higher & lower bounds

What it means:

- ➔ Official forecast: 3.7 ft MHHW Saturday Morning (MAJOR)
- ➔ Potential for up to 4 ft with lower bound of 3 ft
- ➔ High confidence of MODERATE flood impacts at this location → potential for MAJOR

<https://tinyurl.com/4b7m27p8>



## NWS JAX Tidbit -

This guidance can run with a high bias of up to 0.5 ft MHHW

CATEGORY	STAGE
> Major Flooding	3.5 ft
> Moderate Flooding	2.5 ft
> Minor Flooding	2 ft
> Action	1.5 ft

# Coastal/Tidal Flood Products

Product	Meaning & Issuance Timing	WEA Activation
<b>Coastal Flood Advisory</b>	<ul style="list-style-type: none"><li>- Highlights Minor tidal flooding is imminent or possible &lt; 12 hrs</li><li>- If confidence is &gt; 50%, then may extend or begin within 24 hrs</li><li>- Includes nuisance tidal flooding of low-lying areas</li></ul>	NO
<b>Coastal Flood Watch</b>  For Tropical systems, Storm Surge Watch	<ul style="list-style-type: none"><li>- Highlights Moderate and Major flooding is possible</li><li>- Issued hours to days in advance of threat – confidence driven</li><li>- Includes tidal inundation that could threaten life &amp; property</li></ul>	NO
<b>Coastal Flood Warning</b>  For Tropical Systems, Storm Surge Warning	<ul style="list-style-type: none"><li>- Tidal inundation poses an immediate risk to life &amp; property</li><li>- Seek higher ground &amp; protective property immediately</li></ul>	<b>YES for Storm Surge Warning</b>  No for Coastal Flood Warning





# Messaging Coastal / Tidal Flooding

## Coastal Flooding


Continues this Week

Latest info at [weather.gov/jax](https://weather.gov/jax)



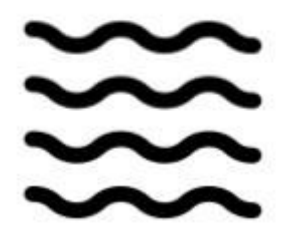


→ Flooding around times of high tide continues this week

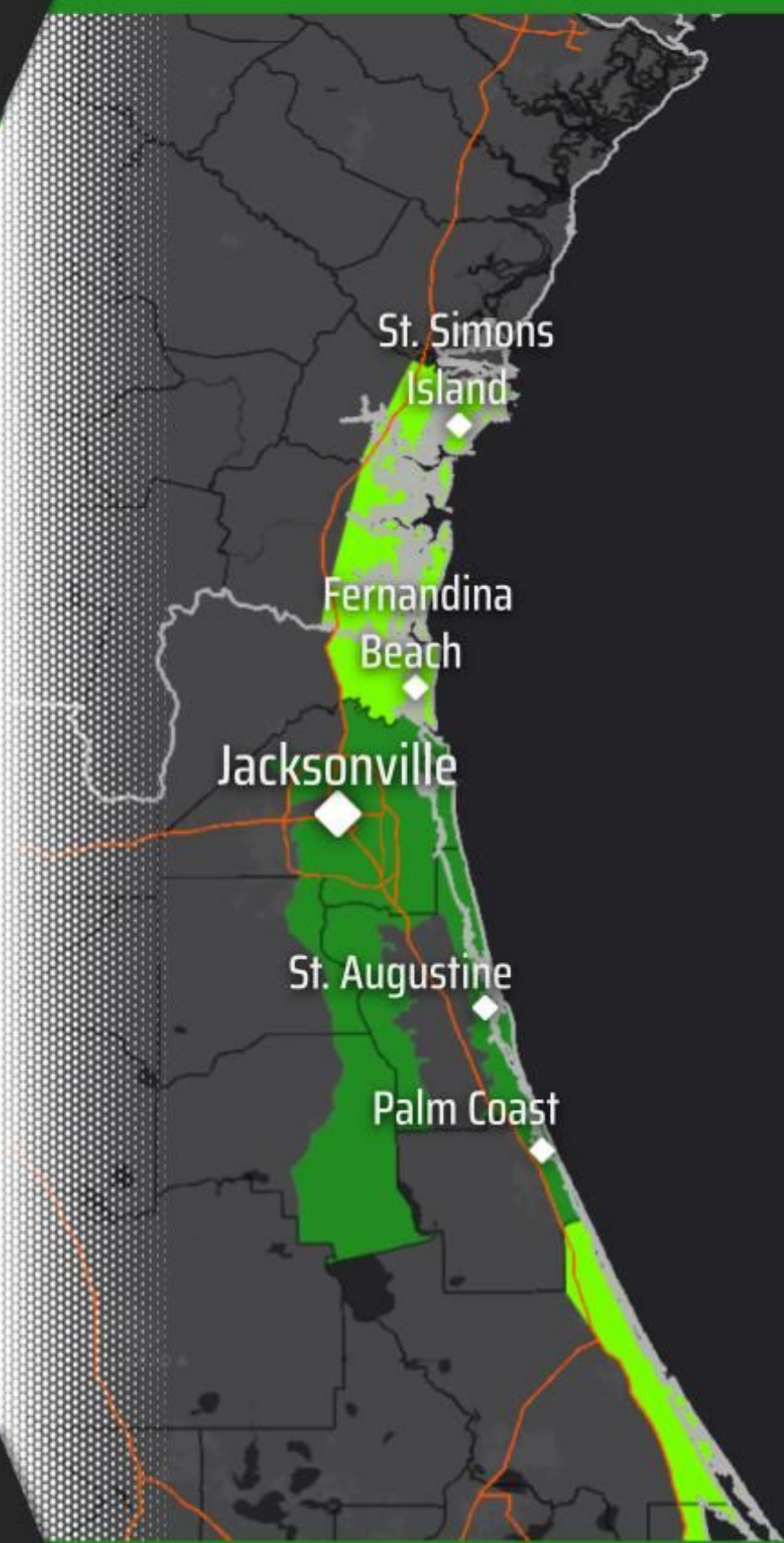



→ Coastal Flood Warning: Northeast FL Coast, Intracoastal Waterway & St. Johns River Basin


→ Coastal Flood Advisory: Southeast GA Coast & Coastal Nassau County



- Tidal inundation of 2 - 2.5 feet Above Normally Dry Ground
- Flooding of Roads & Vulnerable Structures
- Major Beach Erosion





NATIONAL WEATHER SERVICE  
Jacksonville  Florida

Coastal Flood Warning

Coastal Flood Advisory

Issued: Sun, Oct 5, 2025 5:22 AM



# Working Together to Save Lives

## NWS JAX HYDRO CONTACTS

Kelly.Godsey@noaa.gov

Jason.Hess@noaa.gov

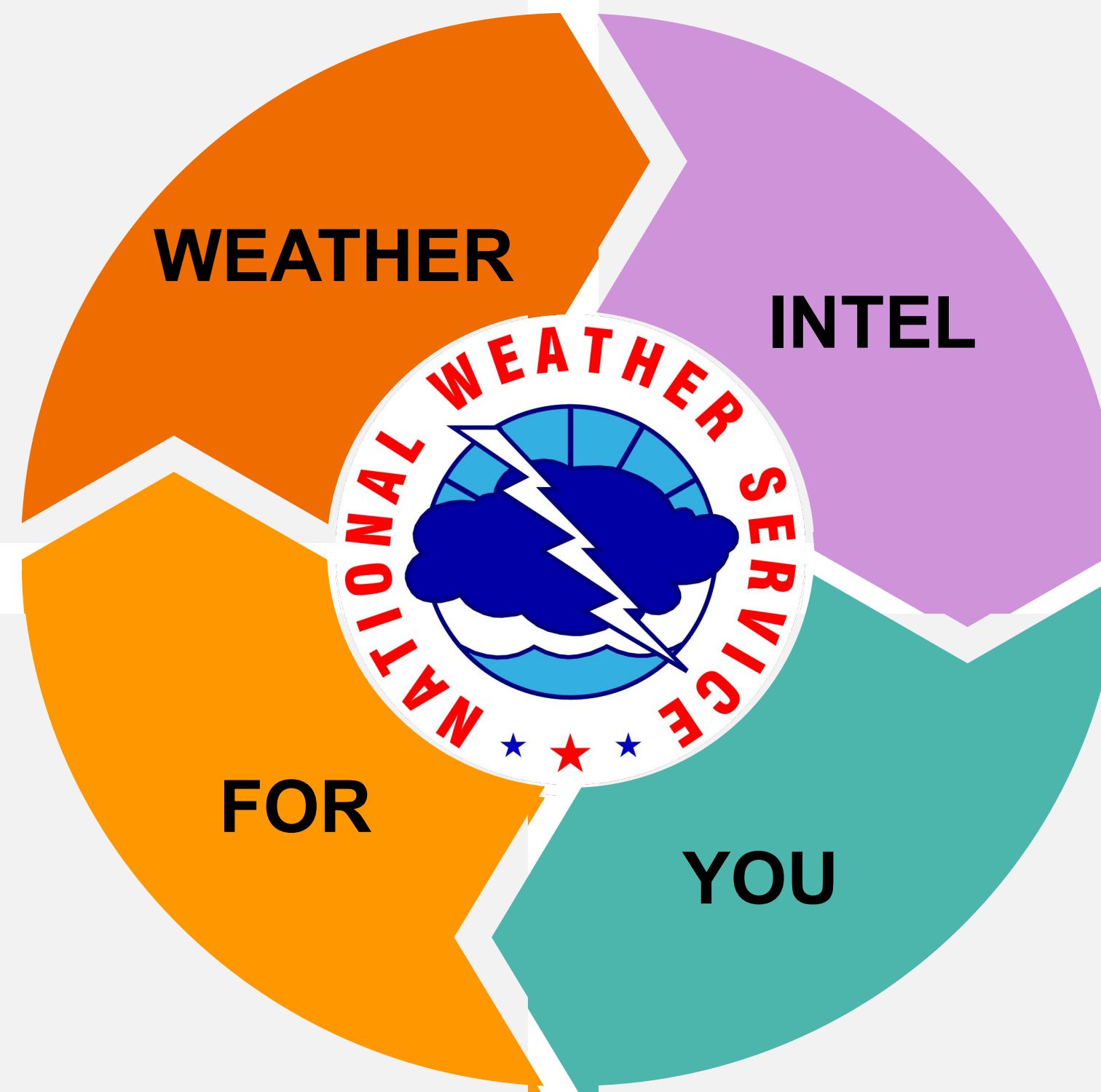
## JACKSONVILLE NATIONAL WEATHER SERVICE

[US National Weather Service Jacksonville](#)

[@NWSJacksonville](#)

[www.weather.gov/jax](http://www.weather.gov/jax)

## WATER LEVEL MONITORING



**NWSChat 2.0  
EM ONLY**