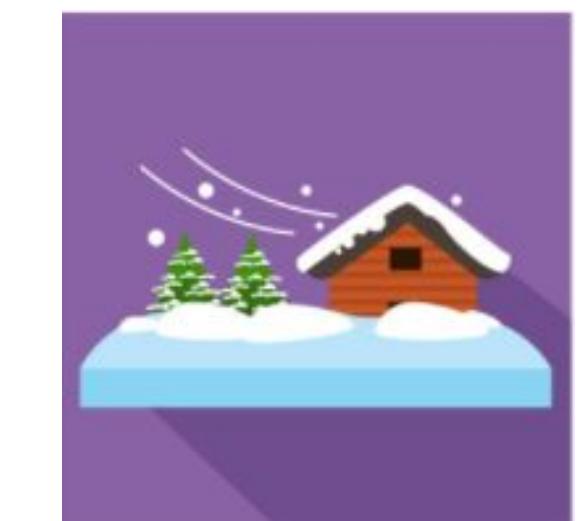
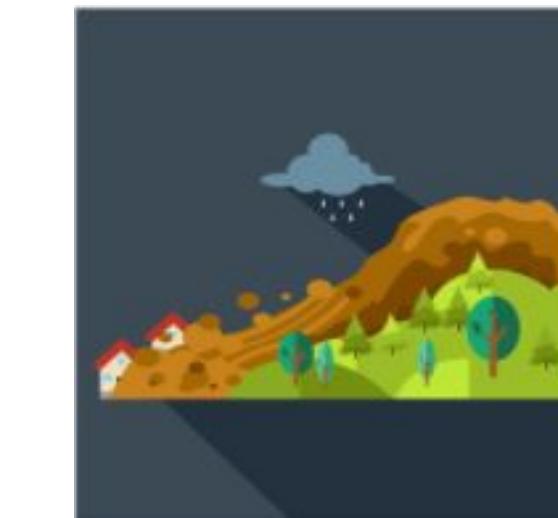


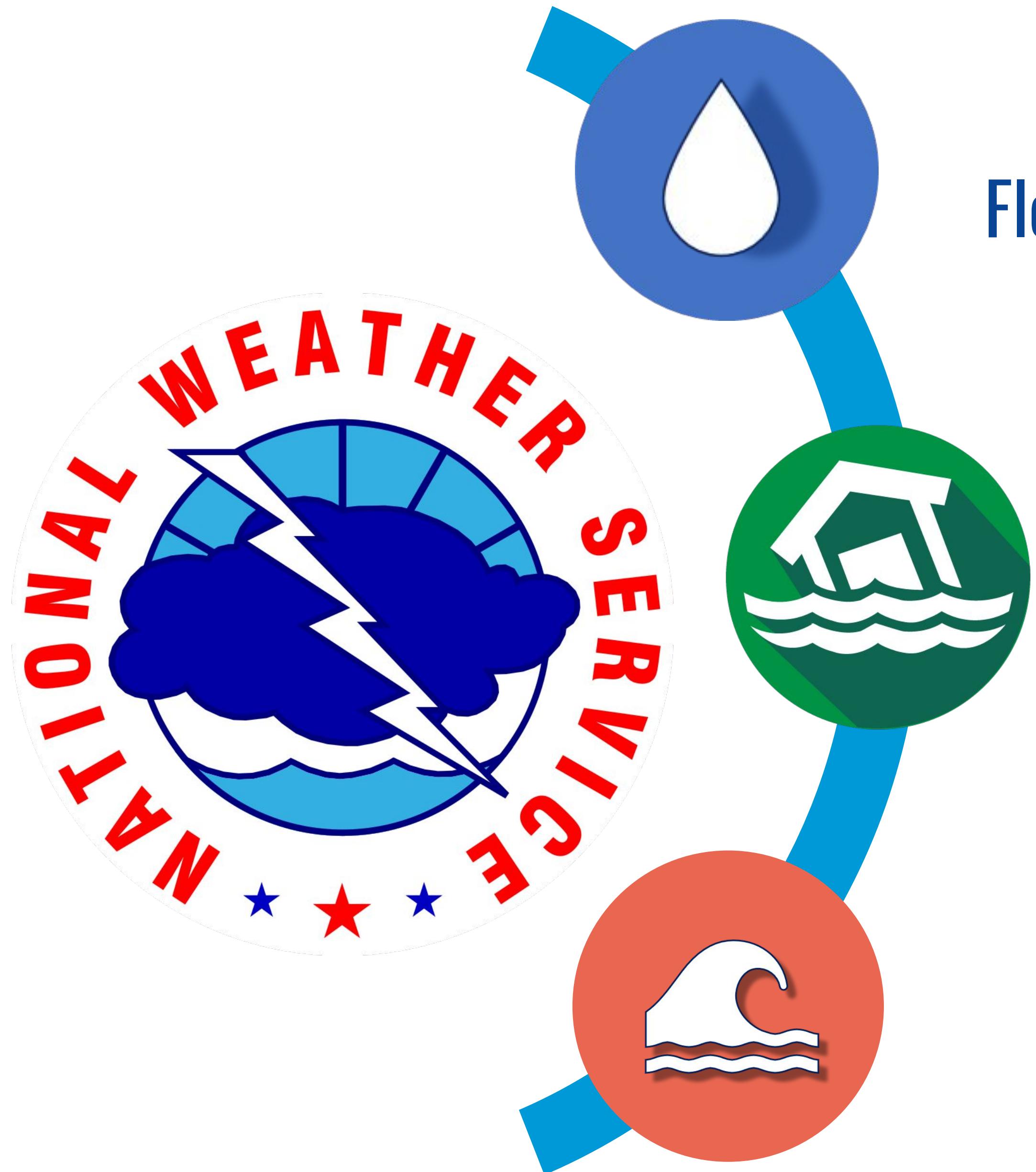


NWS JAX Lunch-and-Learn Series

October 2025

Angie Enyedi
angela.enyedi@noaa.gov

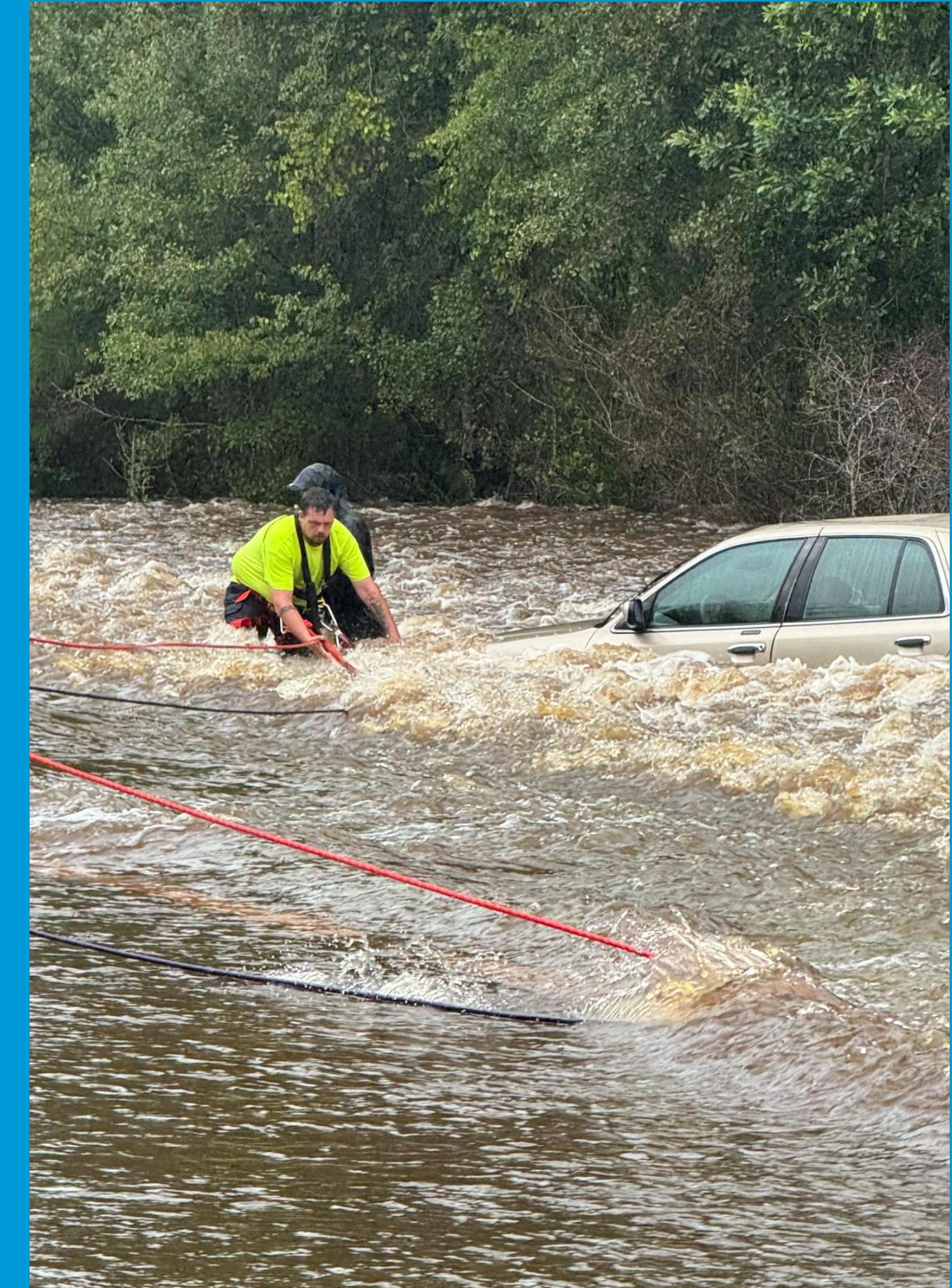




Flooding Rainfall

River Flooding

Coastal/Tidal
Flooding



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



NATIONAL WEATHER SERVICE

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?

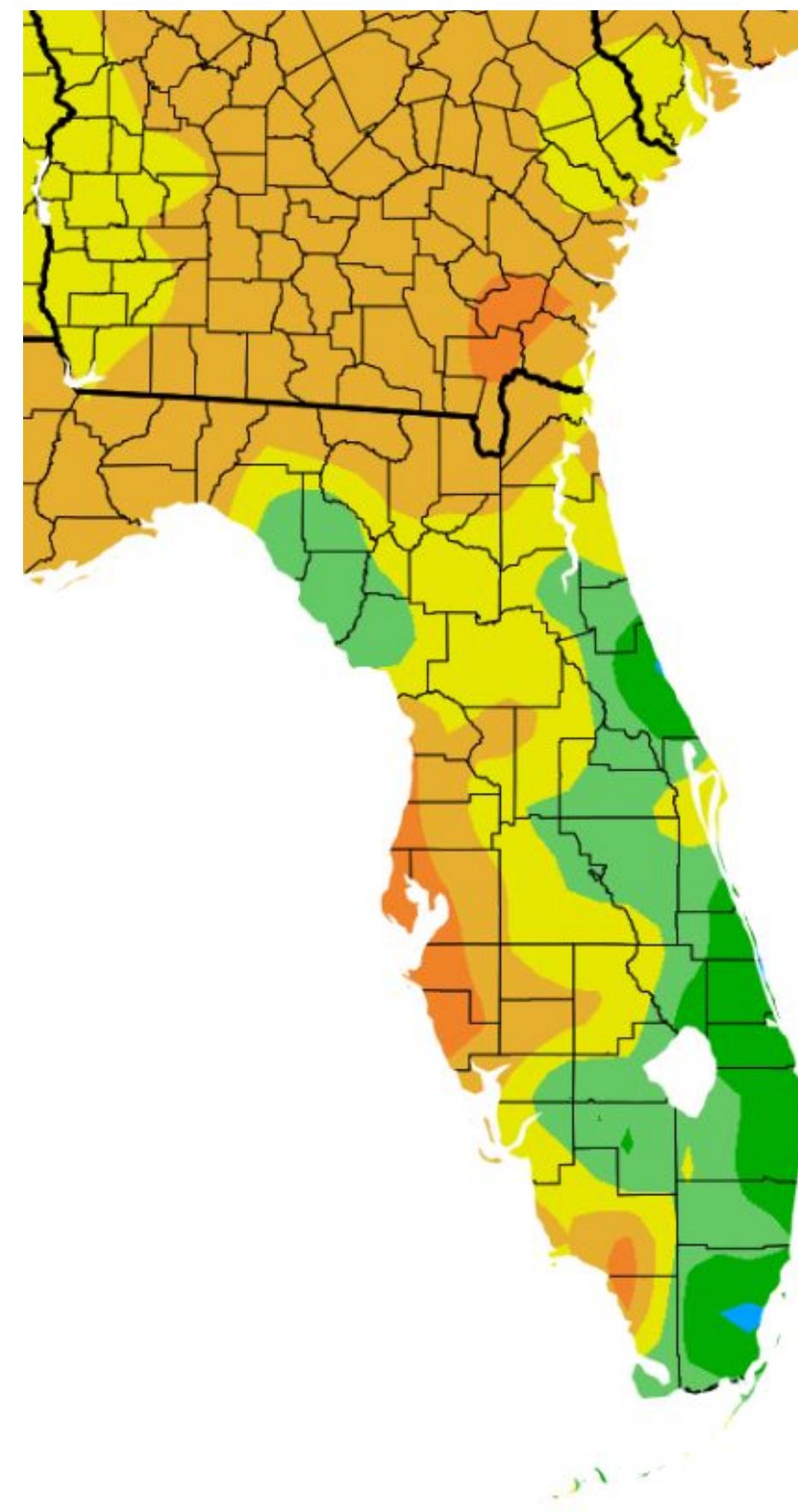


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Recent Rainfall

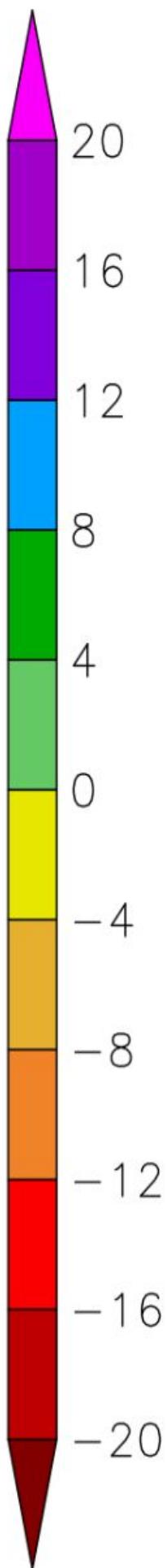
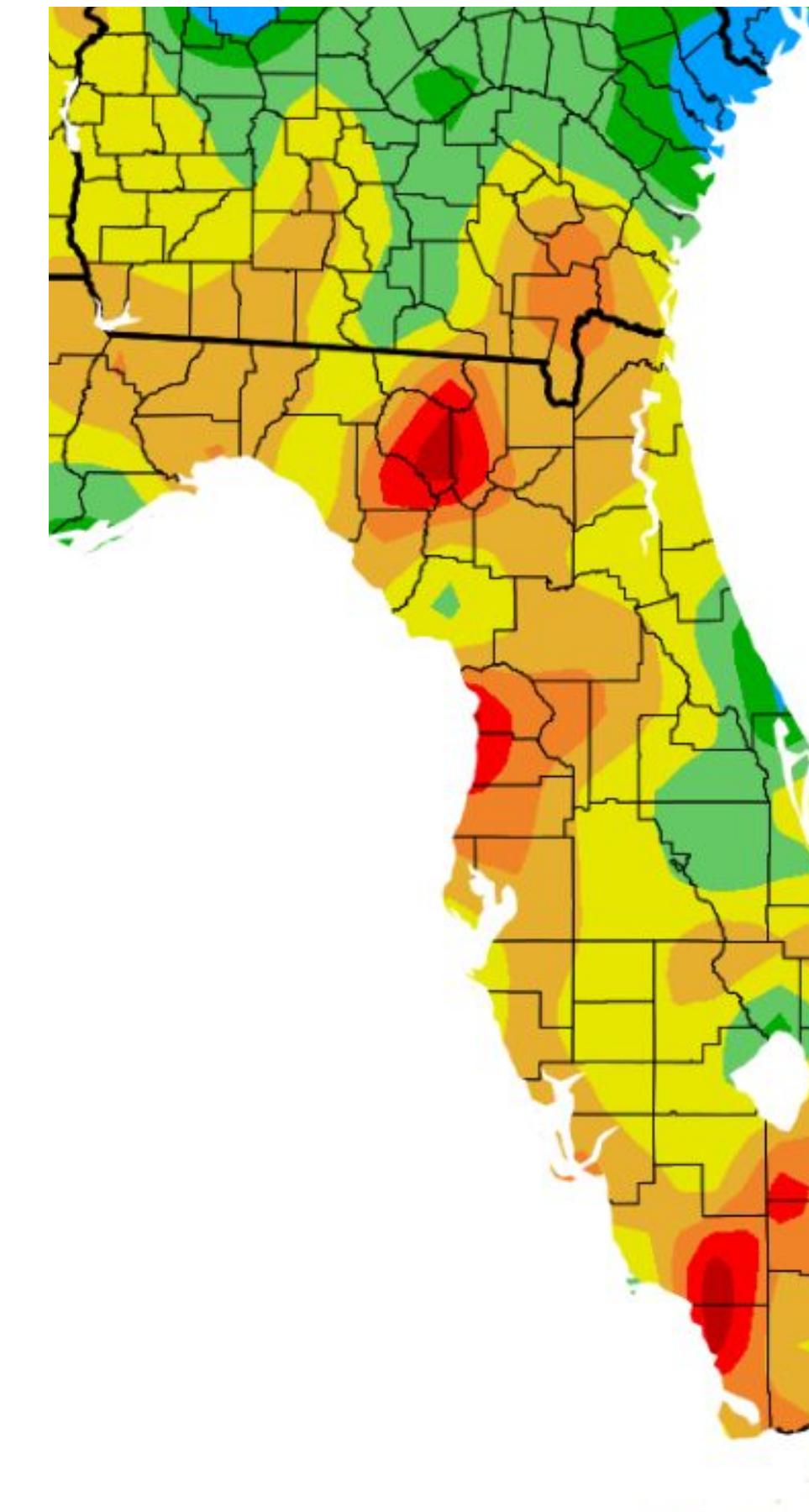
Past 30 days of Rainfall
as of 10/6/25 (inches)



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



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



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Tropical & Coastal Flooding Risk Assessment

Threat Regardless of Tropical Category

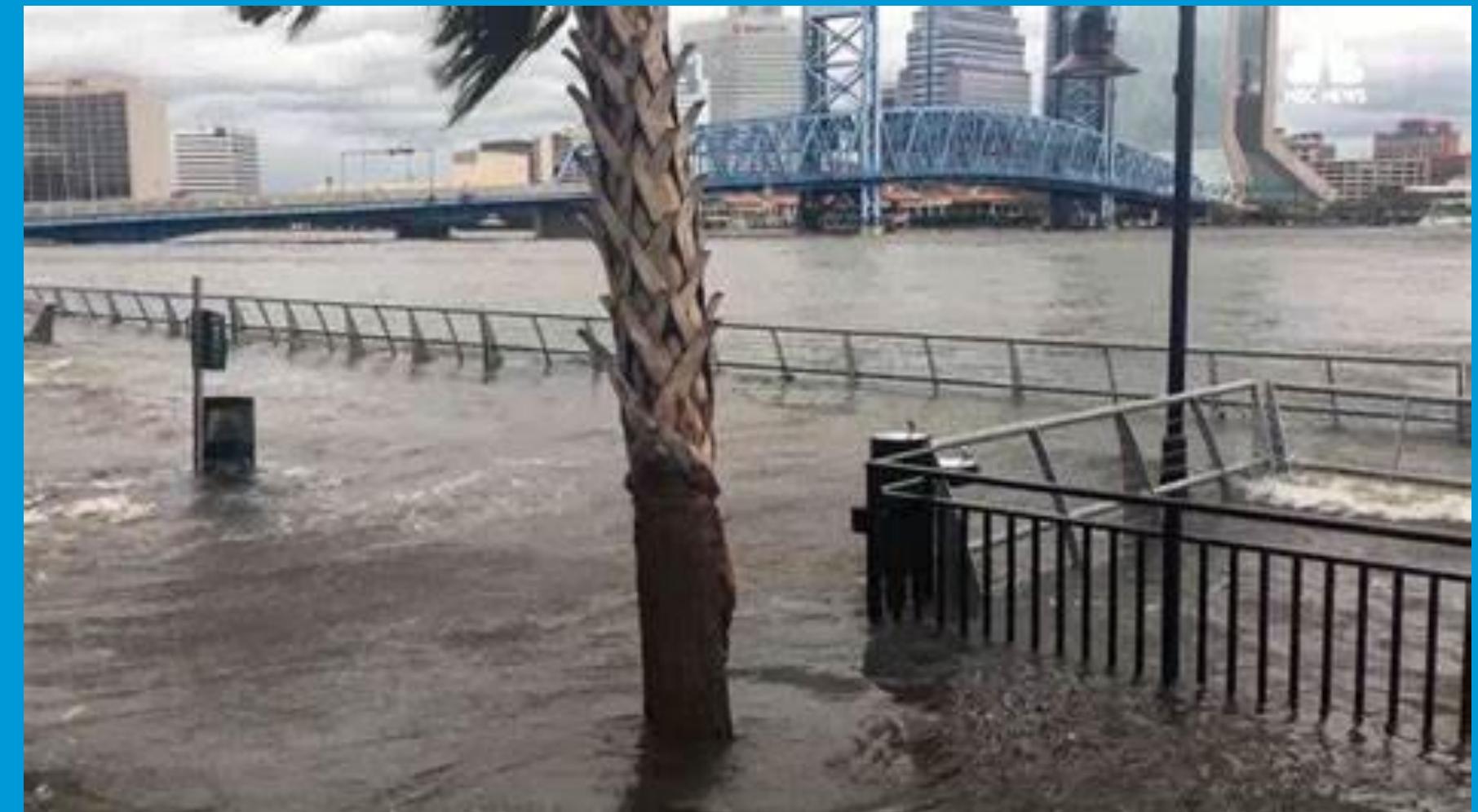
Slower storm, higher flood threat

Trapped Tides & High Tides

Drainage Inhibited

Interaction with Fronts

More lift = more rain



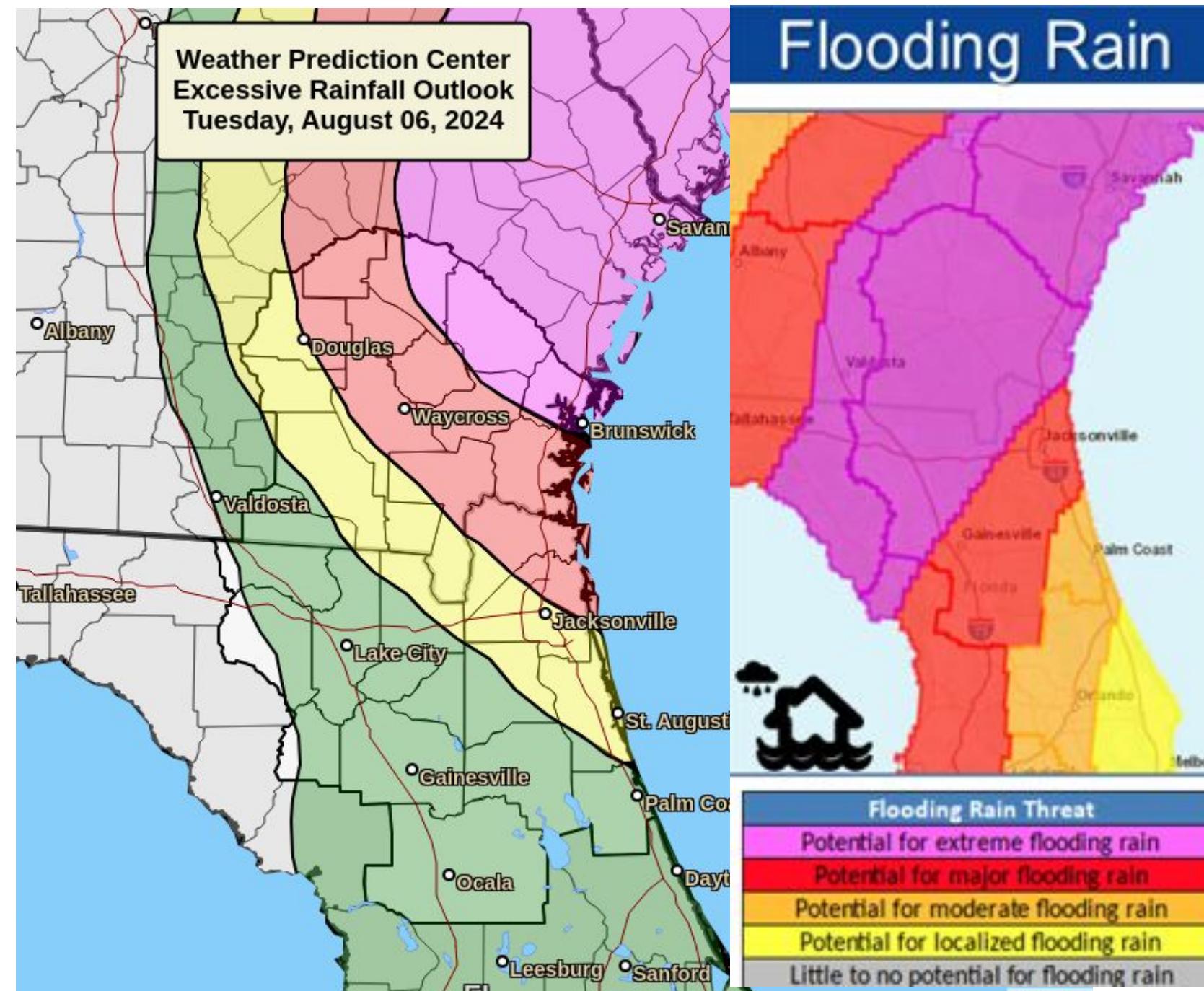
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Communicating Flooding Rainfall Risk

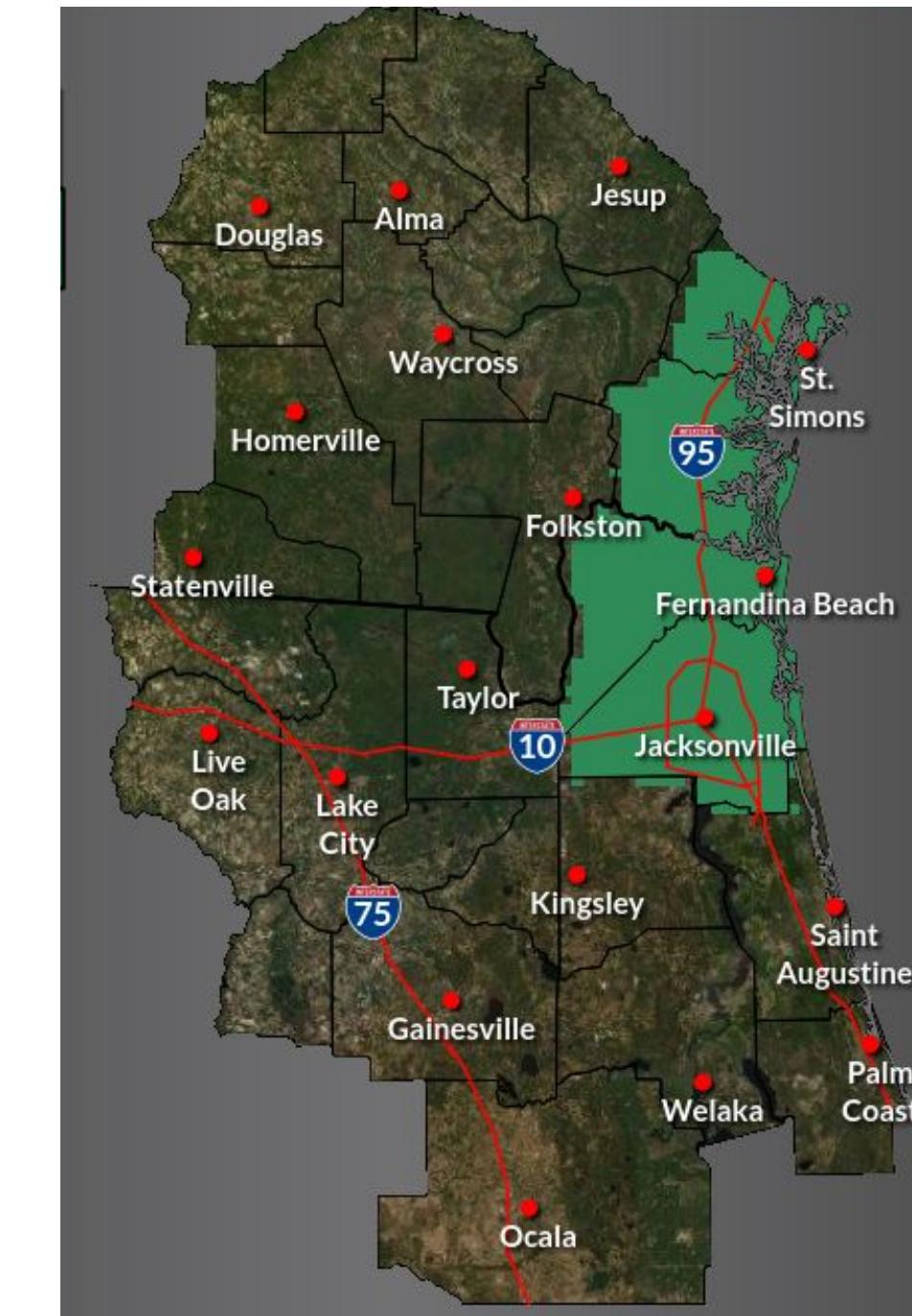
Days in Advance

Excessive Rainfall Outlooks



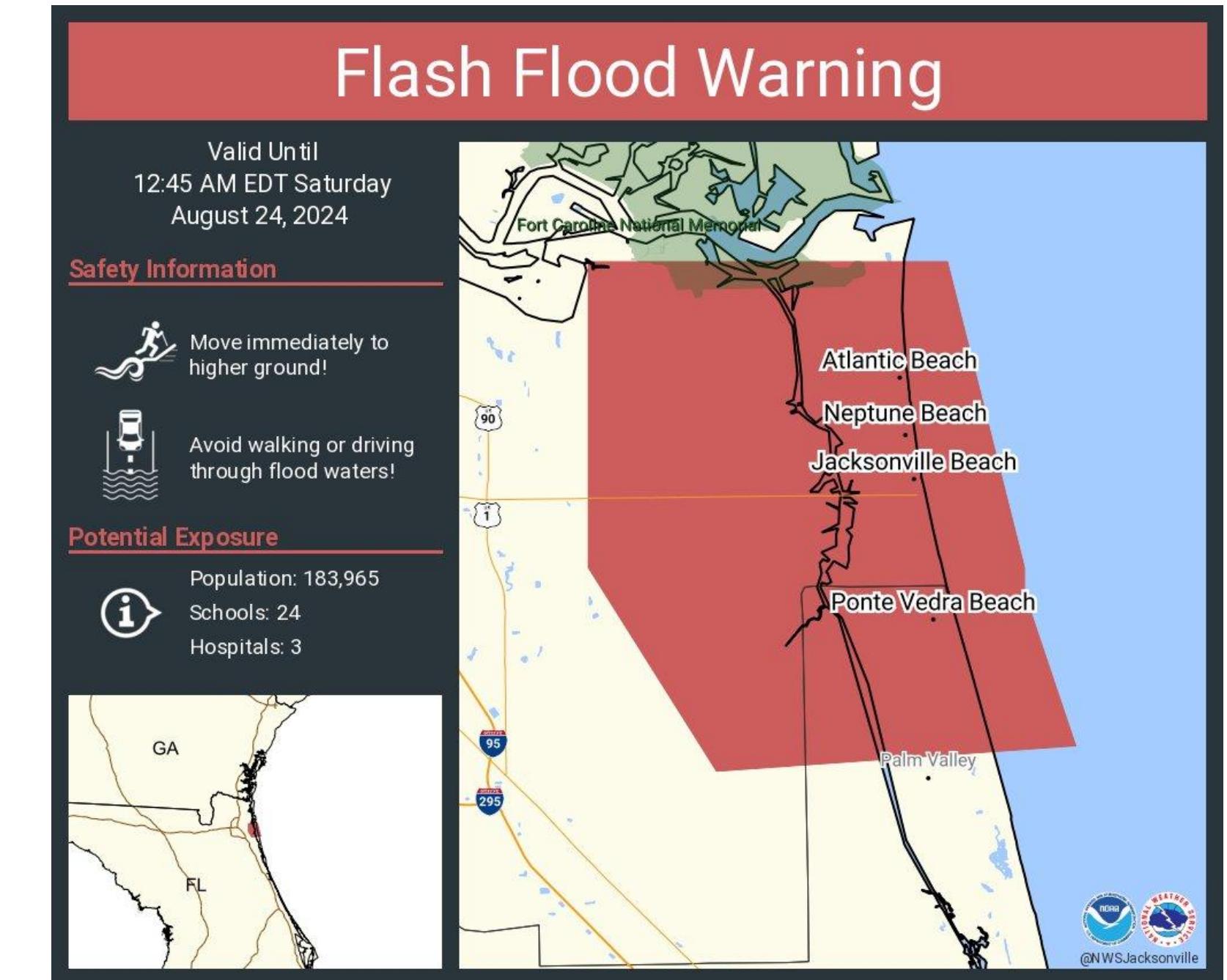
Within 48 hrs

Flood Watches



Imminent Flooding

Flash Flood Warnings

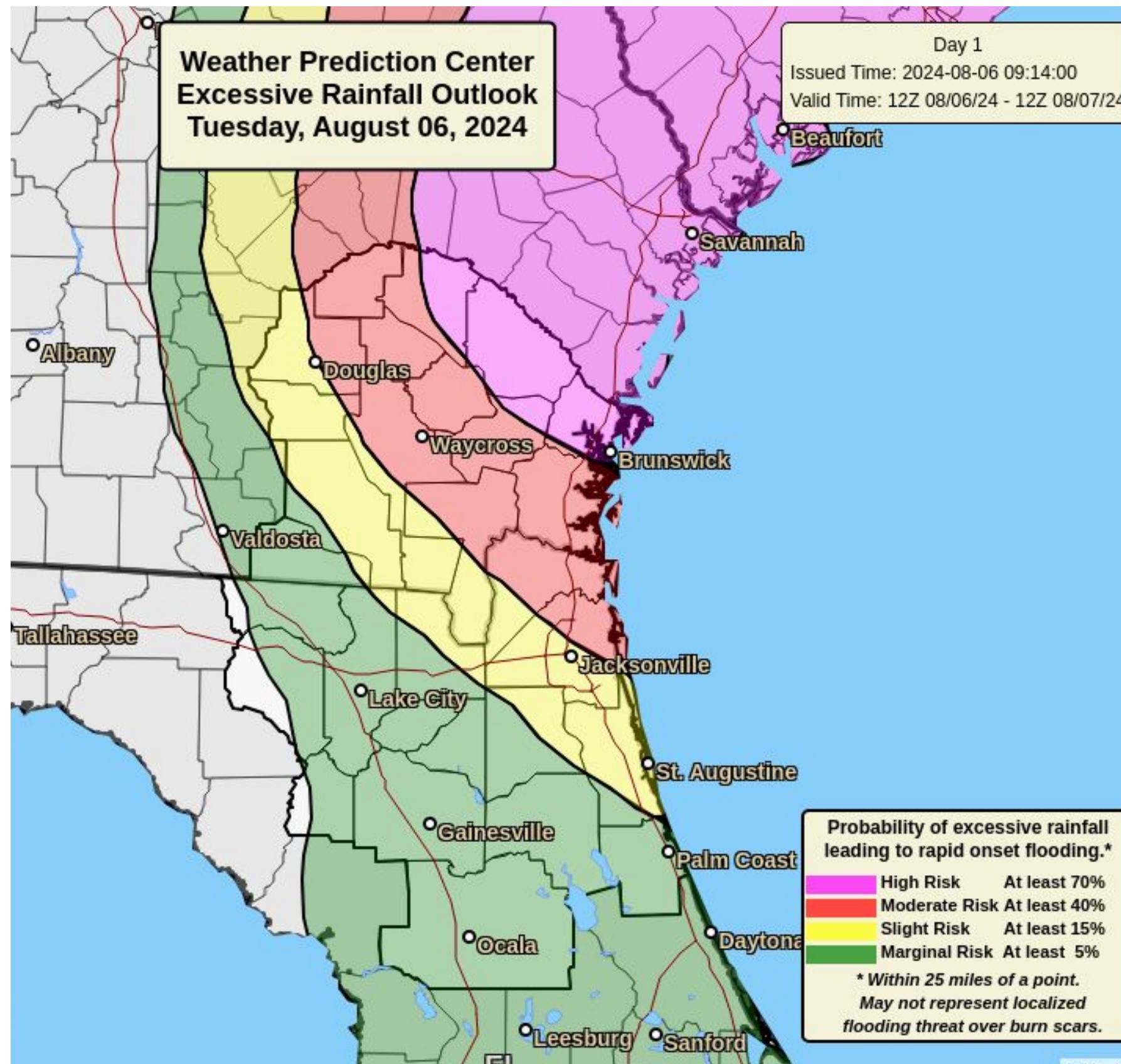


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Excessive Rainfall Outlooks

<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 Localized and primarily affecting places that can experience rapid runoff with heavy rainfall.	Scattered flash floods possible Mainly localized. Most vulnerable are urban areas, roads, small streams and washes. Isolated significant flash floods possible.	Numerous flash floods likely Numerous flash flooding events with significant events possible. Many streams may flood, potentially affecting larger rivers.	Widespread flash floods expected Severe, widespread flash flooding. Areas that don't normally experience flash flooding, could. Lives and property in greater danger.	
@NWSWPC					
Flash flooding near me?	Flash Flooding NO Flash Flooding				
 WEATHER PREDICTION CENTER					
					



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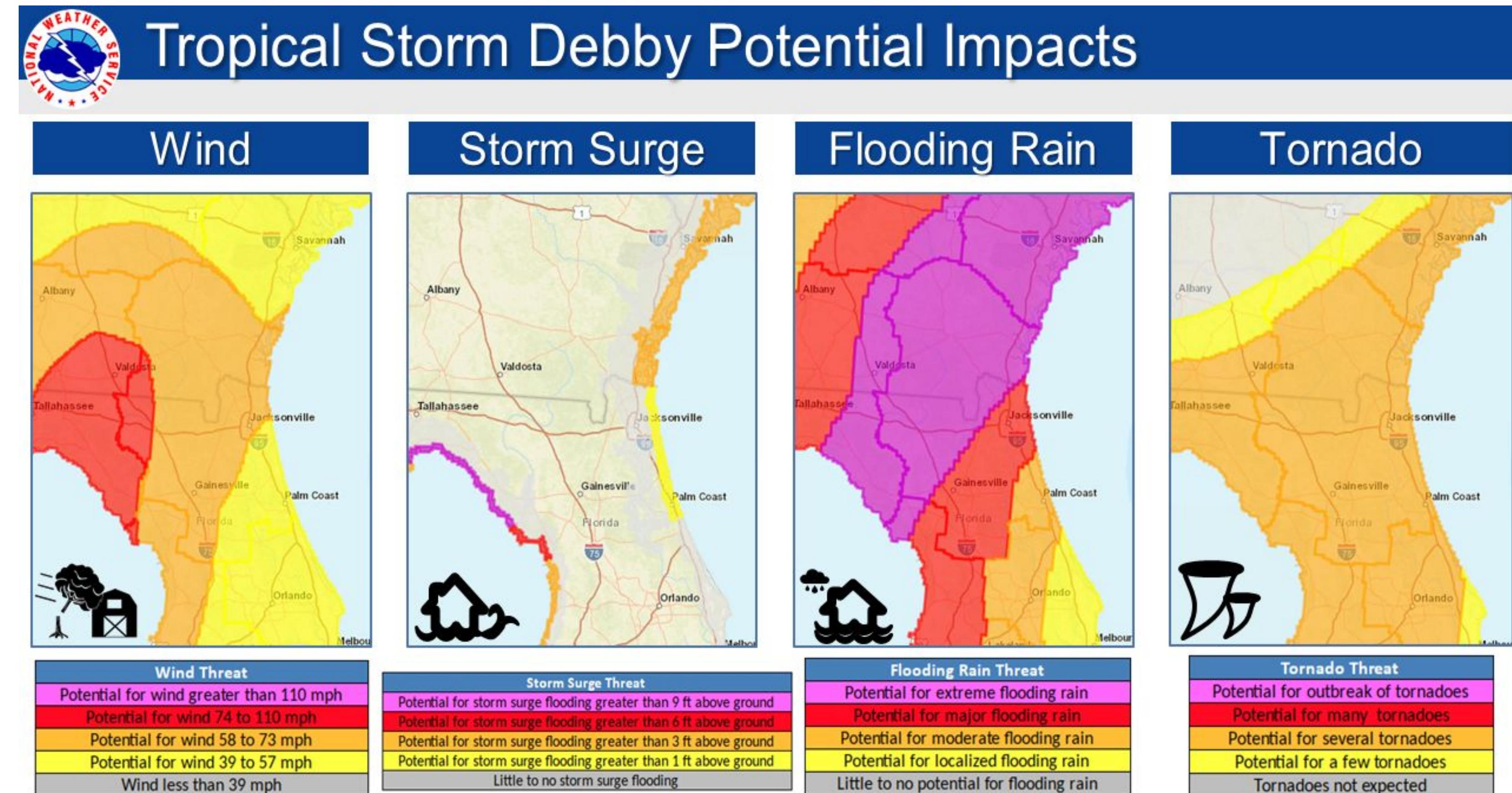
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Tropical Event Flooding Rainfall Risk

<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

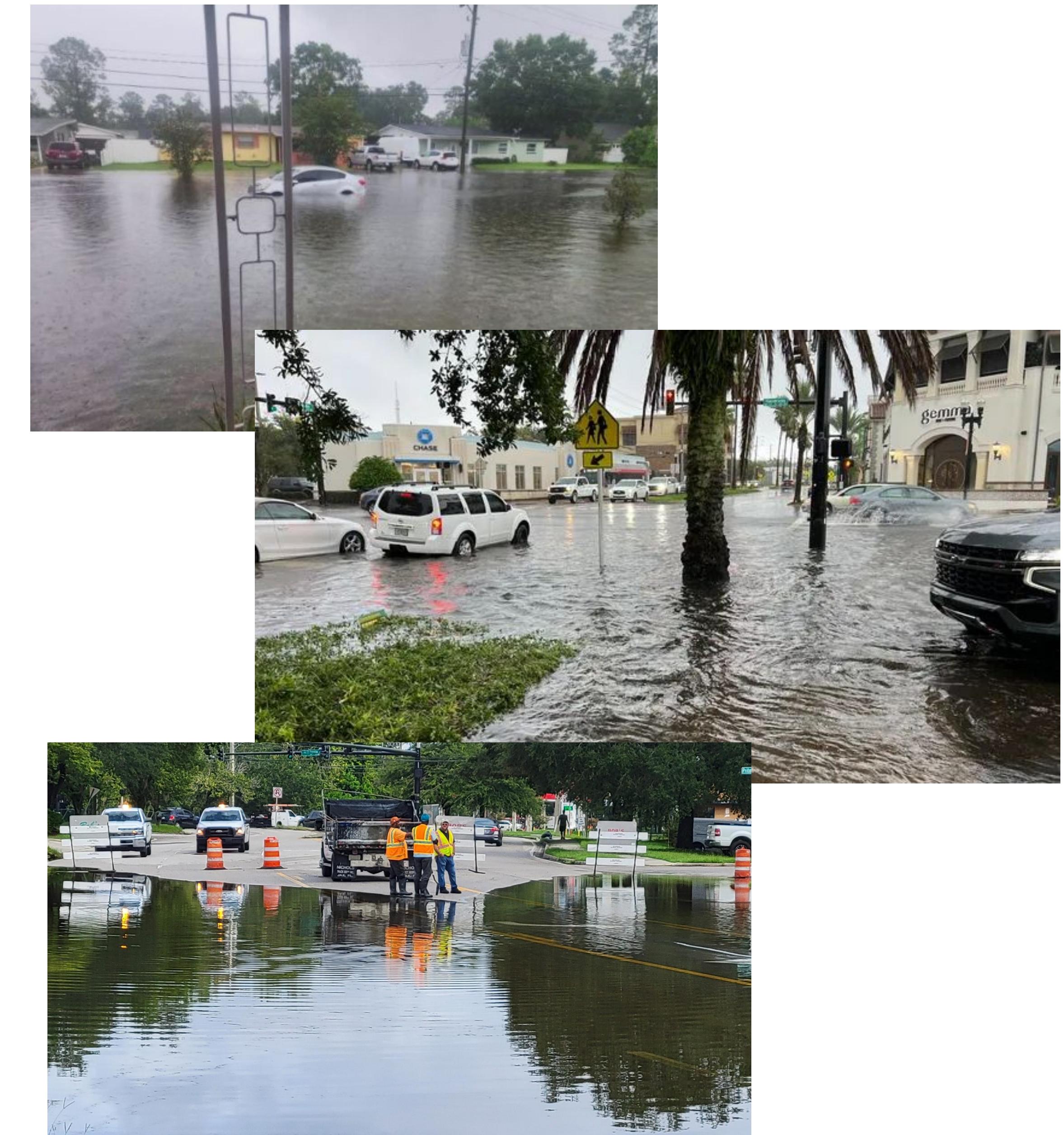
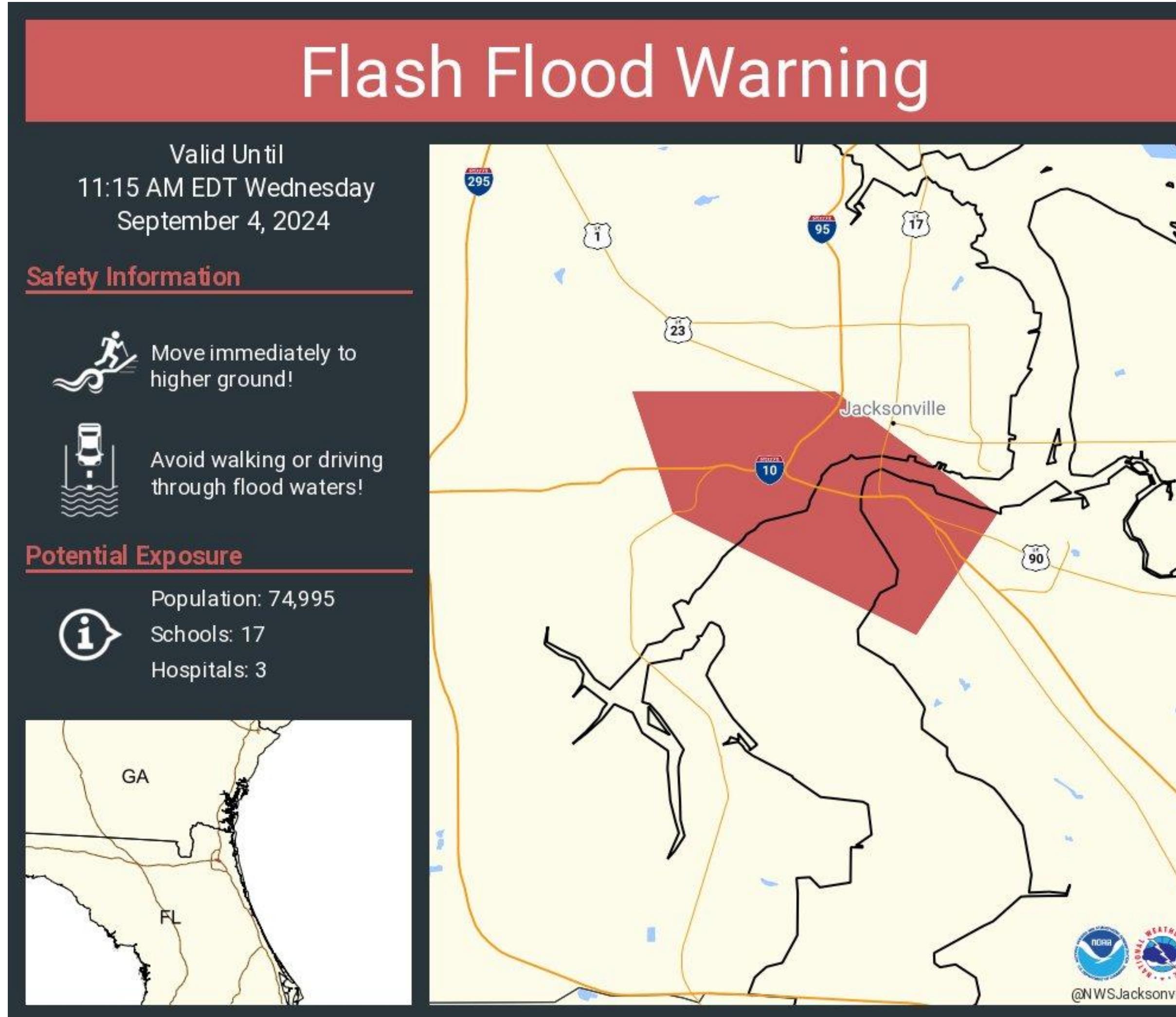


Flash Flood Products

Product	Meaning & Issuance Timing	WEA Activation
Flash Flood Watch	<ul style="list-style-type: none">Elevated confidence of Flash Flood Guidance being exceededIssued hours to days in advance of threat – confidence driven	NO
Flash Flood Warning	<ul style="list-style-type: none">Fast accumulation of water that threatens life & propertyFlooding imminent □ seek shelter immediately from flood waterWarning forecaster assigns 'ranking' which defines severity of flash flooding:  <p>BASE</p> <p>CONSIDERABLE 1-2 Rescues</p> <p>CATASTROPHIC Swift water rescues</p>	YES FOR Considerable & Catastrophic Tags



Flash Flood Products



NATIONAL WEATHER SERVICE

Flood Products

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



Rainfall Forecasts - Expected vs Potential



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



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Overview High Temp Low Temp Prob ≥90°F Prob ≥100°F Prob ≤32°F Prob <28°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.

Day 1



Day 2



Day 3



Day 4



Day 5



Day 6



Day 7



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.

Day 1



Day 2



Day 3



Day 4



Day 5



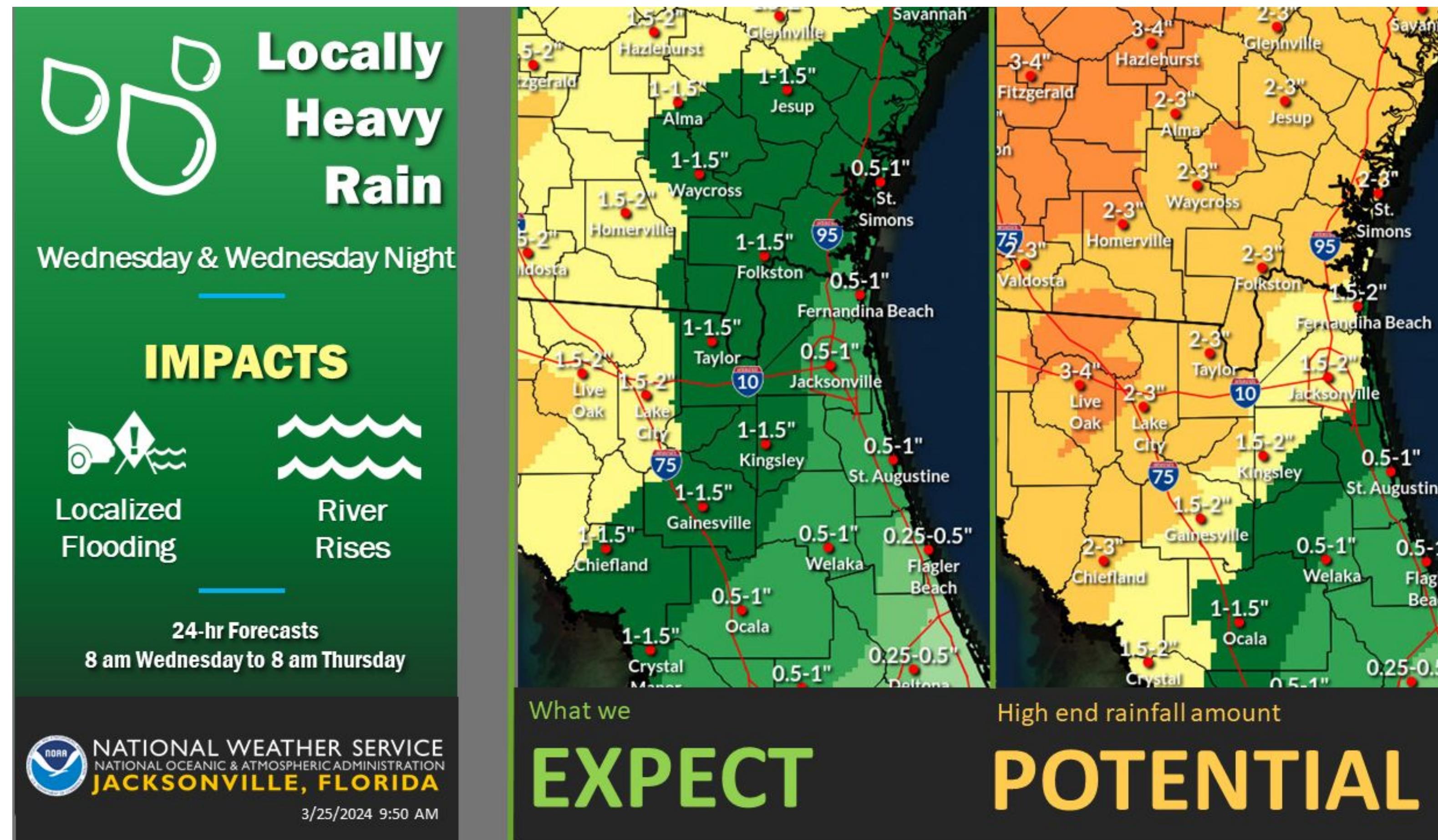
Day 6



Day 7



Rainfall Amount Outlooks - Expected vs Potential



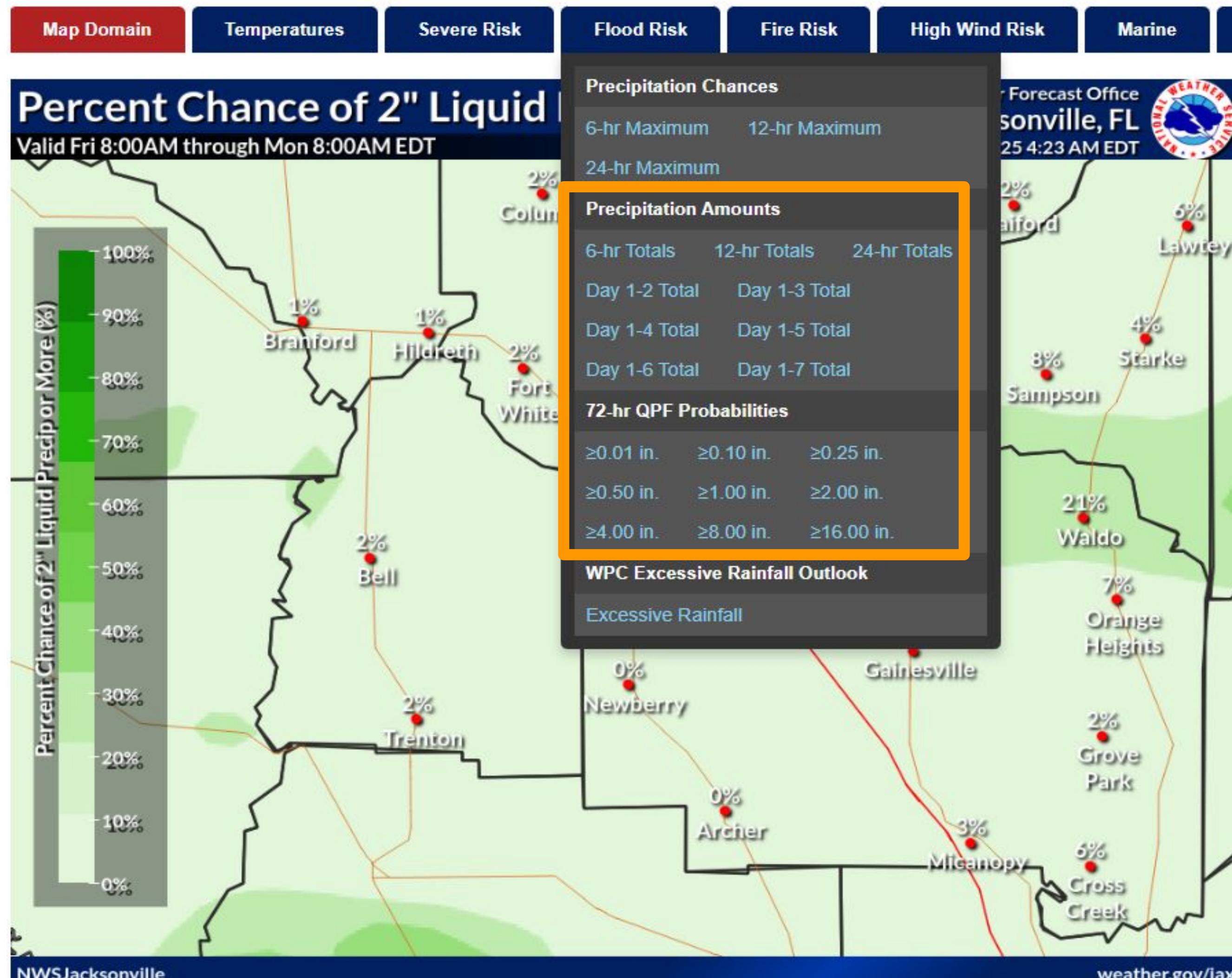
- **EXPECTED:** The 40-60% range of what we anticipate for rainfall
- **POTENTIAL:** The 10% chance of exceedance of rainfall (only 1 model of NBM)



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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>



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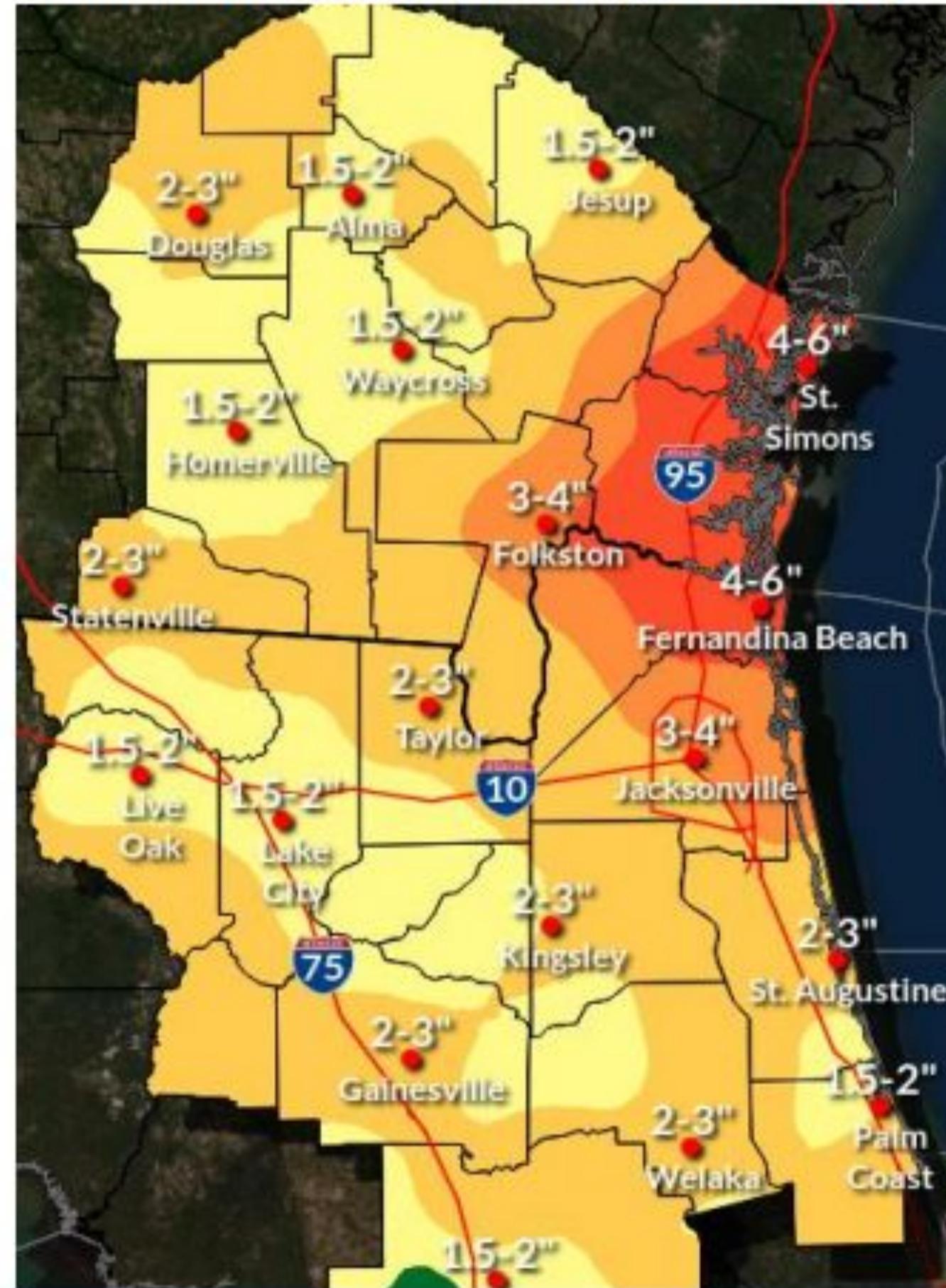
Flooding Rain Potential Through The Weekend



**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
• Local Hydrology Program Leader:	Jason Hess	jason.hess@noaa.gov

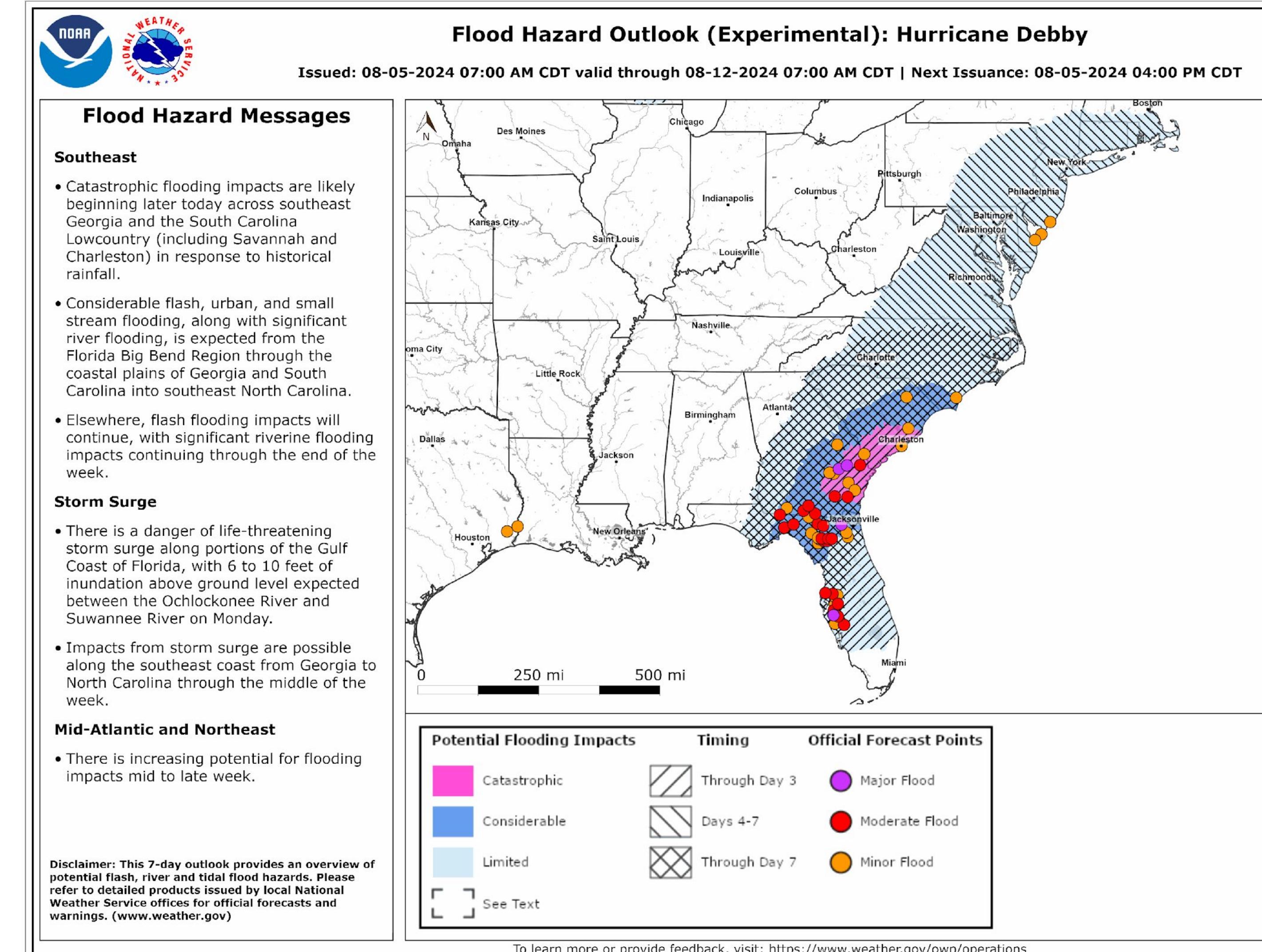


NATIONAL WEATHER SERVICE

National Water Center - Flood Hazard Outlook



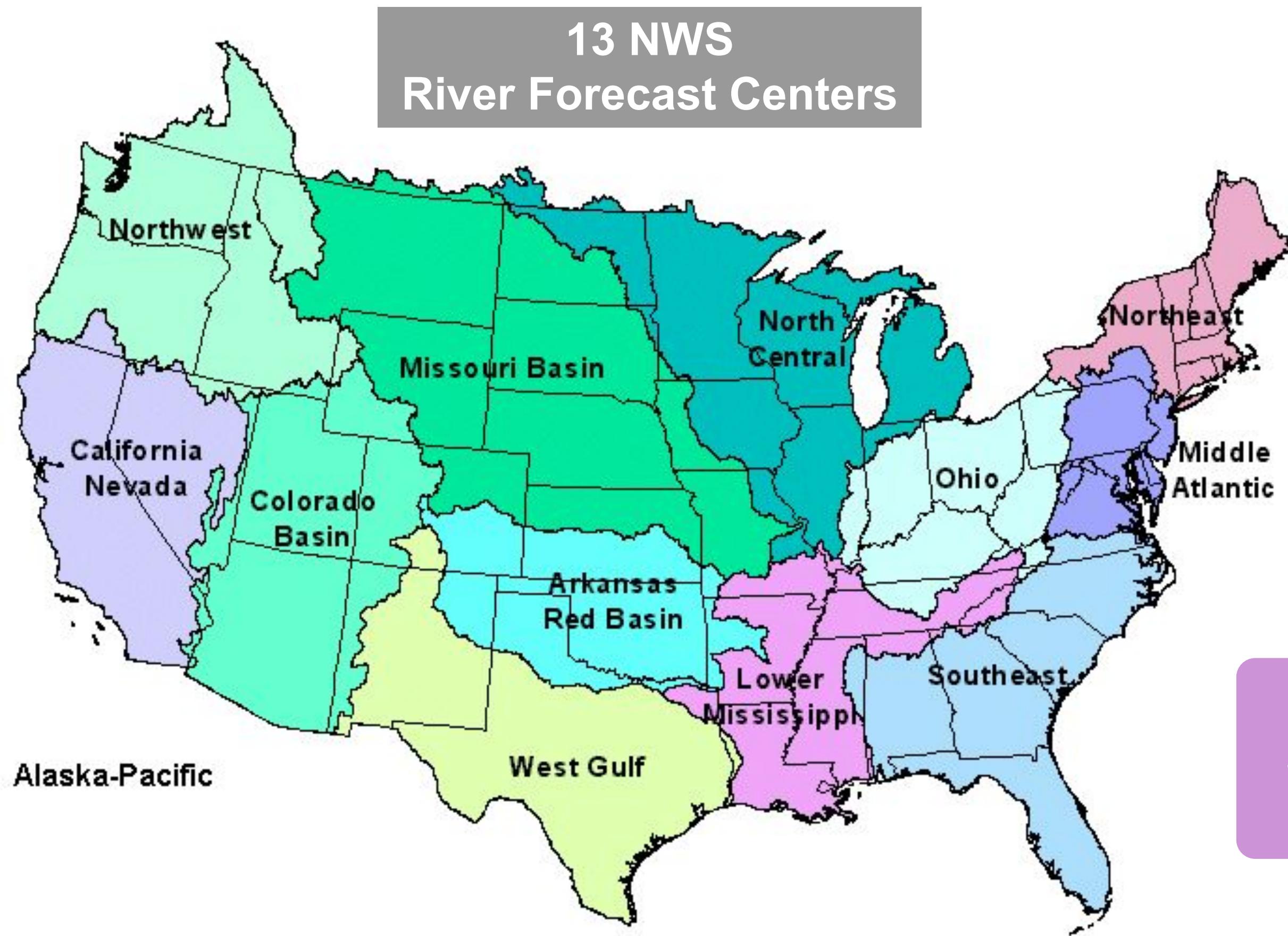
<https://water.noaa.gov/operations/fho>



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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



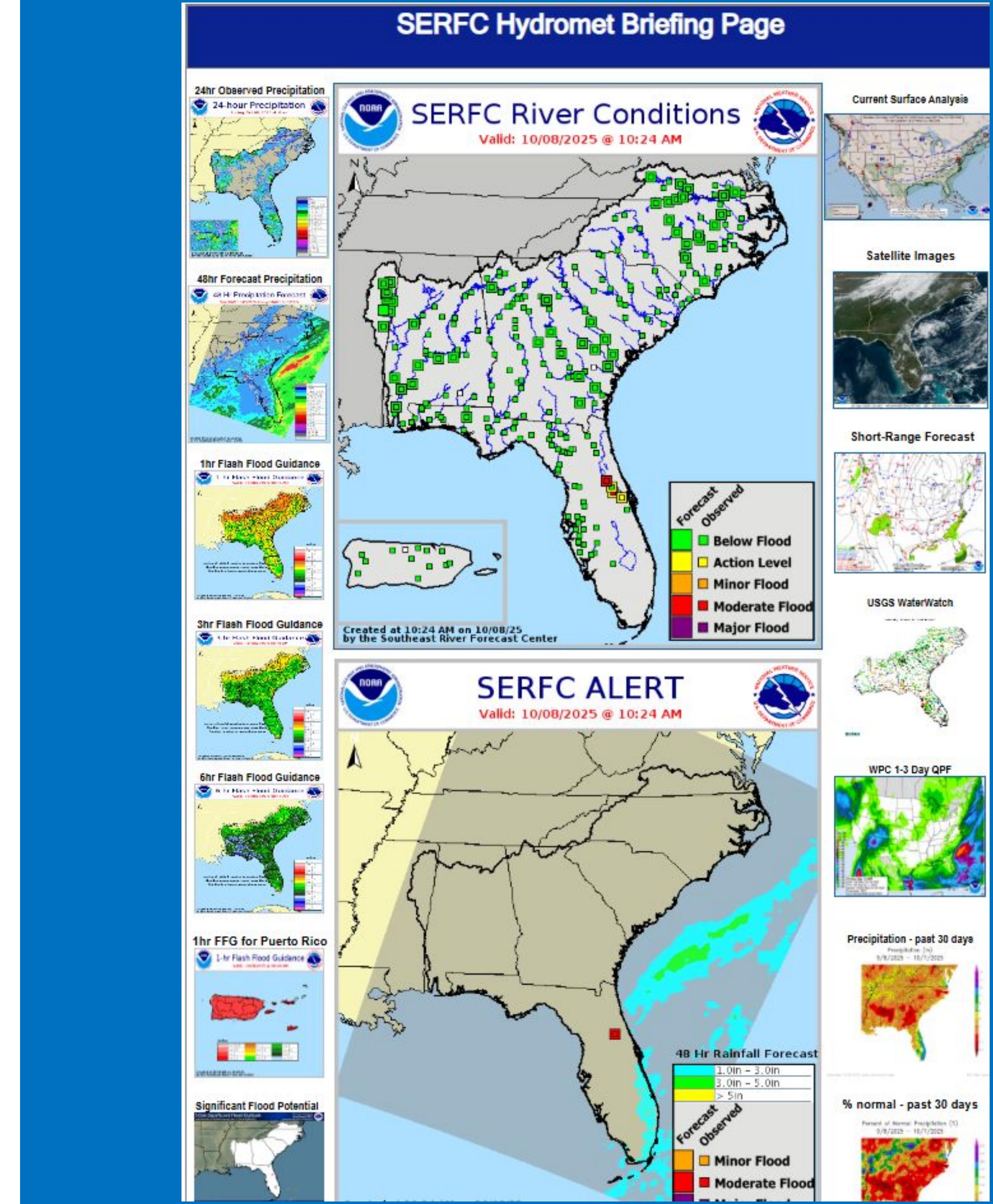
<https://www.weather.gov/serfc/>

River Forecast Center Quick Briefing

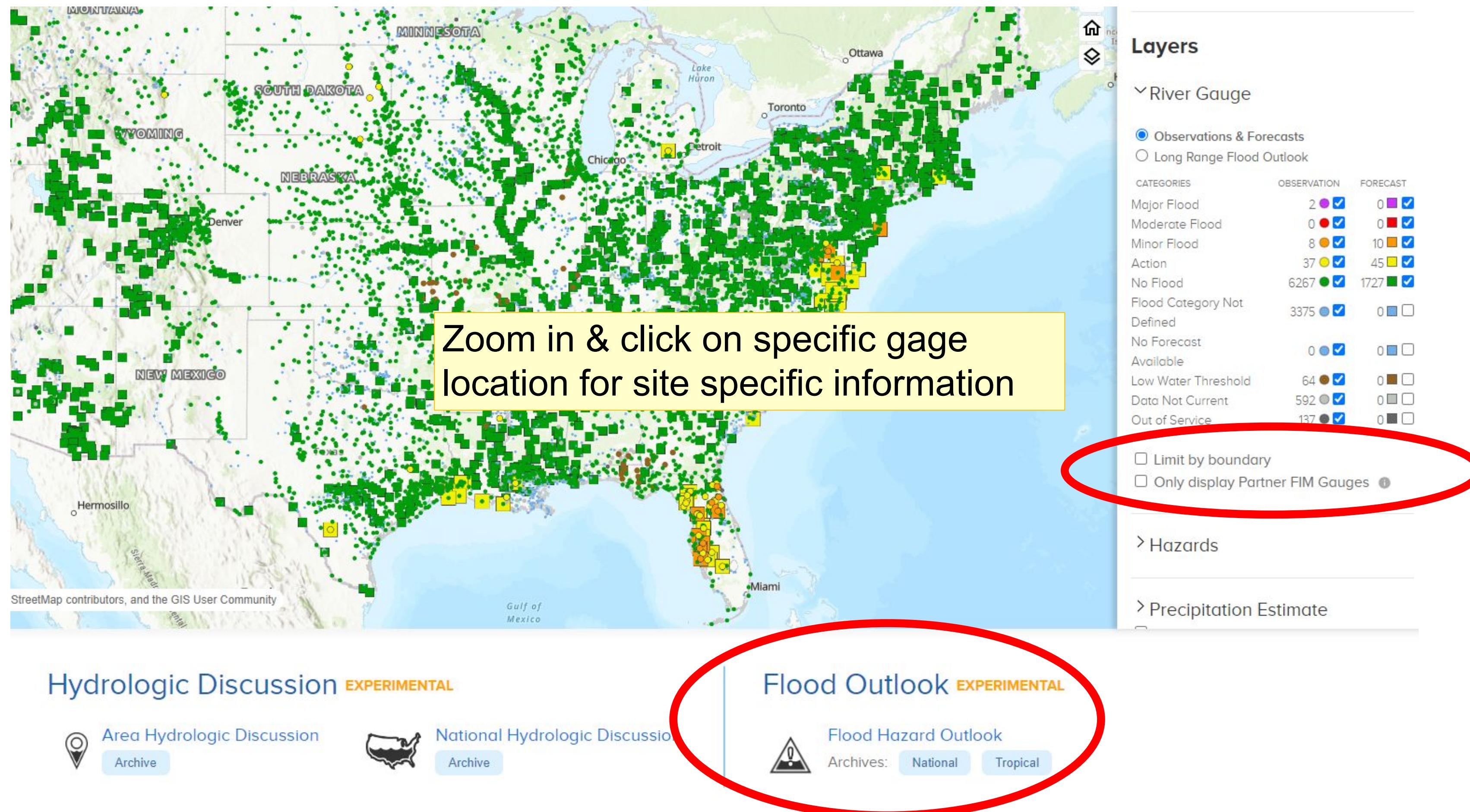


Southeast River Forecast Center

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



Accessing Hydrographs



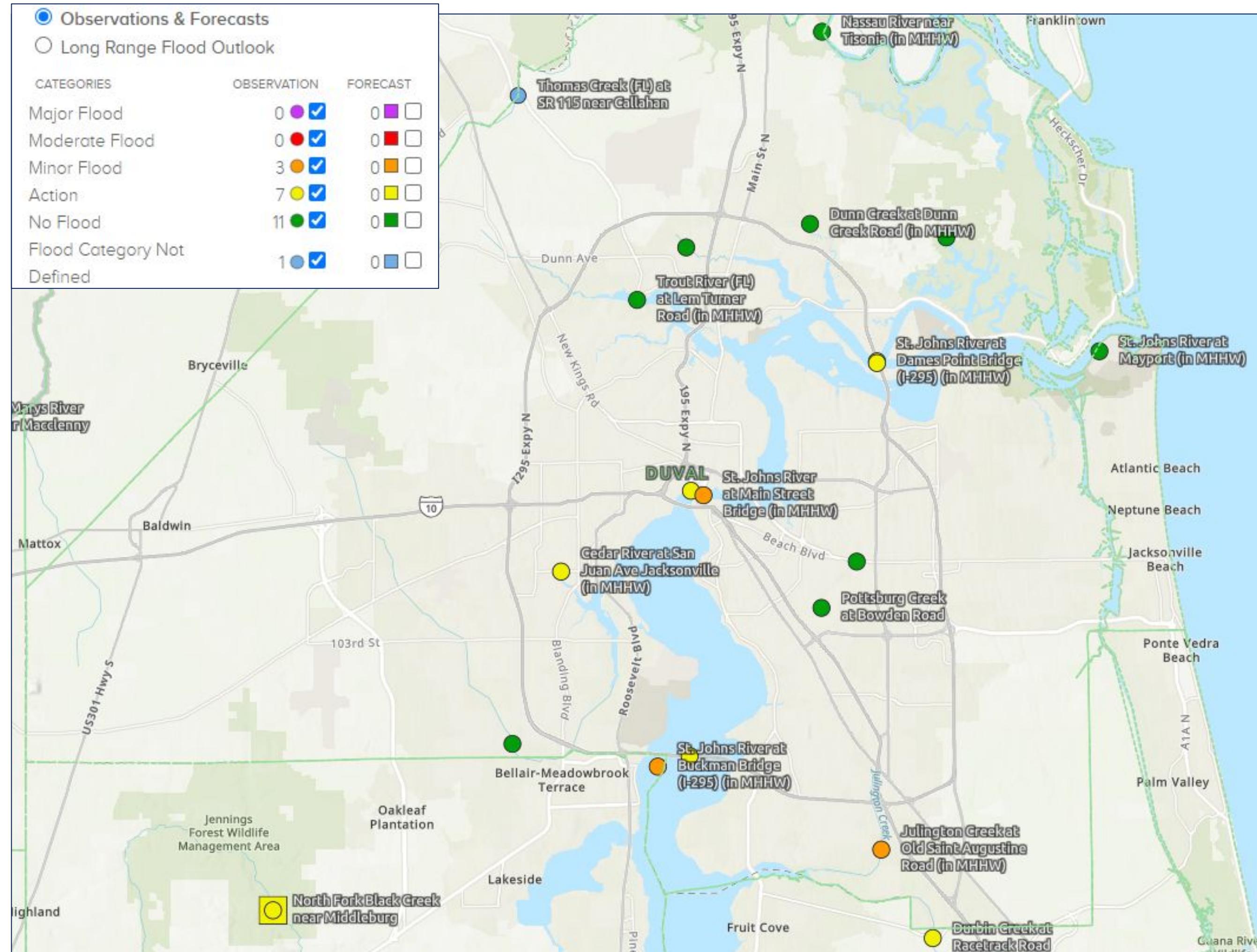
<https://water.noaa.gov/>



NATIONAL WEATHER SERVICE



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

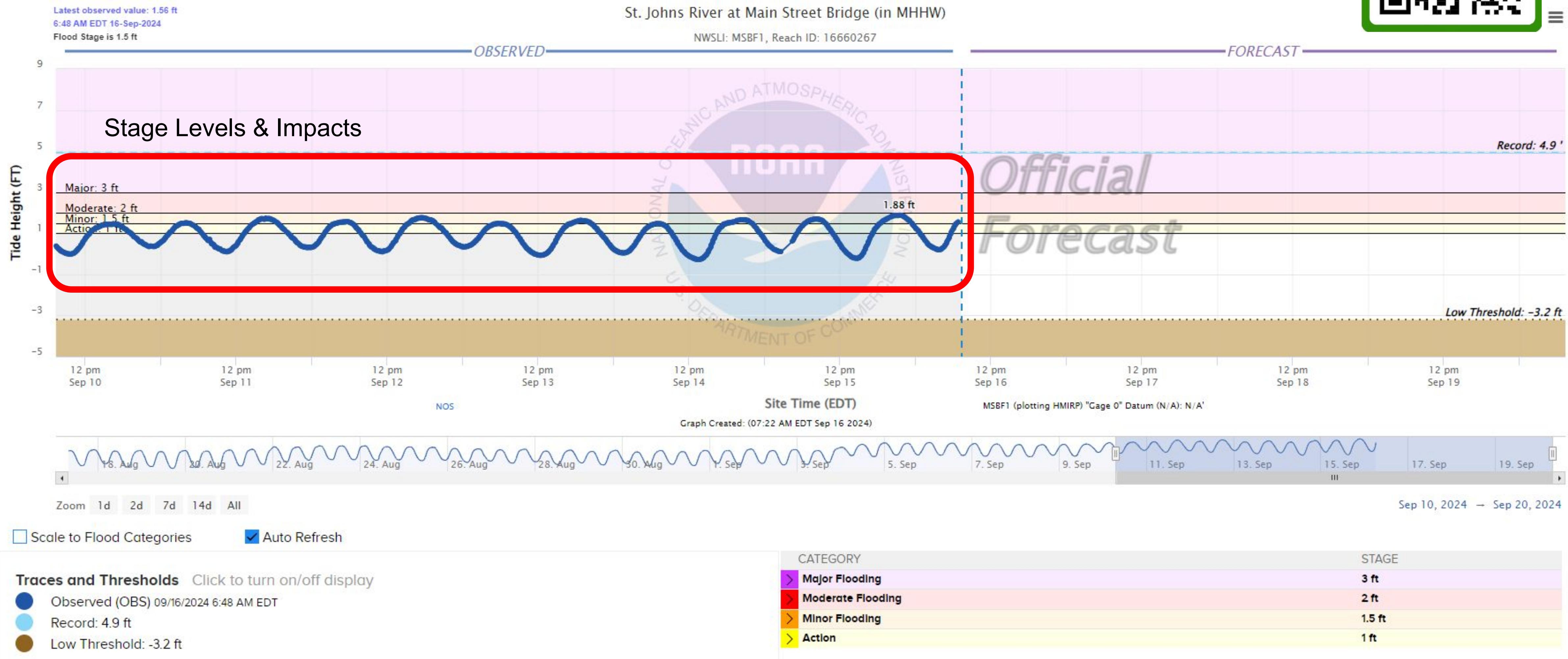
What can we do?

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





River Level Monitoring - Tidal Hydrographs





River Level Monitoring - Inland Rivers

Latest observed value: 16.76 ft
8:00 AM EDT 7-Sep-2024
Flood Stage is 17 ft

Santa Fe River at Three Rivers Estates (in NAVD88)

NWSLI: TREF1, Reach ID: 2161796

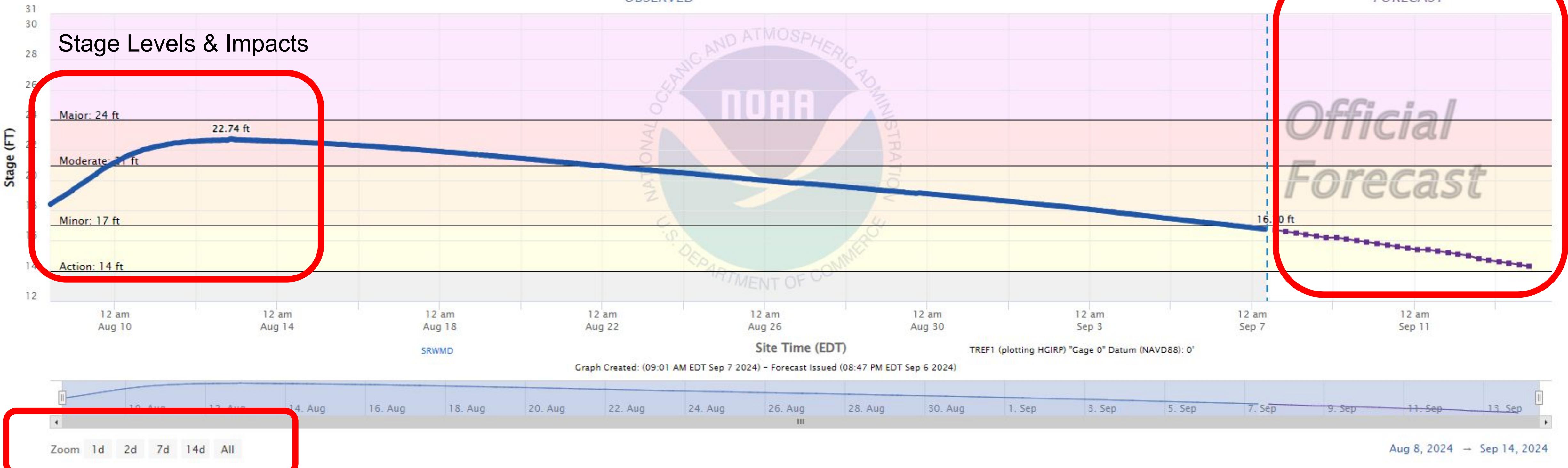
SERFC Forecast

OBSERVED

FORECAST

Stage Levels & Impacts

Major: 24 ft
Moderate: 21 ft
Minor: 17 ft
Action: 14 ft

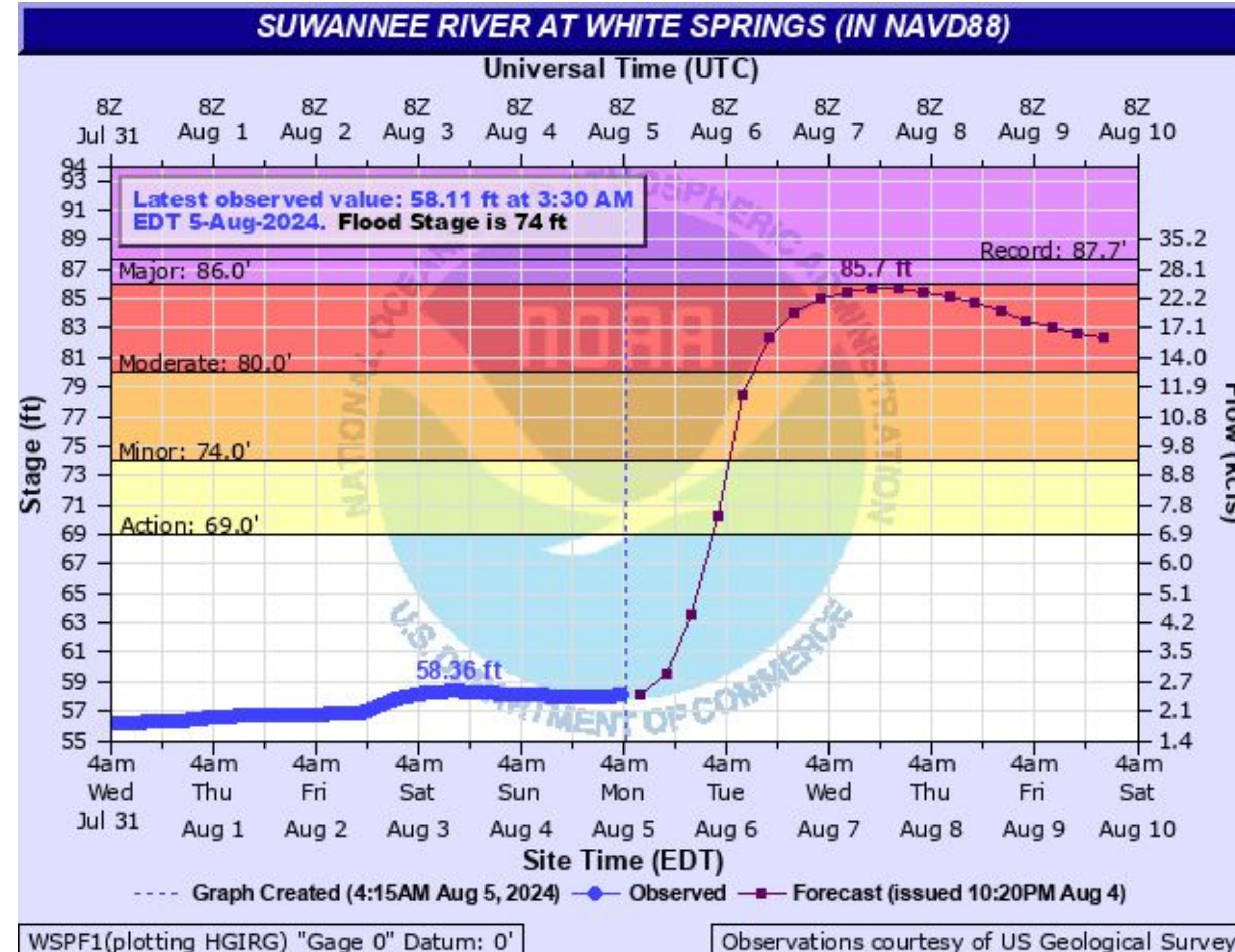


Recent History



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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

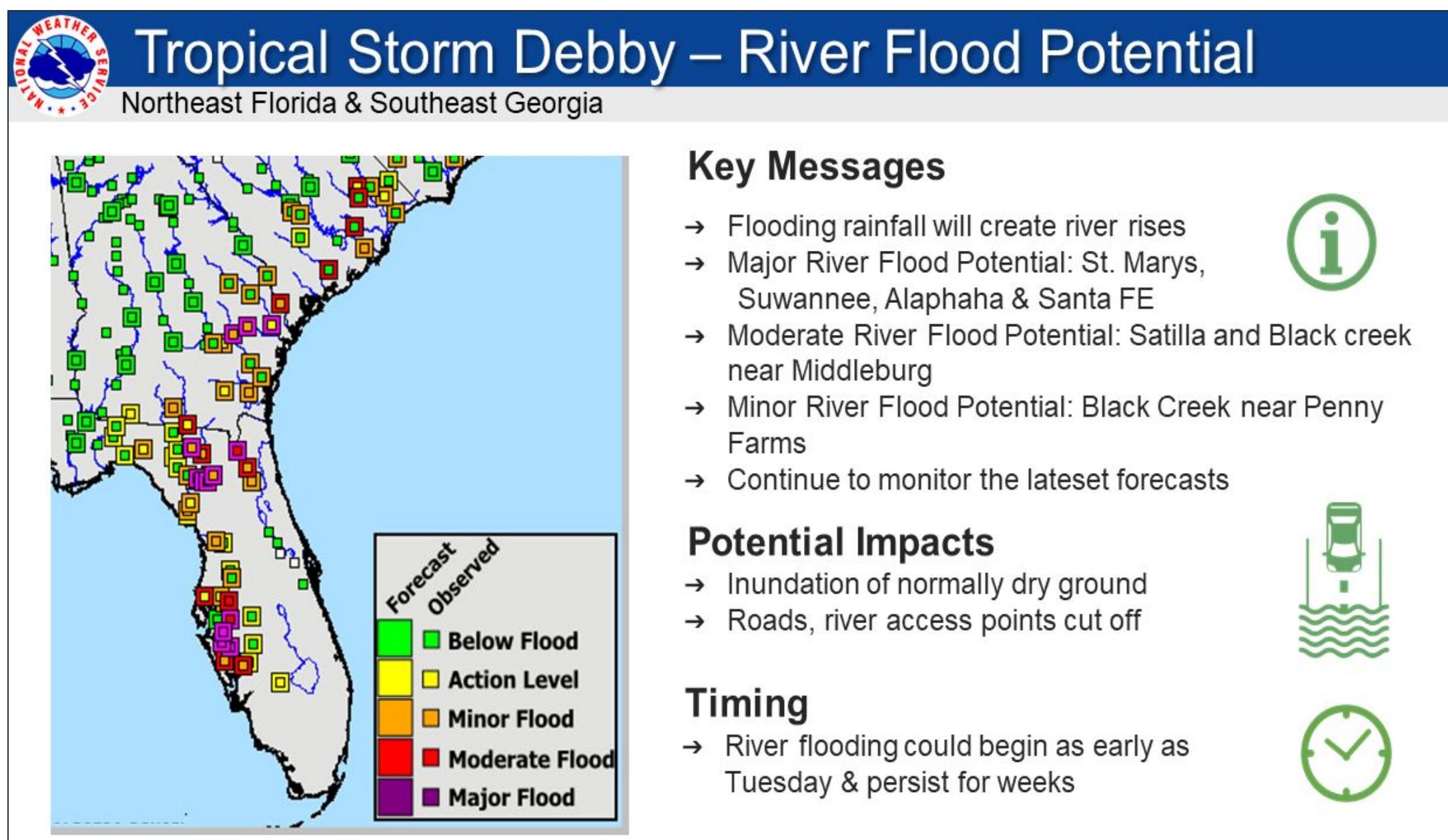


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Communicating River Flooding Risk - PUBLIC

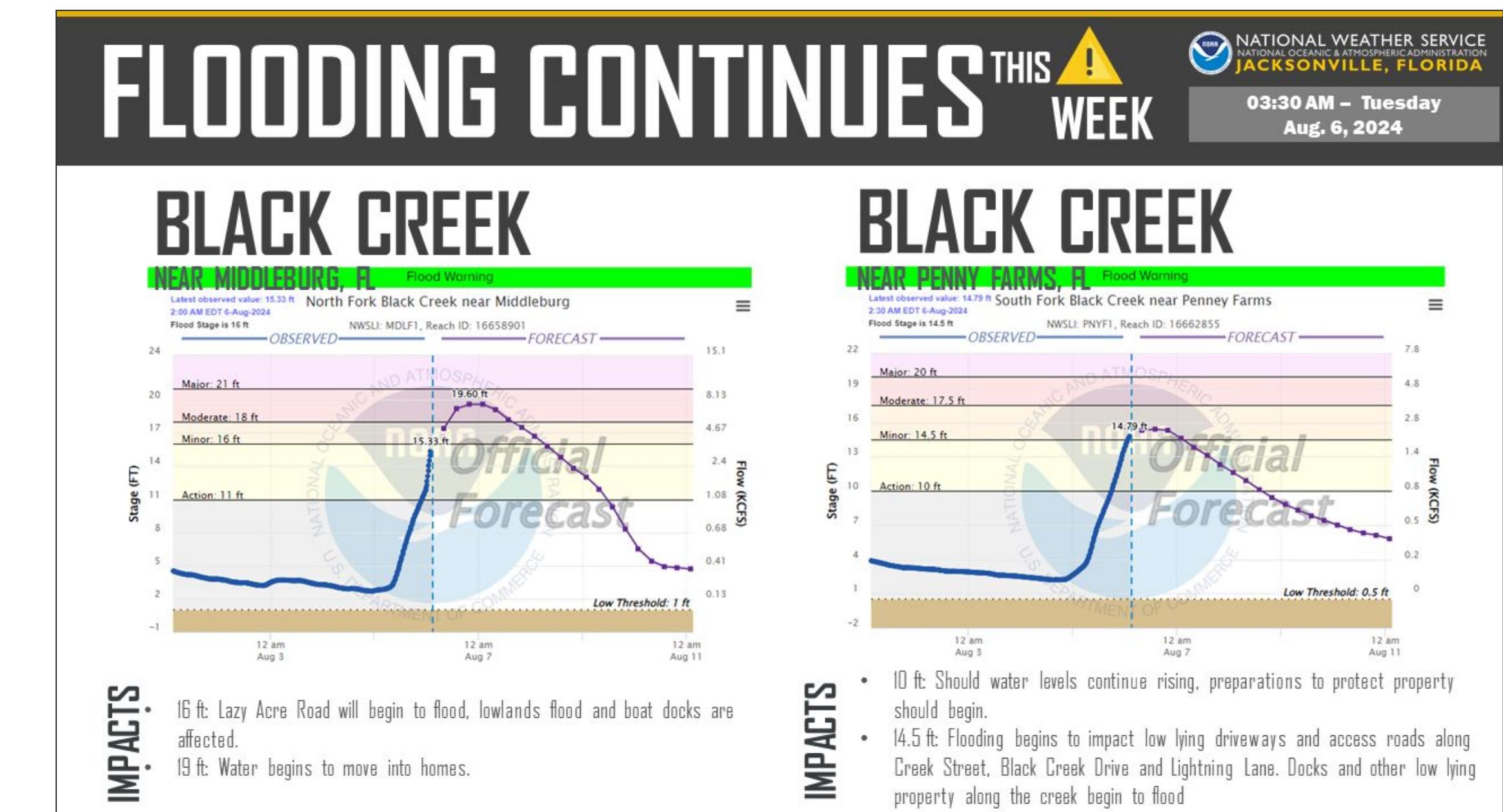
Days in Advance

National Water Center Outlooks, Local NWS Briefing



1-3 Days Imminent Flooding

River Flood Warnings – No WEA



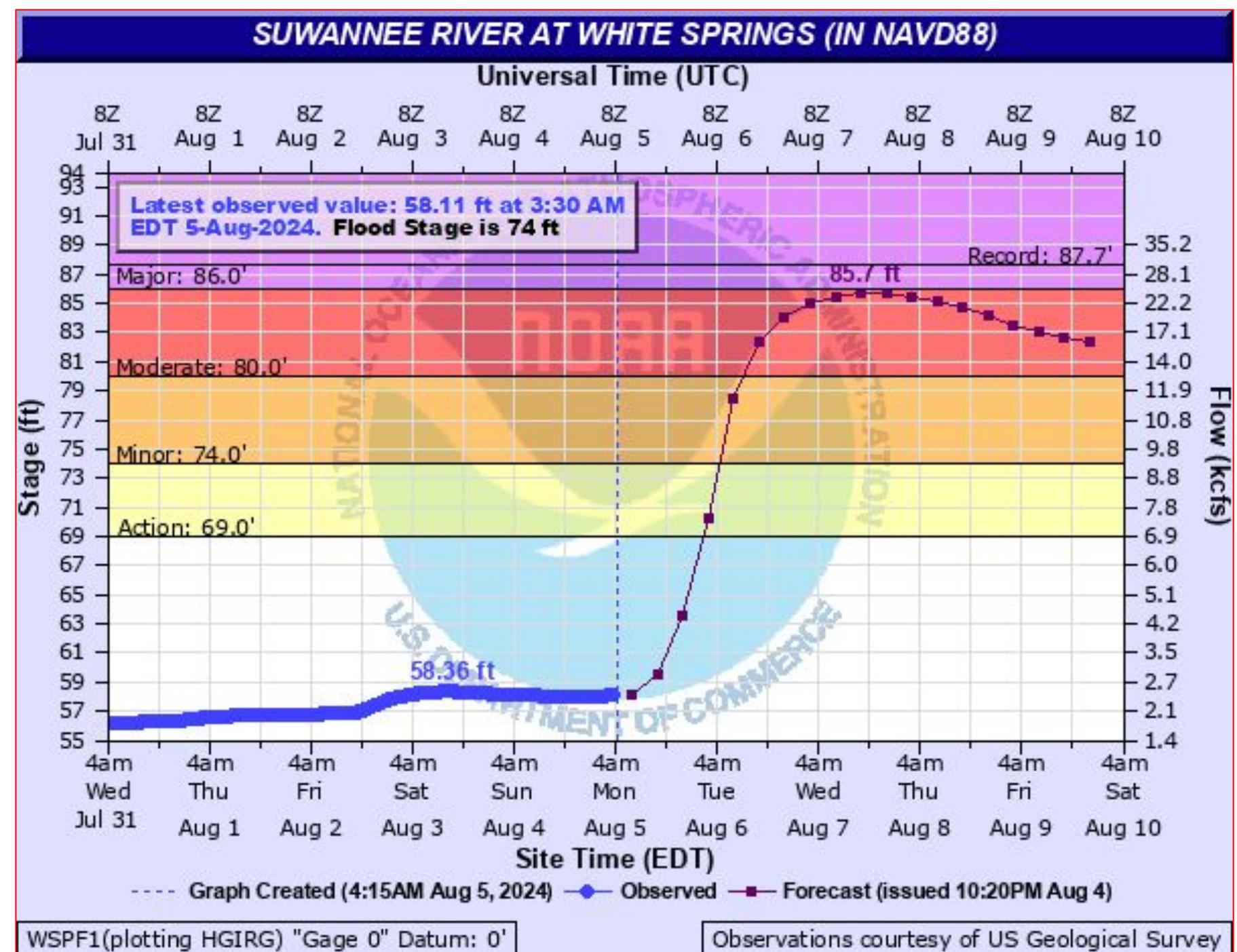
NATIONAL WEATHER SERVICE

Communicating River Flooding Risk - EM

EXPECT

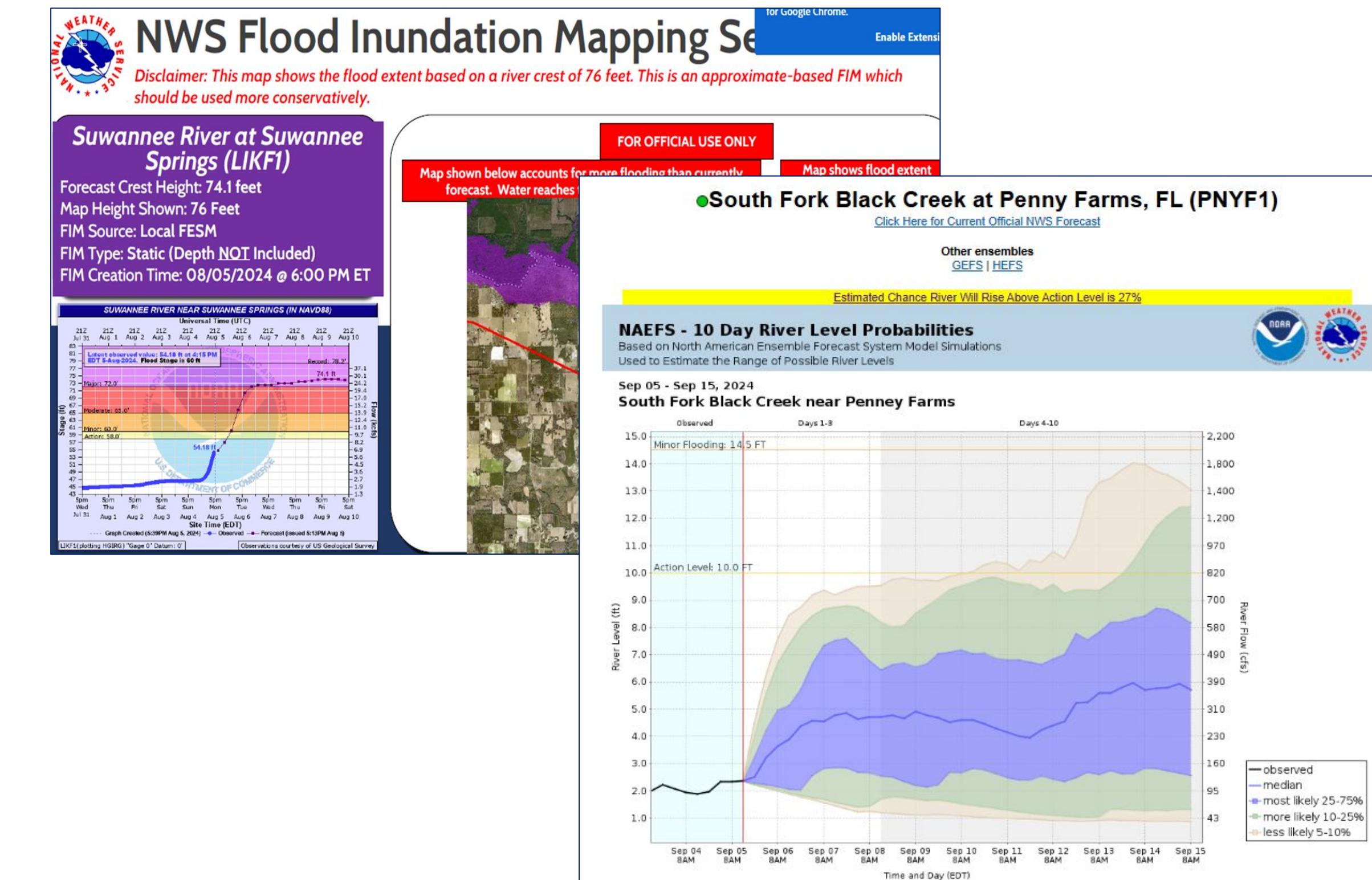
Hydrographs

CAUTION - ONLY 48 hrs of Rainfall!



POTENTIAL

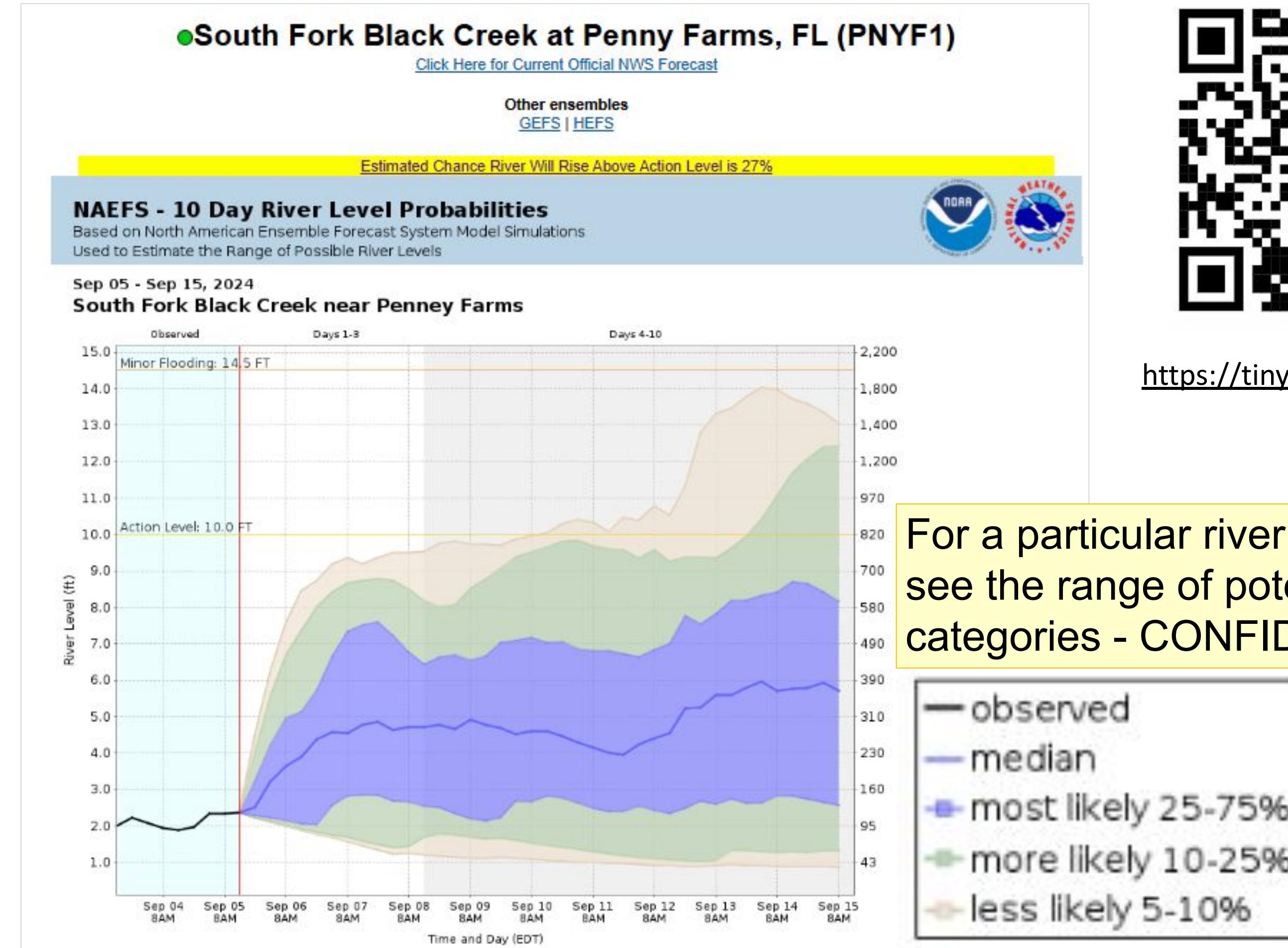
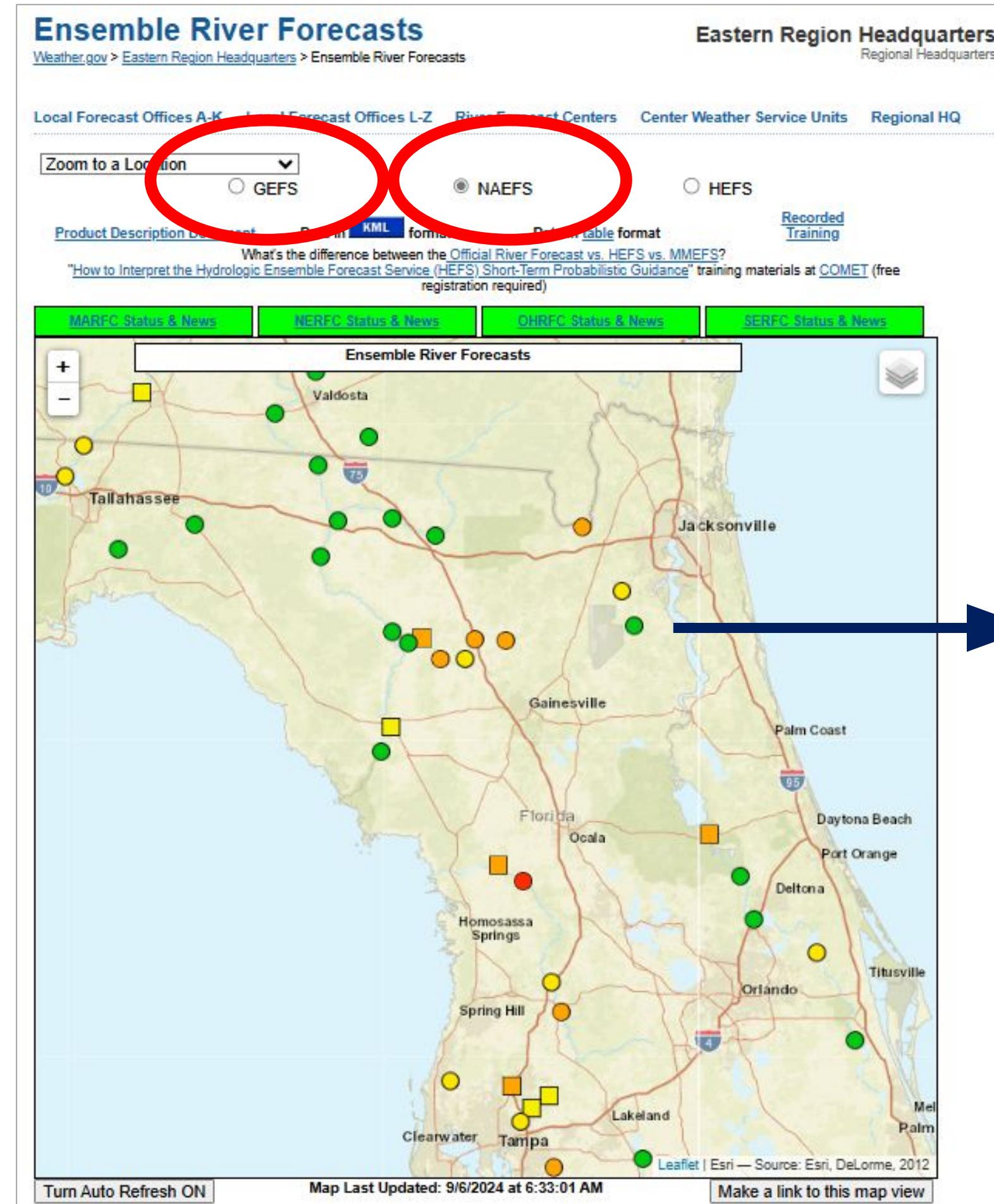
Request Flood Inundation Mapping & Refer to Ensembles



NATIONAL WEATHER SERVICE

River Flooding Risk Potential - Ensembles

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



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



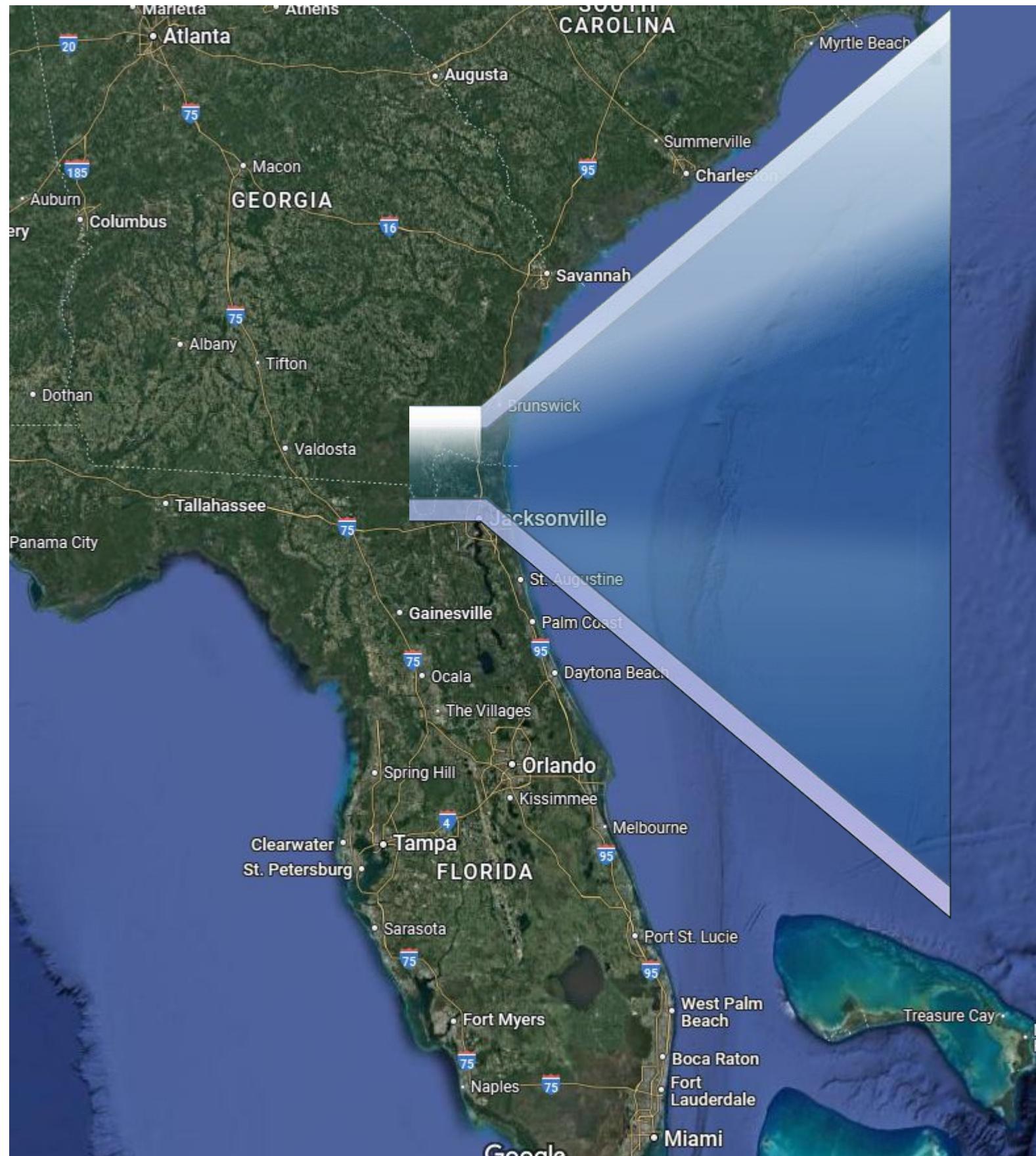
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Coastal/Tidal Flooding

Local Geography

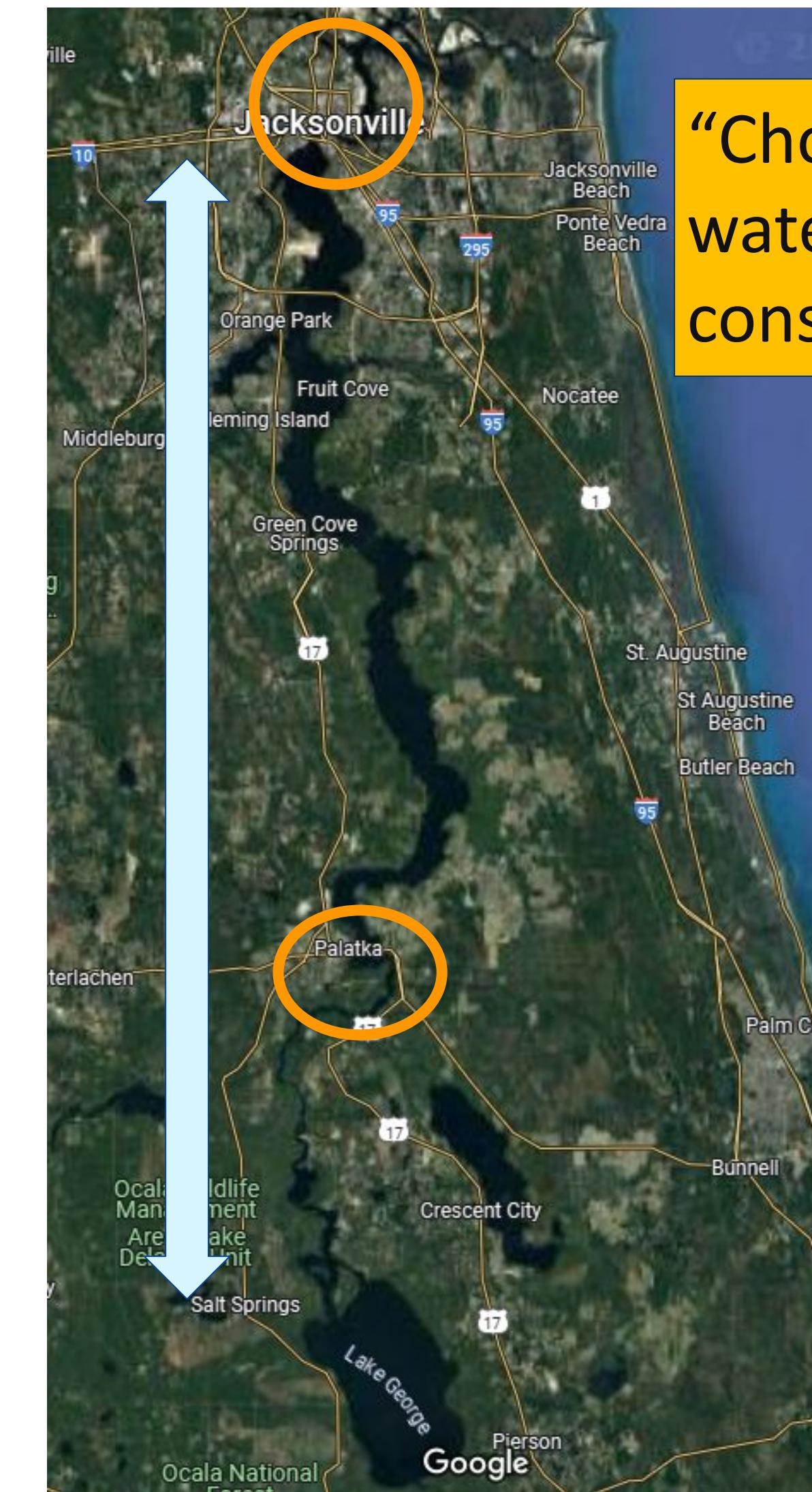
Coastal “Catchers Mitt” & Inland Funnel



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

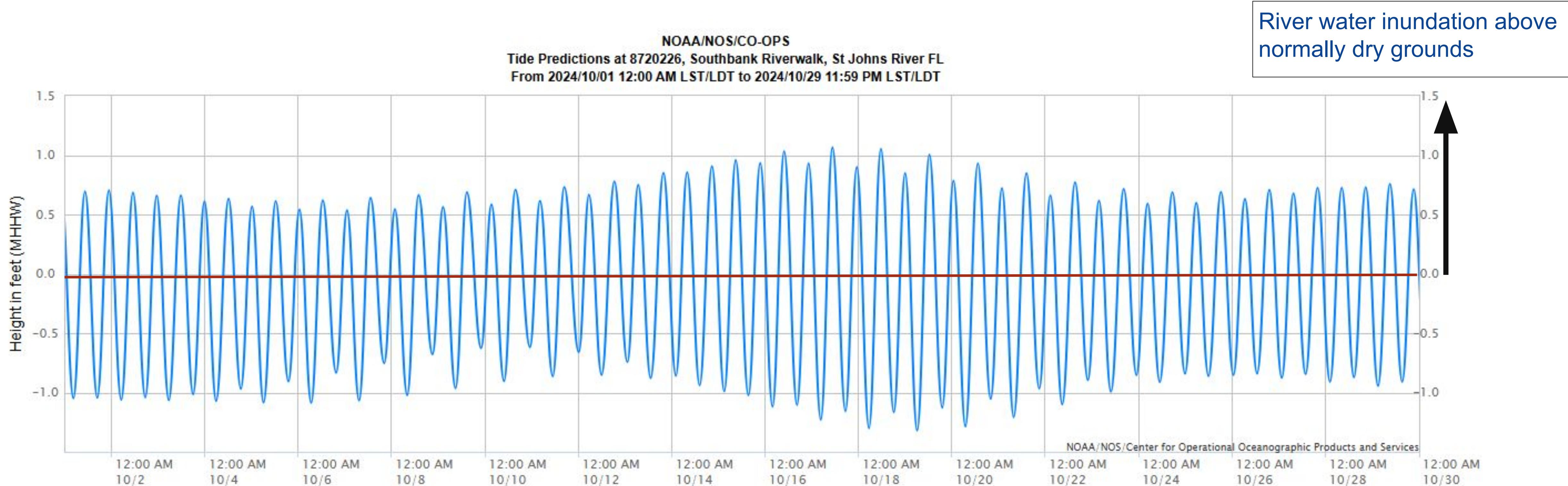


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Coastal/Tidal Flooding Climatology

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)

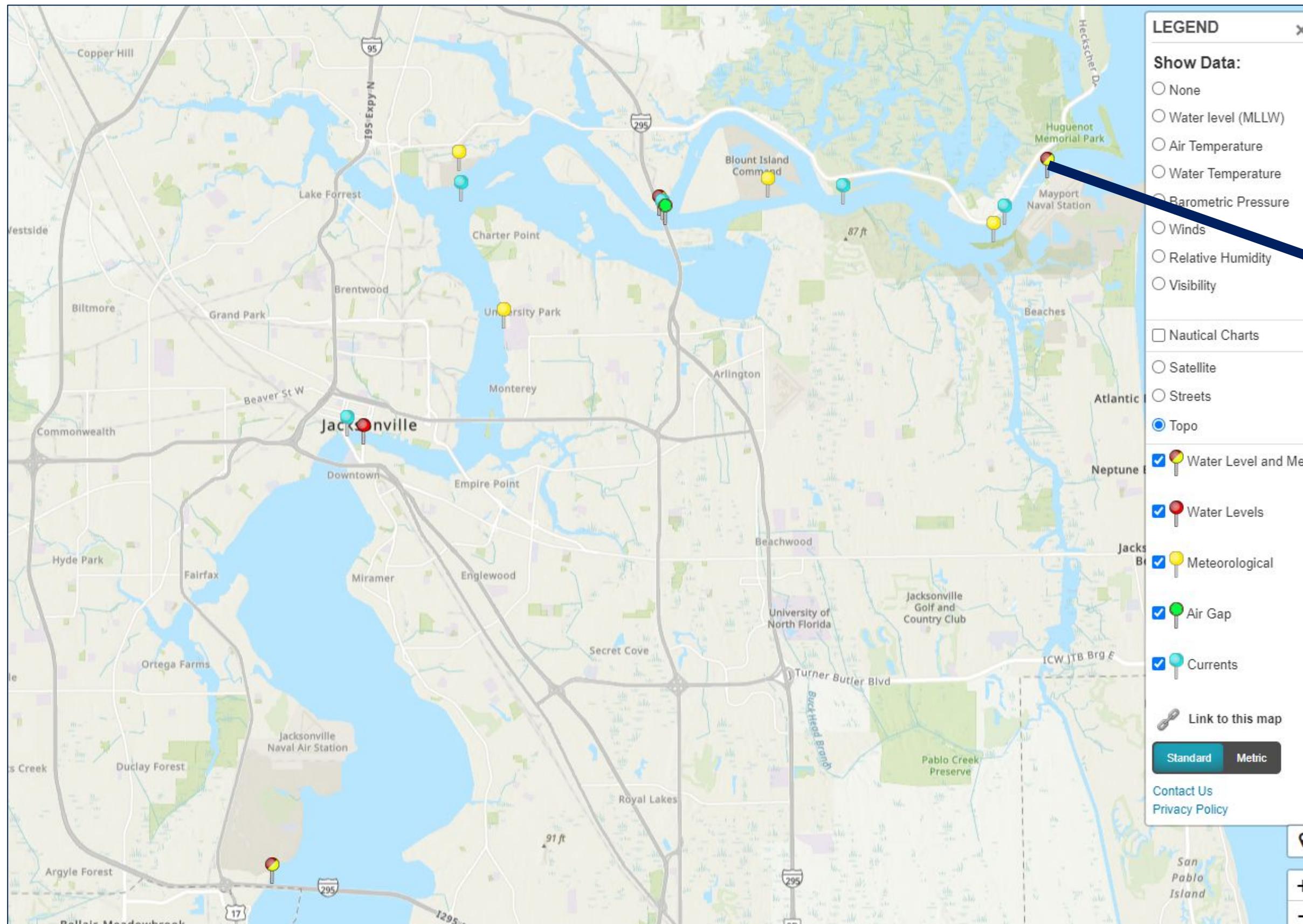


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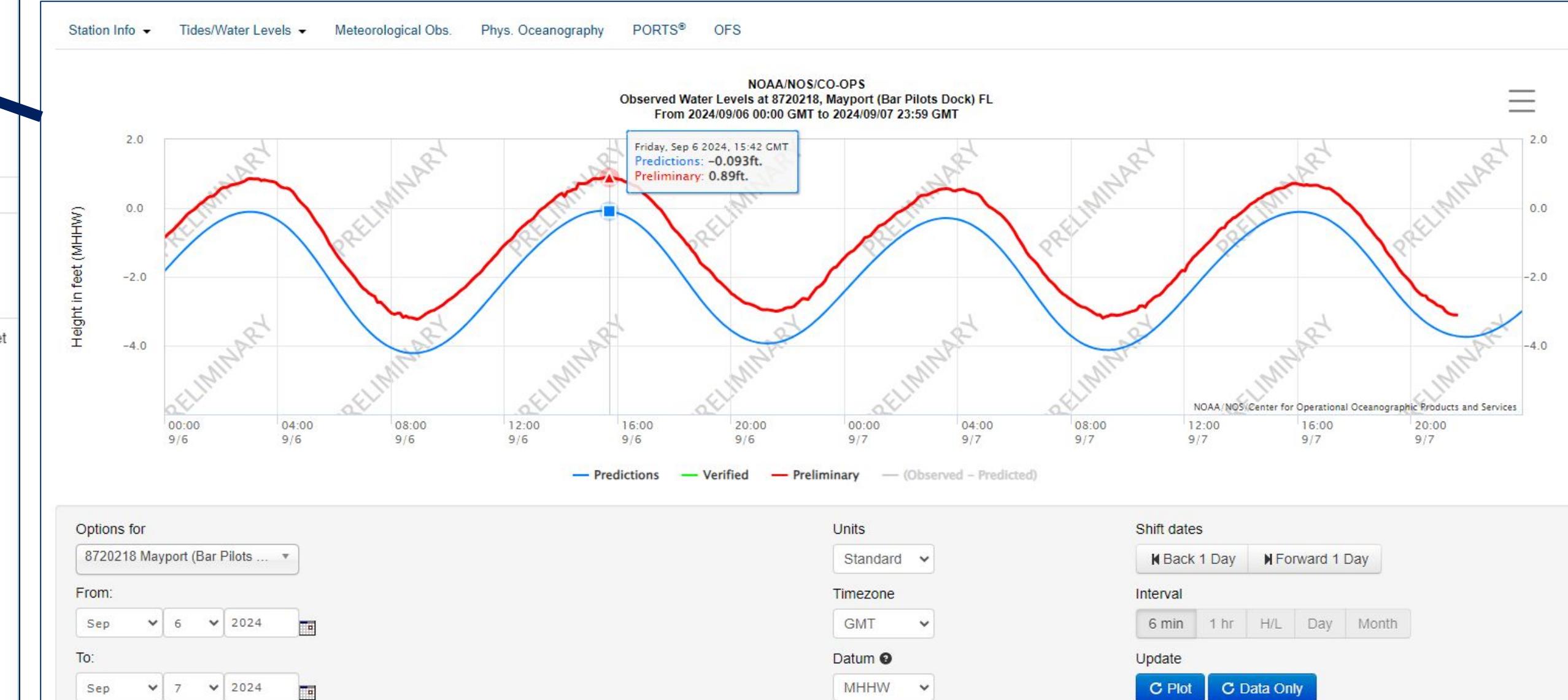
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Water Level Predictions

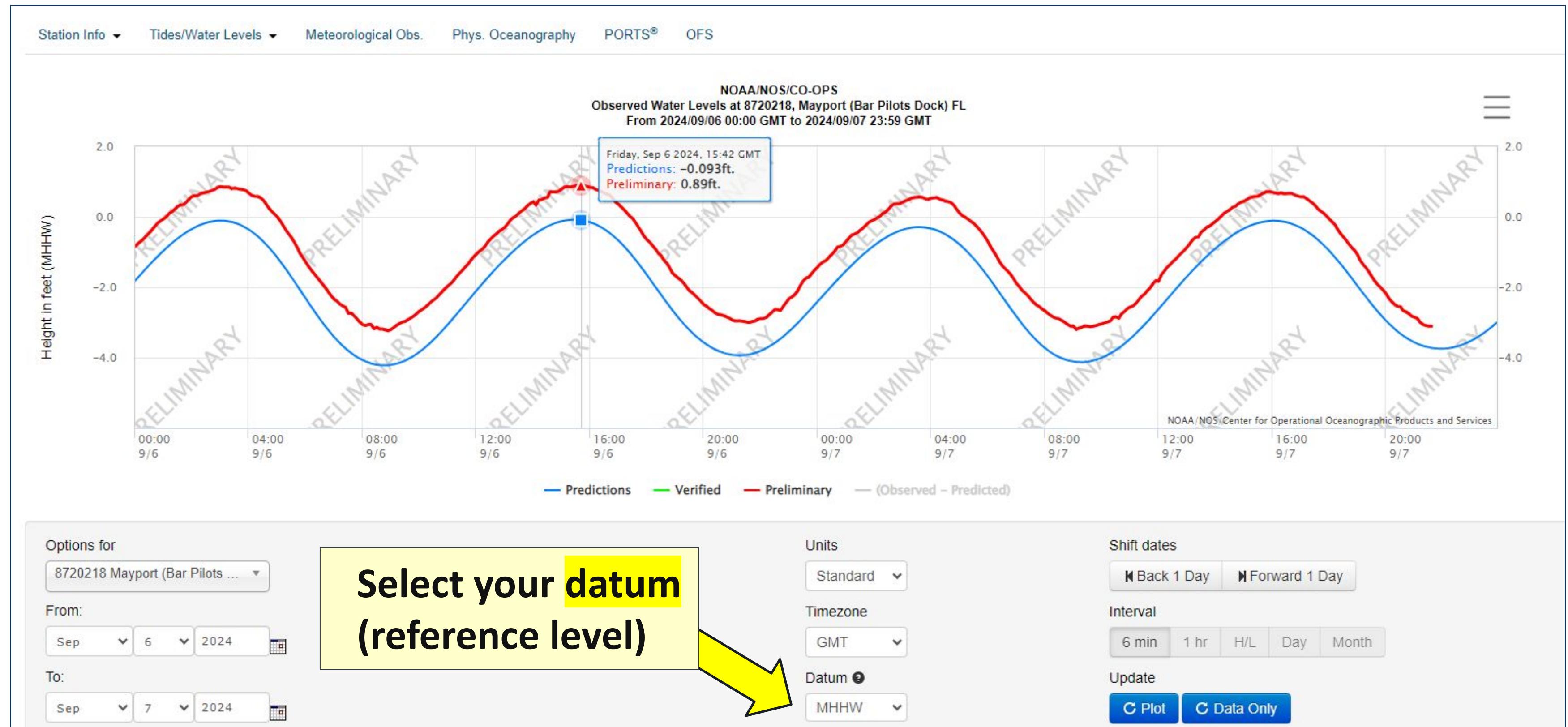


<https://tidesandcurrents.noaa.gov/>





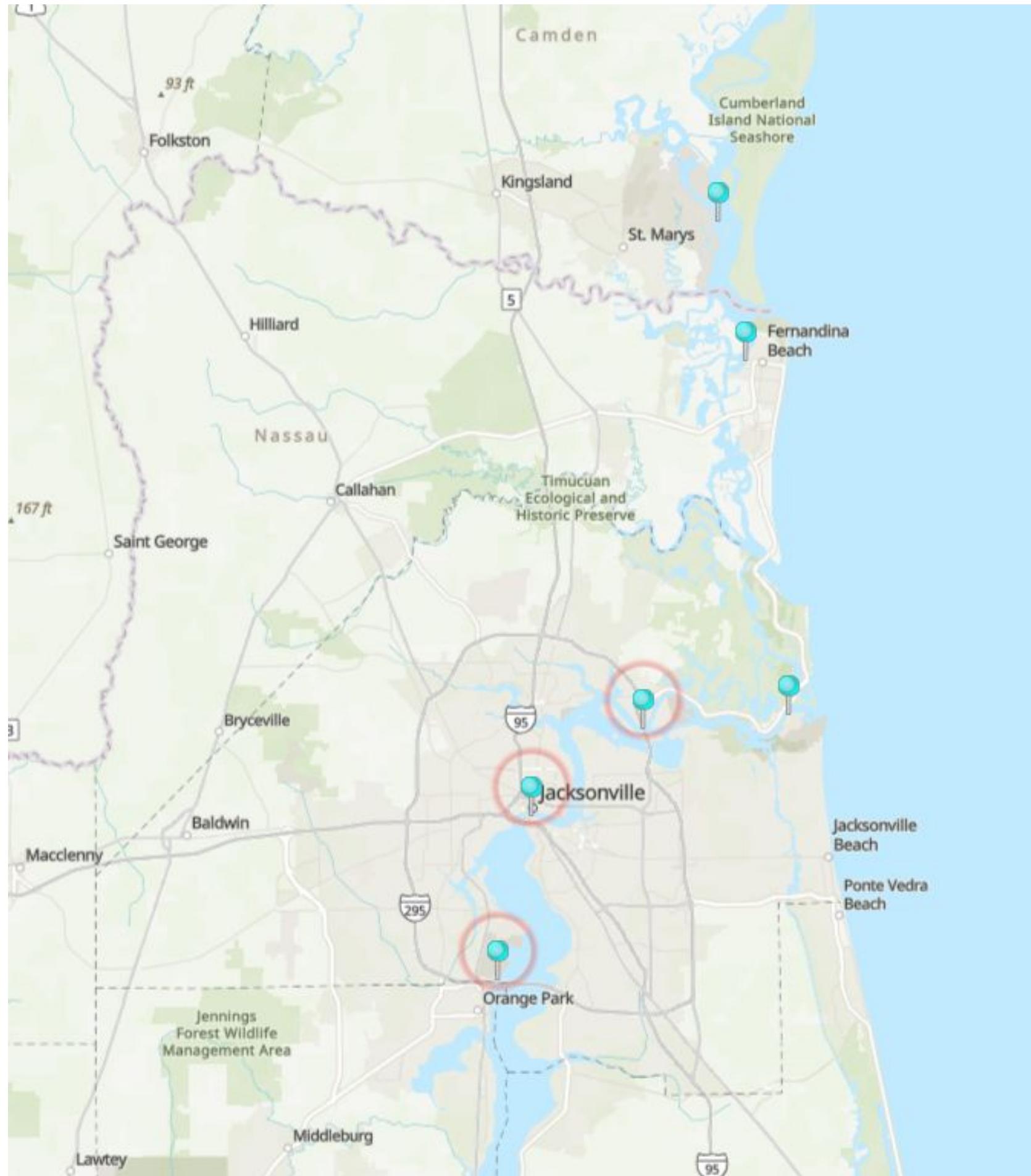
Water Level Monitoring



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

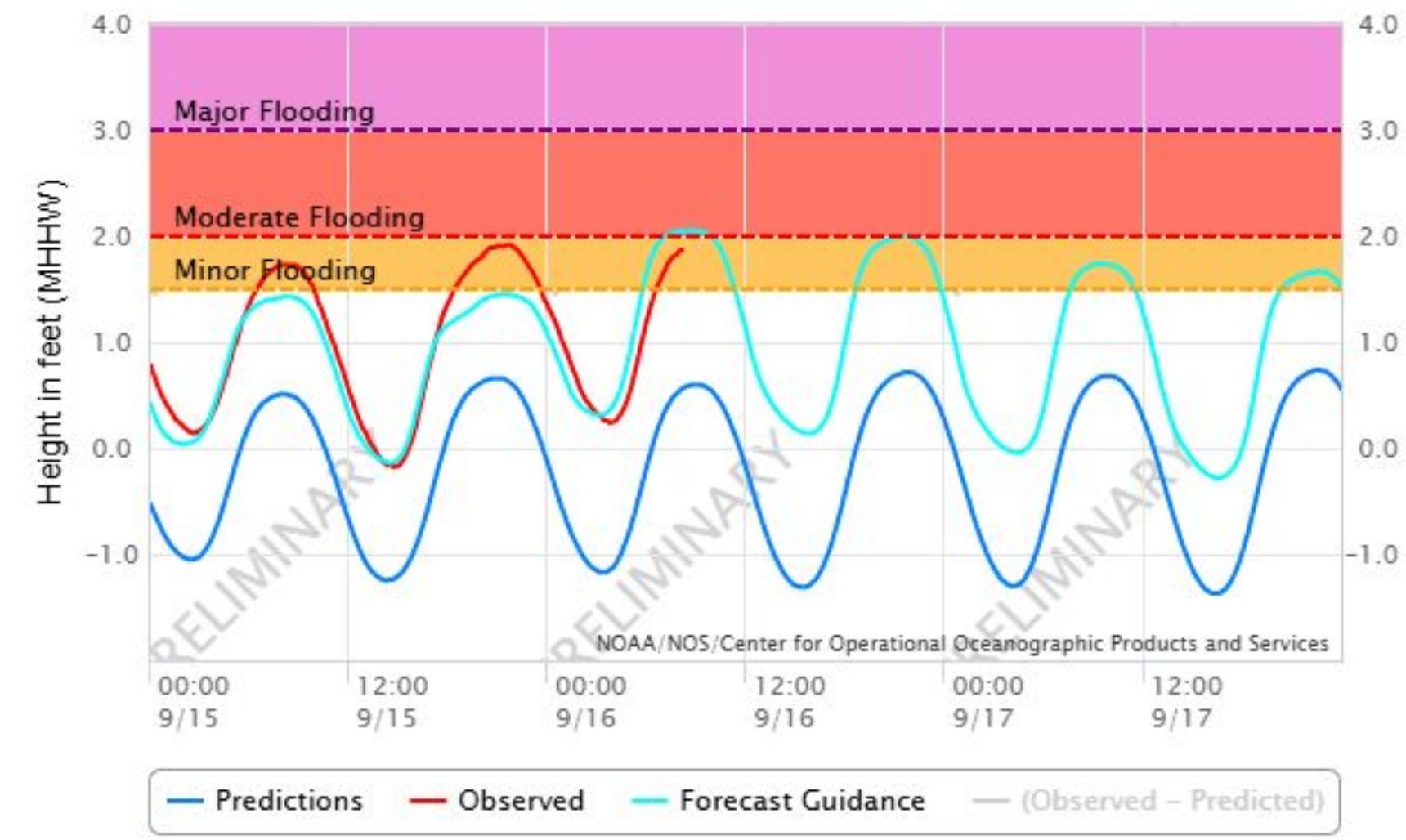


Coastal Inundation Dashboard

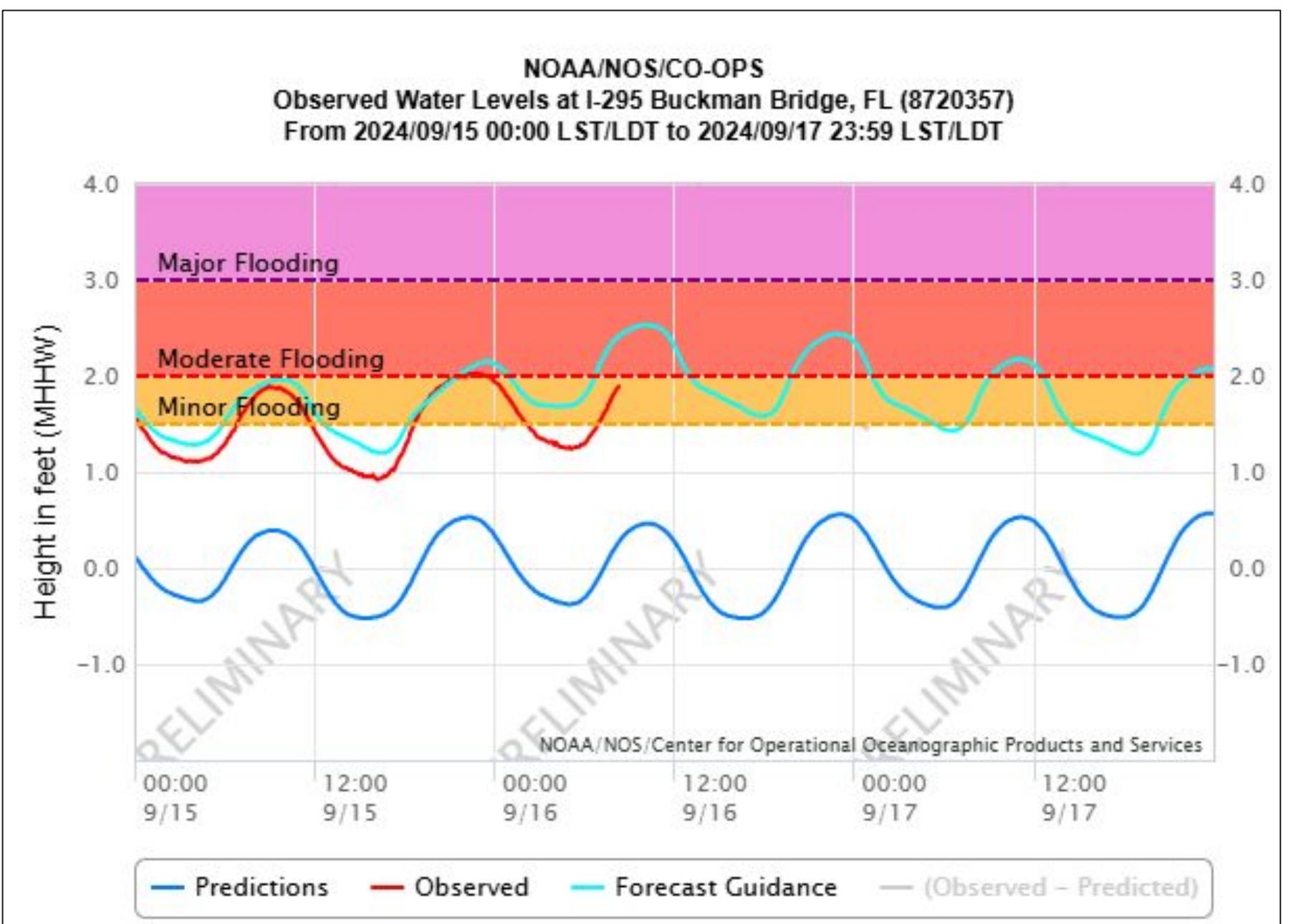


<https://tidesandcurrents.noaa.gov/inundationdb/>

NOAA/NOS/CO-OPS
Observed Water Levels at Southbank Riverwalk, St Johns River, FL (8720226)
From 2024/09/15 00:00 LST/LDT to 2024/09/17 23:59 LST/LDT



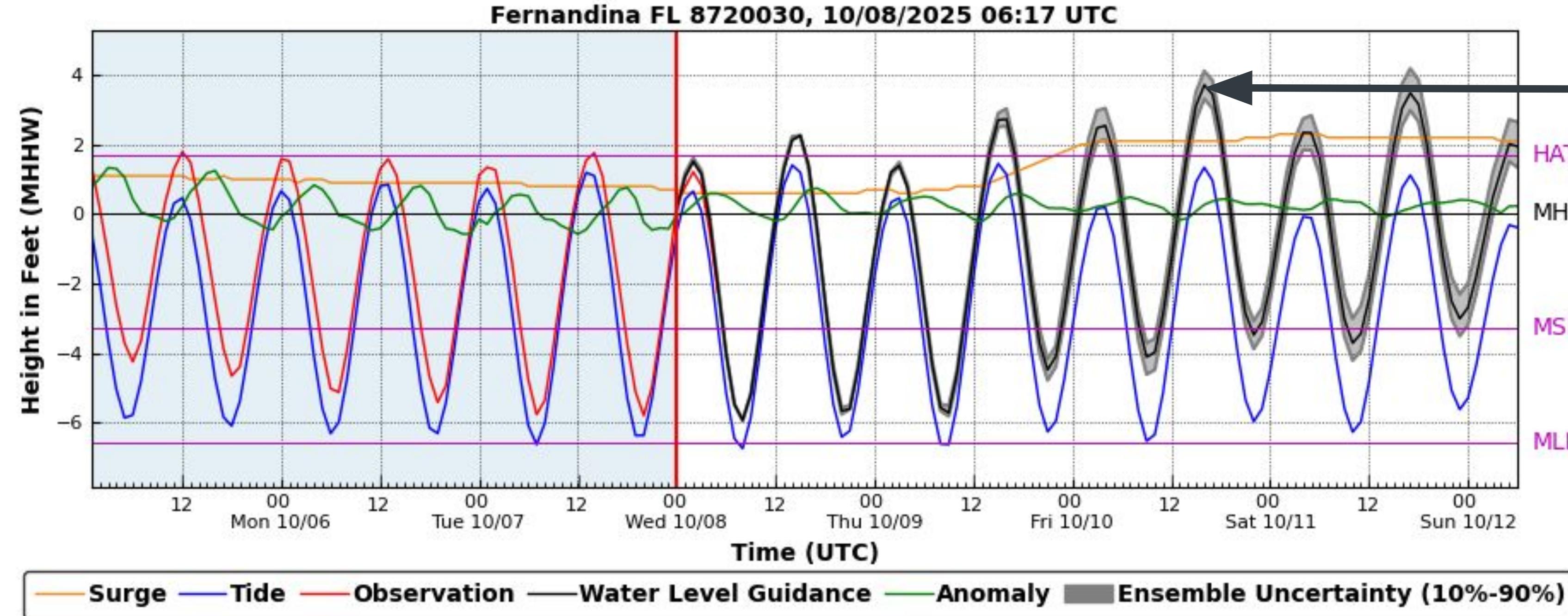
NOAA/NOS/CO-OPS
Observed Water Levels at I-295 Buckman Bridge, FL (8720357)
From 2024/09/15 00:00 LST/LDT to 2024/09/17 23:59 LST/LDT



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Probabilistic Coastal/Tidal Forecasts - DEMO



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



NWS JAX Tidbit -
This guidance can run with a high bias of up to 0.5 ft MHHW

“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

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



NATIONAL WEATHER SERVICE

Coastal/Tidal Flood Products

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



Messaging Coastal / Tidal Flooding

Coastal Flooding

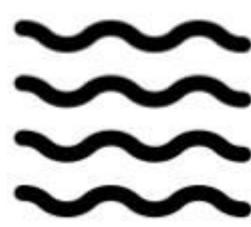
Continues this Week



→ 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



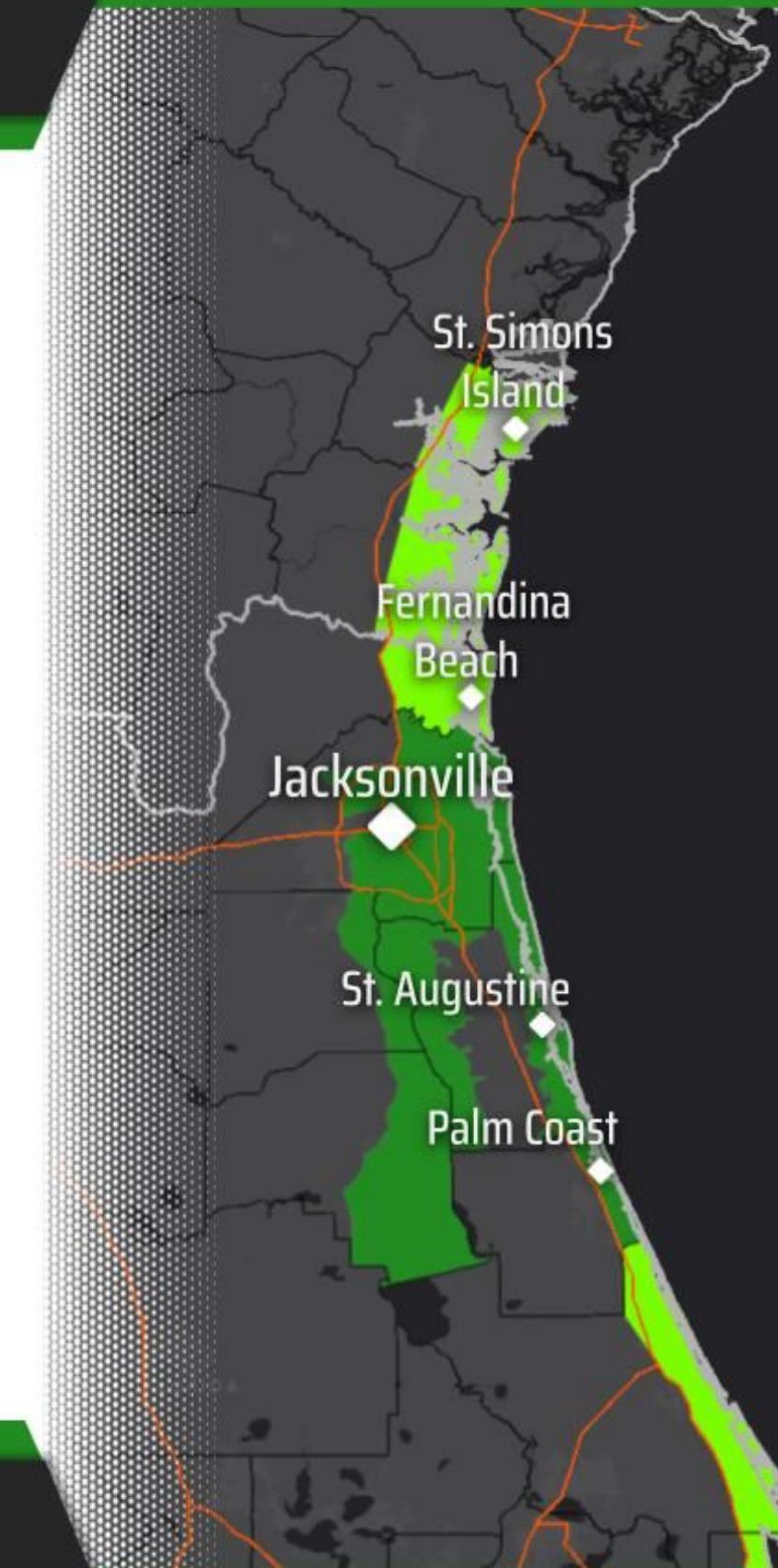
NATIONAL WEATHER SERVICE
Jacksonville  Florida

Latest info at weather.gov/jax



Coastal Flood
Warning

Coastal Flood
Advisory



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



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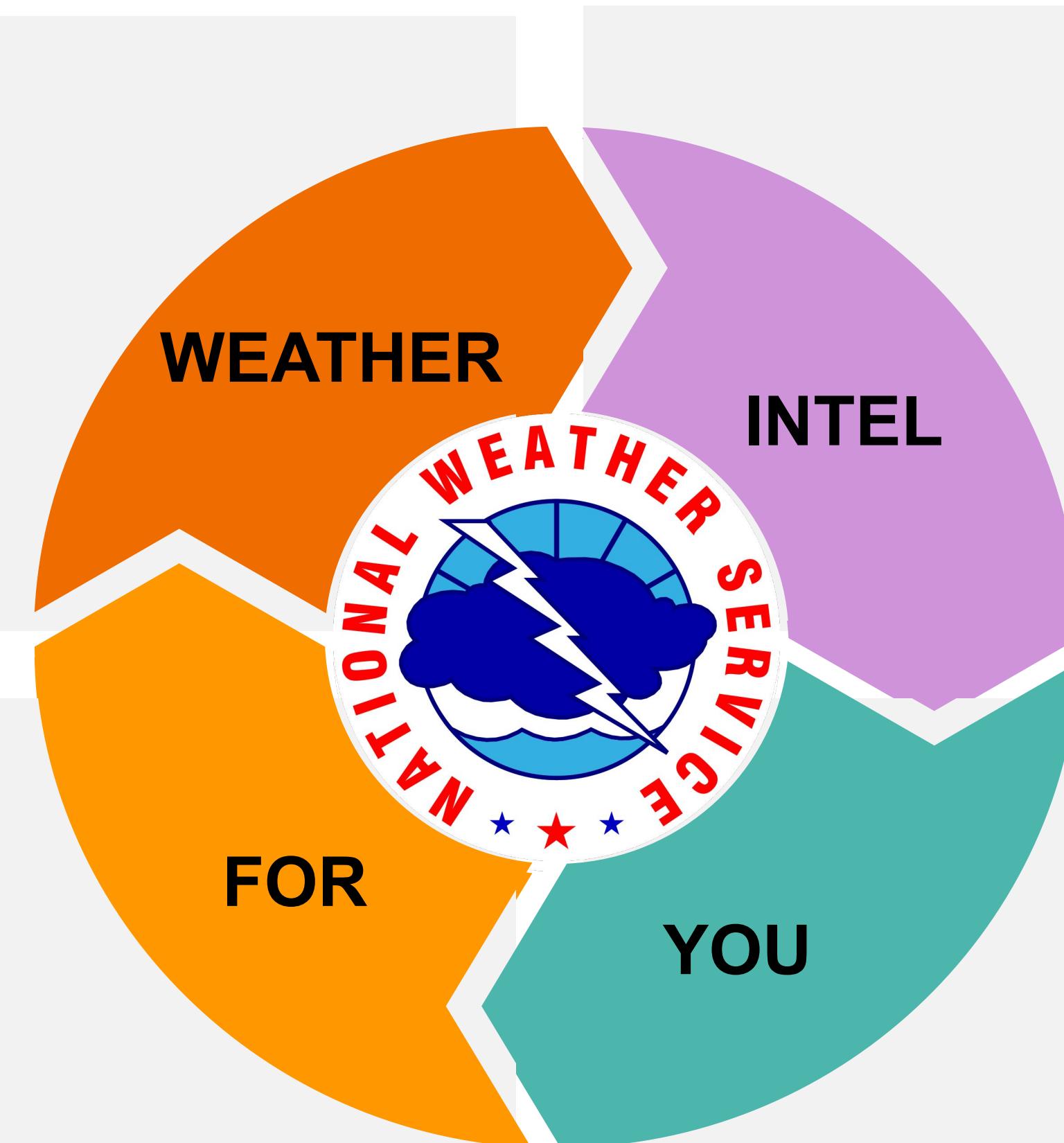
Working Together to Save Lives

NWS JAX HYDRO CONTACTS

Kelly.Godsey@noaa.gov

Jason.Hess@noaa.gov

WATER LEVEL MONITORING



JACKSONVILLE NATIONAL WEATHER SERVICE

[US National Weather Service Jacksonville](#)

[@NWSJacksonville](#)

[www.weather.gov/jax](#)



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EM ONLY**