

The background of the slide is a high-speed photograph of water splashing, creating a dynamic and energetic scene with various droplets and ripples. The color palette is a range of blues, from deep navy to light sky blue.

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PREDICTION

Toward the Implementation of Forecast Flood Inundation Services

David R. Vallee

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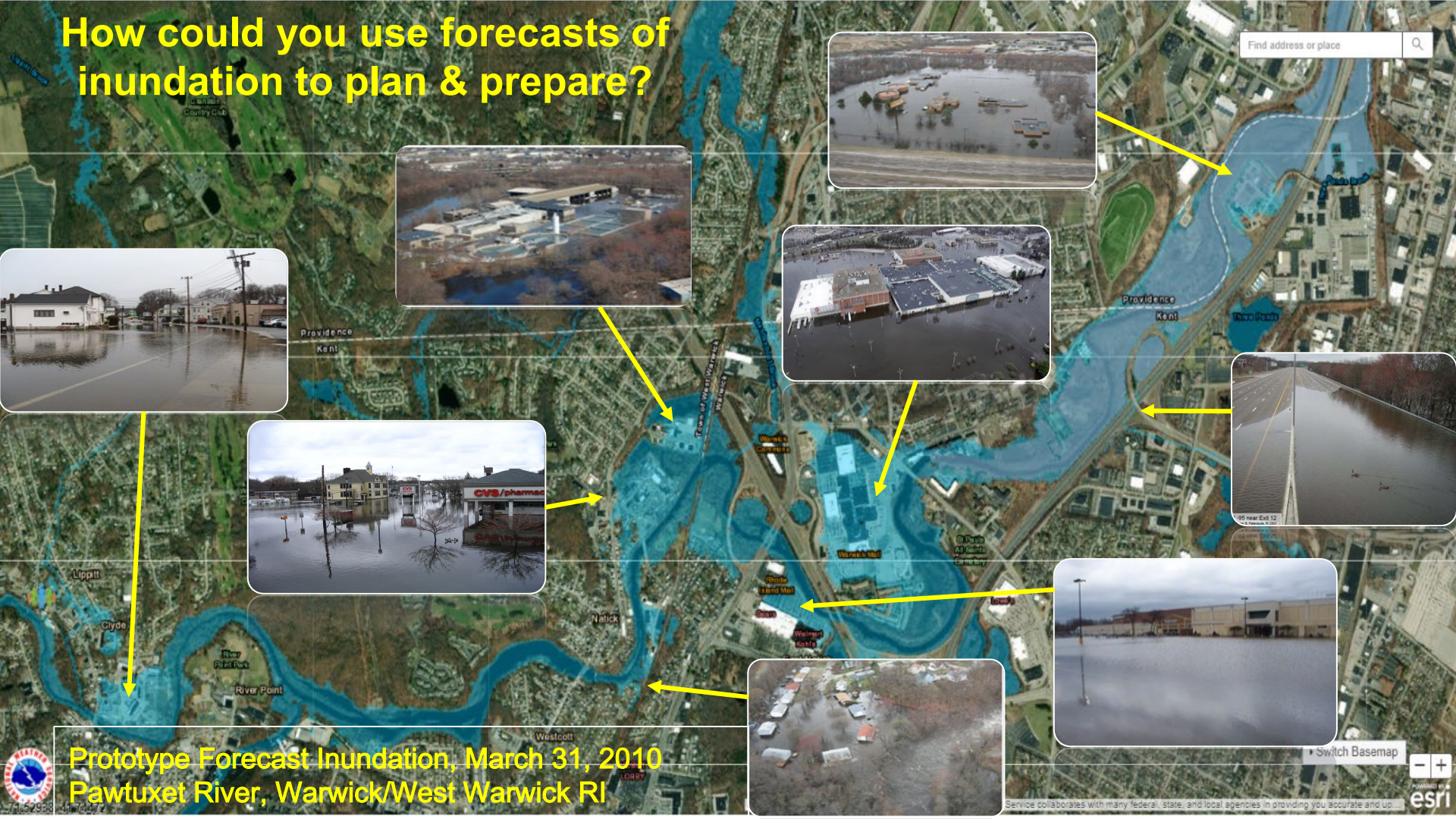


Outline

- History behind our efforts toward delivering Forecast Flood Inundation Services
- Examples of our new Experimental Flood Inundation Services
- How to access our Experimental National Water Model & Flood Inundation Services
- Our national rollout plan
 - Southern Vermont is being served today as part of the initial rollout



How could you use forecasts of inundation to plan & prepare?



Prototype Forecast Inundation, March 31, 2010
Pawtuxet River, Warwick/West Warwick RI

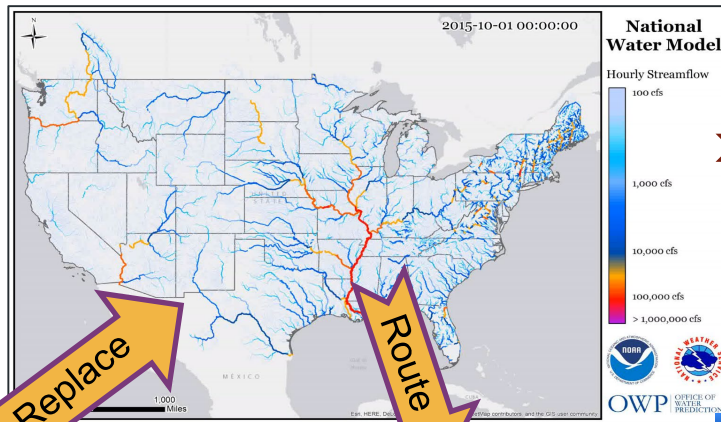


The Method behind FIM Services: Height Above Nearest Drainage

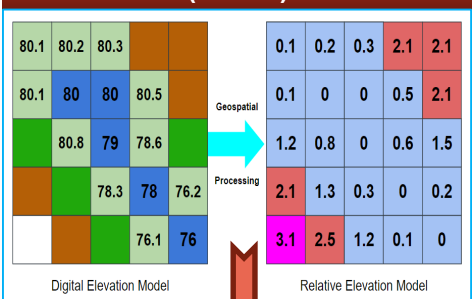
Deliver Forecast Flood Inundation Services

National Water Model Guidance

Completely automated process with no forecaster engagement – but provides complimentary guidance on ~3.4 million stream miles nationwide, including Puerto Rico and the Virgin Islands, Hawaii, and by the fall - portions of Alaska

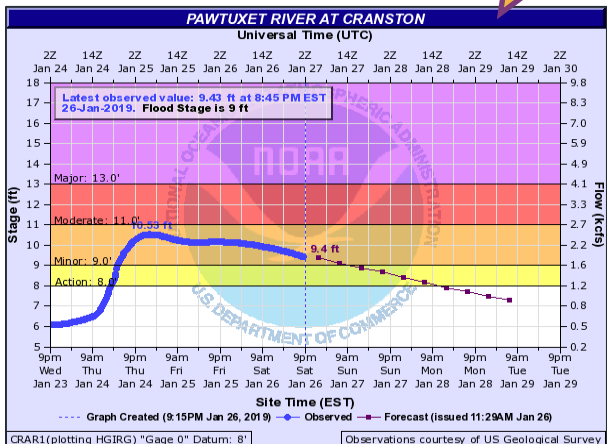


Height Above Nearest Drainage (HAND)

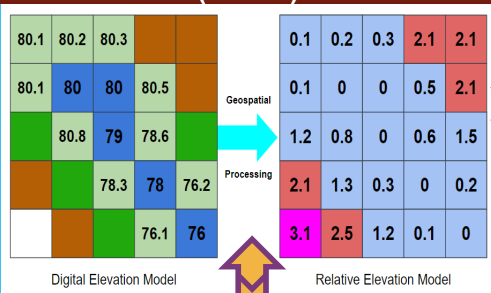


River Center Forecasts

Forecasters heavily engaged in the forecast production

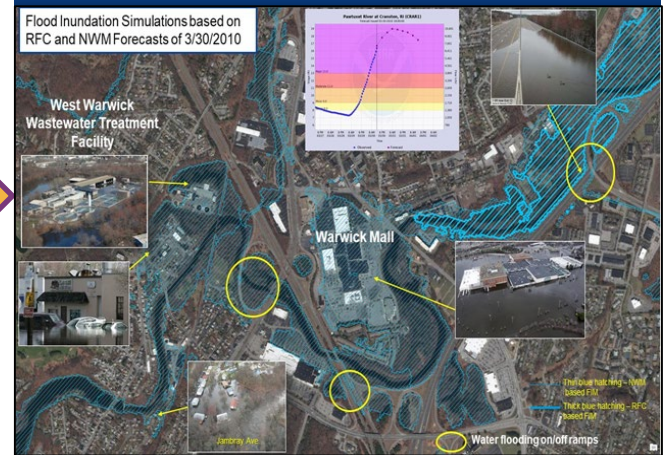


Height Above Nearest Drainage (HAND)



+RStoFIM & RStoREM techniques

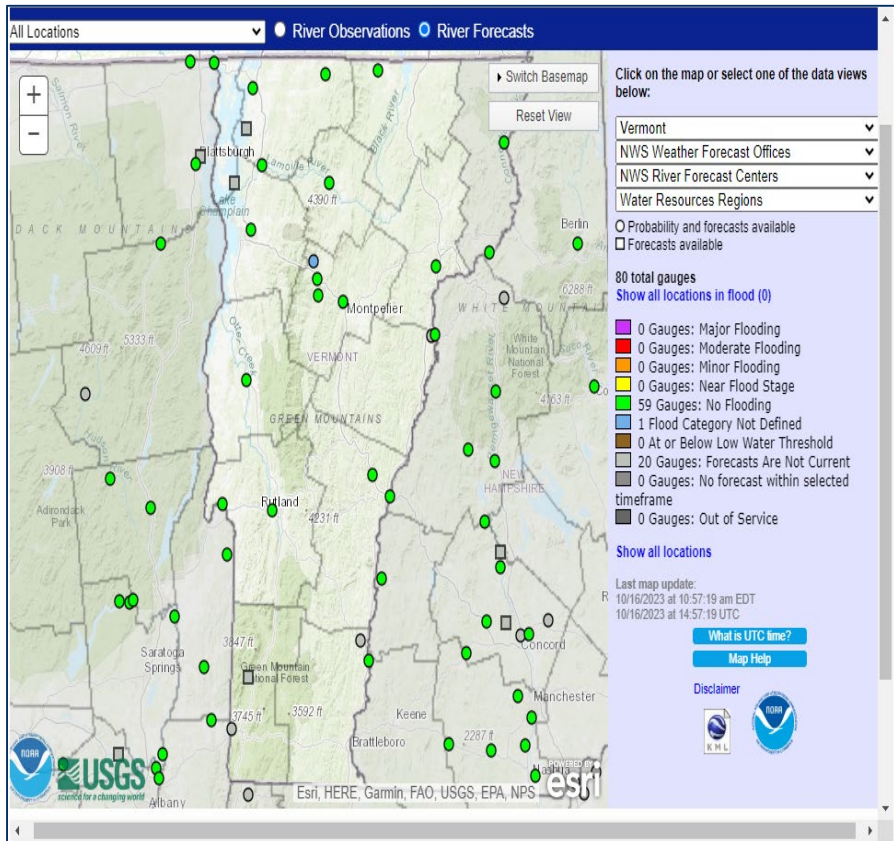
Pawtuxet River Valley – West Warwick/Warwick



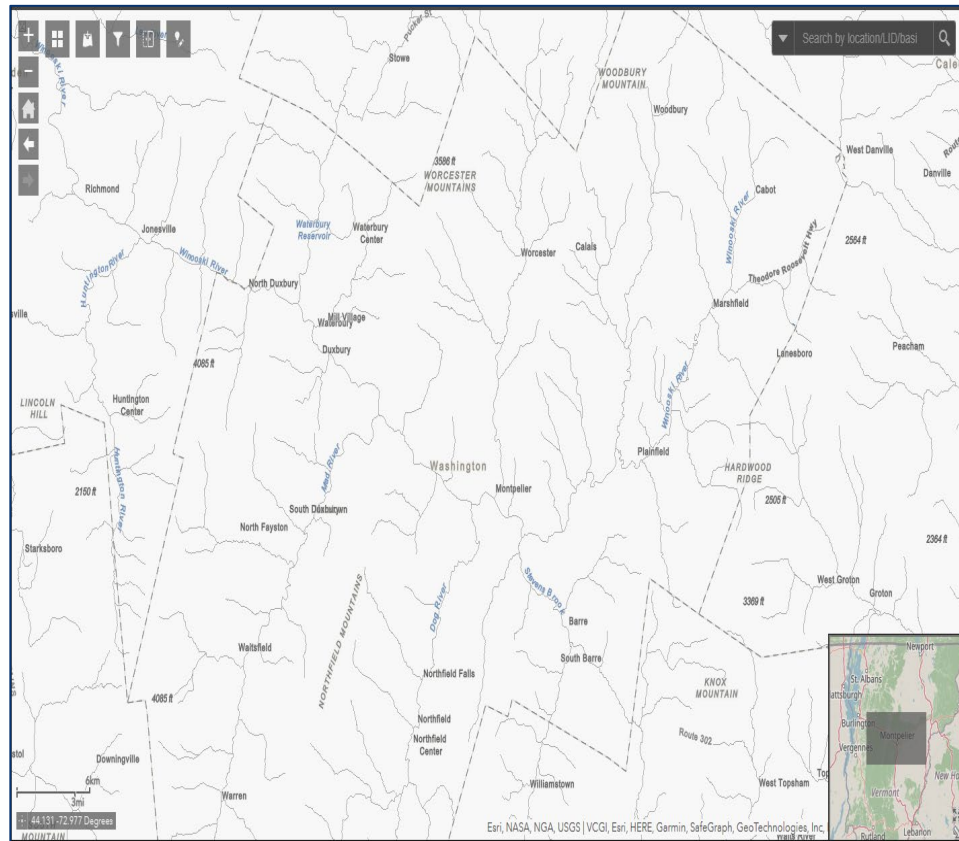
Gage coverage vs. NWM Coverage

NWS River Forecast Points in VT

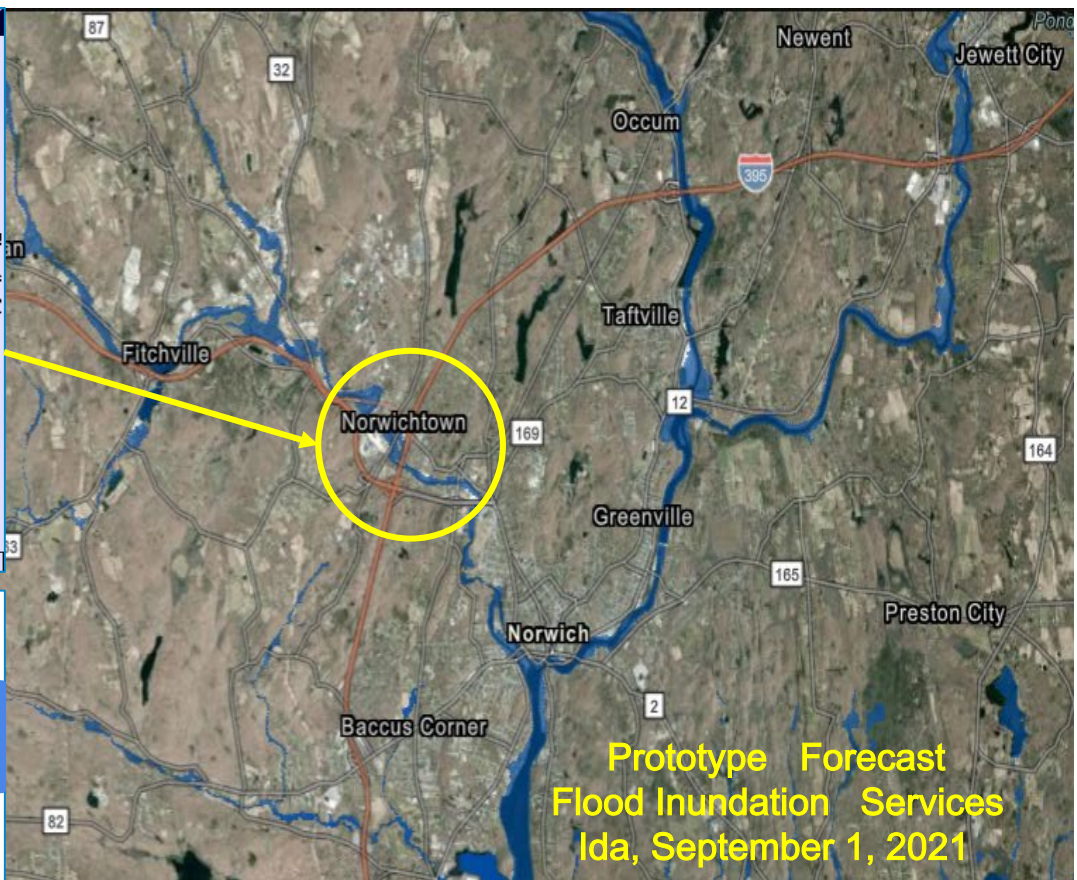
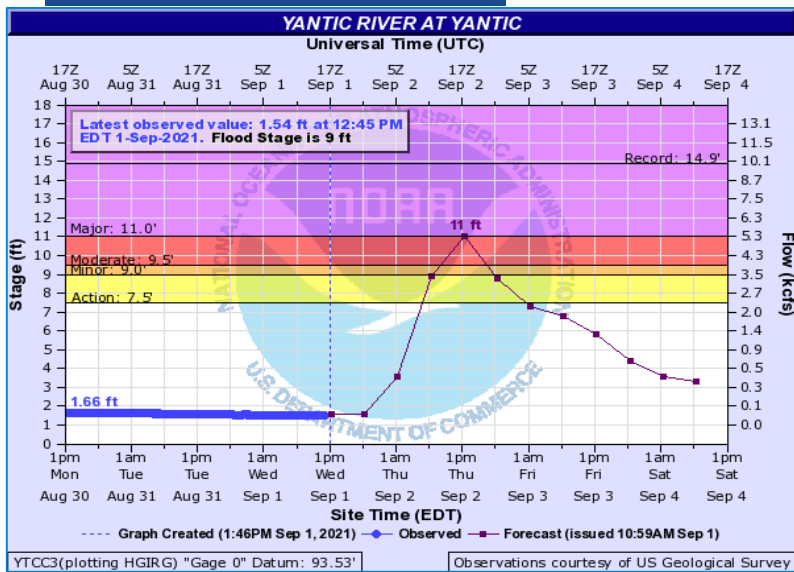
<https://water.weather.gov/ahps/region.php?state=vt>



Depiction of the National Water Model stream reaches in Washington County, VT



Value of FIM Services - Visualizations to depict impacts!



- Flood Impacts & Photos Collapse
- If you notice any errors in the below information, please contact our Webmaster
- 10 Flooding along Otrobando Avenue at the Fitness World, Pleasant Street bridge and along Town Street at the Norwichtown Mall.
 - 9.5 Flooding begins at several commercial structures along west Town Street in Yantic Flats.
 - 9 Flooding begins along Sturtevant Street.
 - 7.5 Flooding begins in the Meadow in Yantic Flats.

Prototype Forecast
Flood Inundation Services
Ida, September 1, 2021

Map Legend



Population served by **October 2023.**



Population served by **October 2024.**



Population served by **October 2025.**

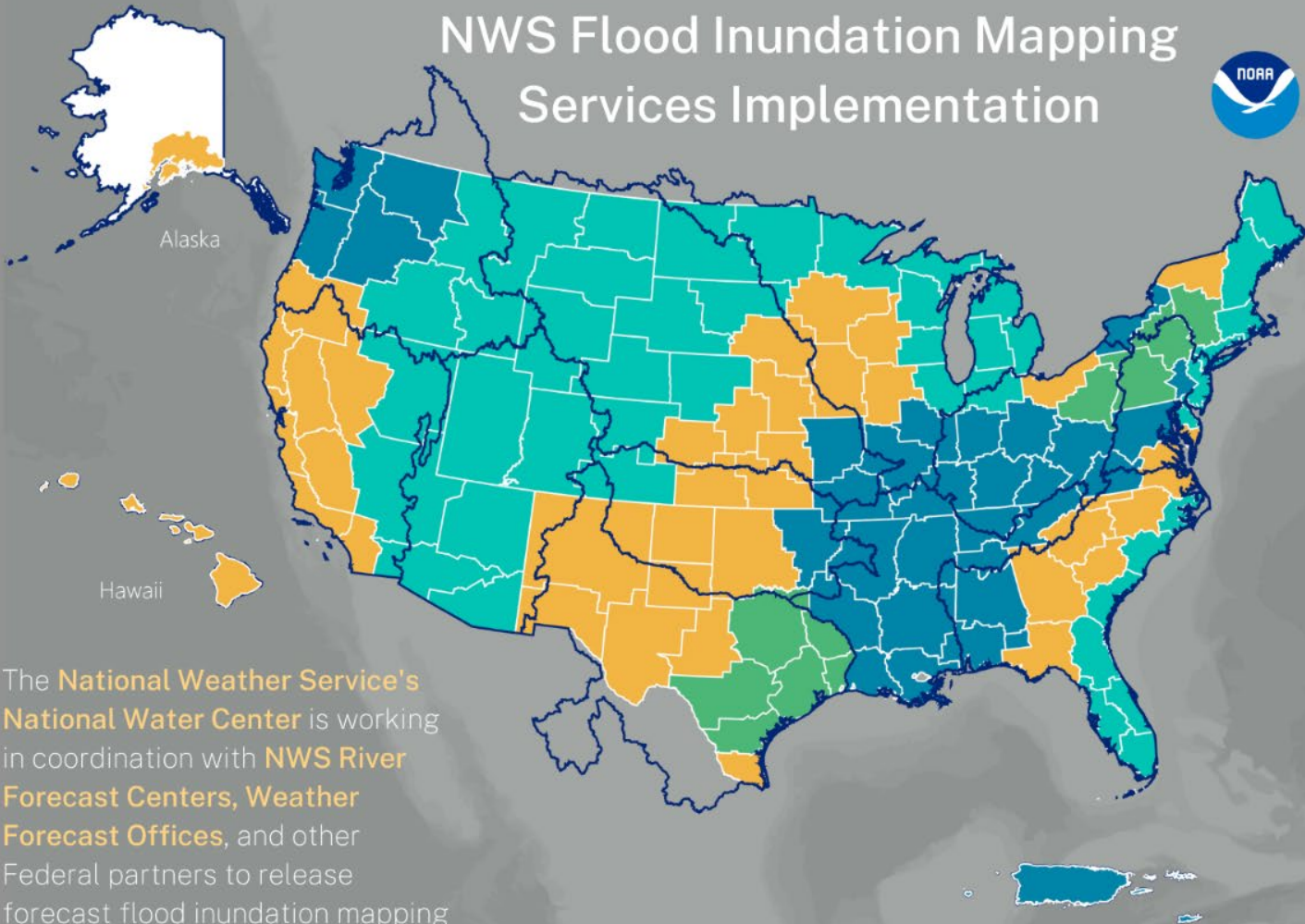


Population served by **October 2026.**

 NWS County Warning Areas

 NWS River Forecast Center Boundaries

NWS Flood Inundation Mapping Services Implementation

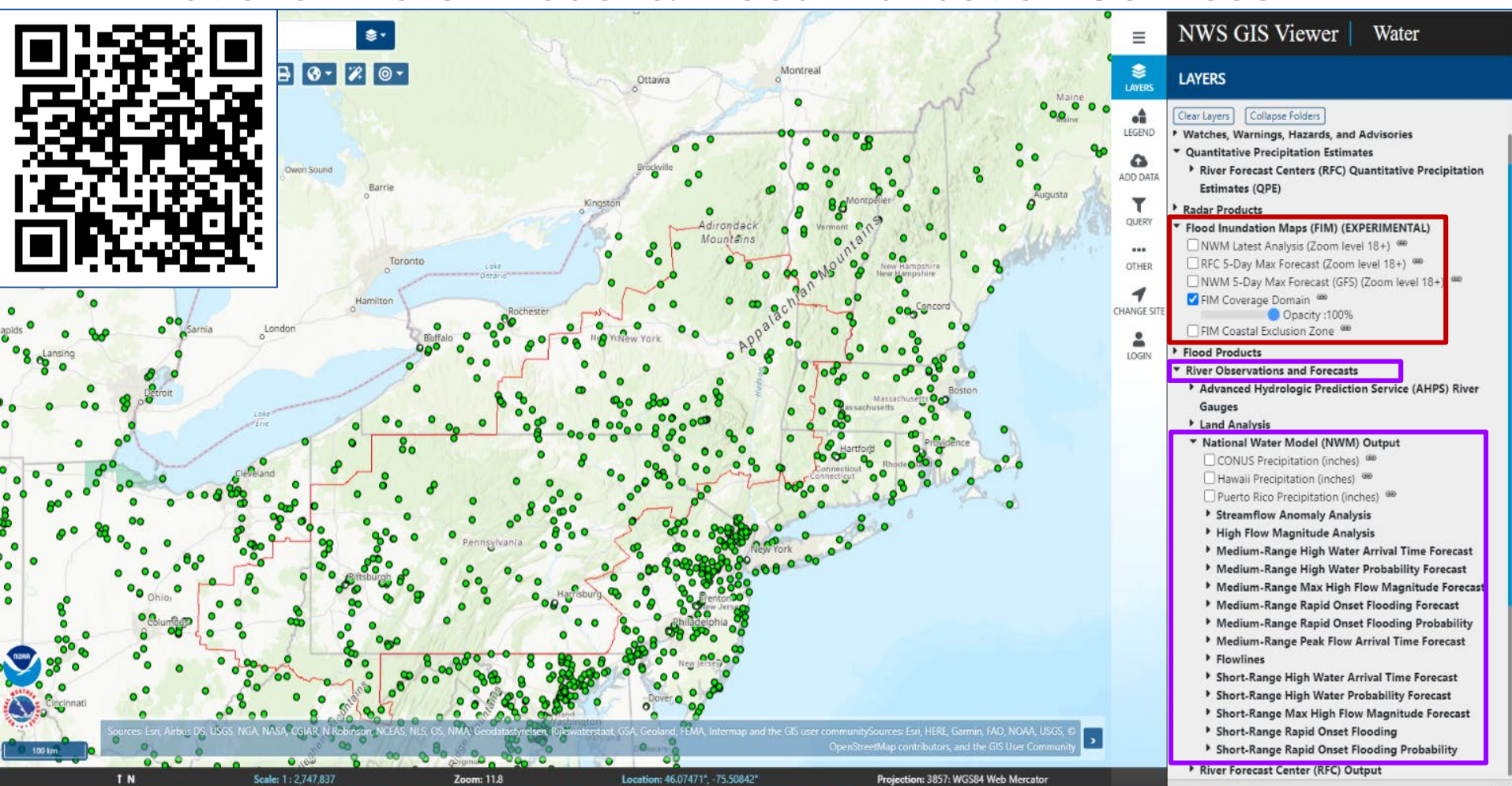


The **National Weather Service's National Water Center** is working in coordination with **NWS River Forecast Centers, Weather Forecast Offices**, and other Federal partners to release forecast flood inundation mapping services to the Nation.

*100% is approximate. Does not include all parts of Alaska, American Samoa, and Guam. Implementation areas are subject to change.

Puerto Rico & U.S. Virgin Islands

National Water Model & Flood Inundation Services



Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N. Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community Sources: Esri, HERE, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community

Scale: 1:2,747,837 Zoom: 11.8 Location: 46.07471°, -75.50842° Projection: 3857; WGS84 Web Mercator


This experimental map represents the NWS's best approximation of inundation extent based upon modeled river discharge

Initial FIM Rollout - National Viewer

By September 30th - FIM for 10% of the U.S. population

- Services available on our NWS National Viewer alongside the existing NWM visualizations
 - (<https://viewer.weather.noaa.gov/water>)
 - High Water Arrival Time, Max High Flow Forecast, & High Water Probability Forecasts
 - Rapid Onset Flooding Forecasts & Probability Forecasts
- Actual services available for ingest into your local GIS systems

Dynamic FIM Services Comparison Table

	NWM ANA FIM	RFC 5-Day Max FIM	NWM 5-Day Max FIM
Data Type	Observation-based simulations [precipitation estimate and assimilated with USGS gage observations]	Forecast [5-day RFC forecasts]	Forecast [5-day GFS]
Total Latency	55 minutes	45 minutes	6 hours 30 minutes
Update Frequency	Hourly	Hourly [if new forecasts are available]	Every 6 hours
FIM Domain	NWM domain for FIM 10% [parts of eastern TX and mid-Atlantic]	Downstream of AHPs forecast points for FIM 10% [parts of eastern TX and mid-Atlantic]	NWM domain for FIM 10% [parts of eastern TX and mid-Atlantic]
When to Use	Use as a snapshot of the most recent modeled inundation	Use when RFC forecast is available	Use for rivers and streams not covered by RFC forecast





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