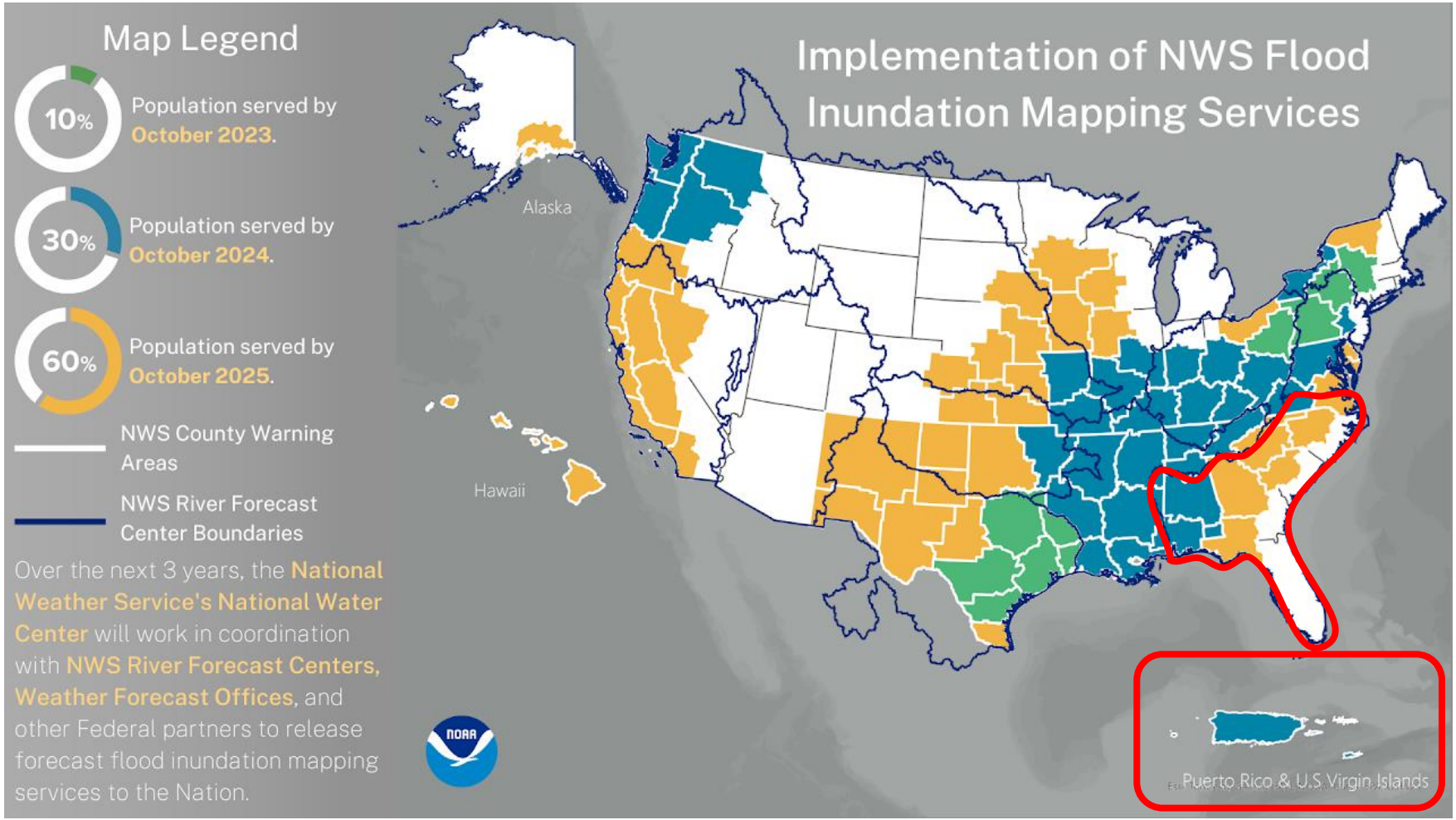
National Weather Service Southeast River Forecast Center and Office of Water Prediction's Support of the Implementation of Flood Inundation Mapping in Puerto Rico

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Flood Inundation Mapping: Part II
15th Conference on Research to Operations
105th Annual Meeting of the American Meteorological Society
January 15, 2025


Map Legend
10%
Population served by October 2023.
30%
Population served by October 2024.
60%
Population served by October 2025.
NWS County Warning Areas
NWS River Forecast Center Boundaries
Over the next 3 years, the National Weather Service's National Water Center will work in coordination with NWS River Forecast Centers, Weather Forecast Offices, and other Federal partners to release forecast flood inundation mapping services to the Nation.
Implementation of NWS Flood Inundation Mapping Services
Alaska
Hawaii
Puerto Rico & U.S Virgin Islands
NOAA

Available Dynamic FIM Services for Puerto Rico

National Water Model (NWM) Latest Analysis FIM

- Observation-based simulations
- 30-minute latency
- Hourly updates
- Used as a snapshot of the most recent modeled inundation
- Error Sources:
  - Radar or gage malfunctions
  - For ungaged reaches, errors associated with NWM and estimated precipitation
  - HAND errors (10 m DEM resolution)

National Water Model (NWM) 48-Hour Forecast FIM

- Forecast based on 48-hour WRF-ARW QPF
- 3-hour latency
- Updates every 12 hours at 6 UTC and 18 UTC
- Used for rivers and streams not covered by RFC forecast
- Error Sources:
  - WRF-ARW QPF
  - NWM flow simulations
  - HAND errors (10 m DEM resolution)

Both use HAND method and are only available for reaches that meet and/or exceed the “High Water” threshold in NWM

Visit with WFO San Juan



- Representatives from SERFC and OWP
- Two-day training and outreach visit in June 2024
- Training sessions on available products and services from NWM and FIM
- Training partner agencies on how to use FIM in their operations
- Tabletop exercise conducted using archive data from Hurricane Fiona
- Meeting with Autoridado De Acueductos Y Alcantarillados (The Puerto Rico Aqueduct and Sewer Authority)



Picture courtesy of Office of Water Prediction



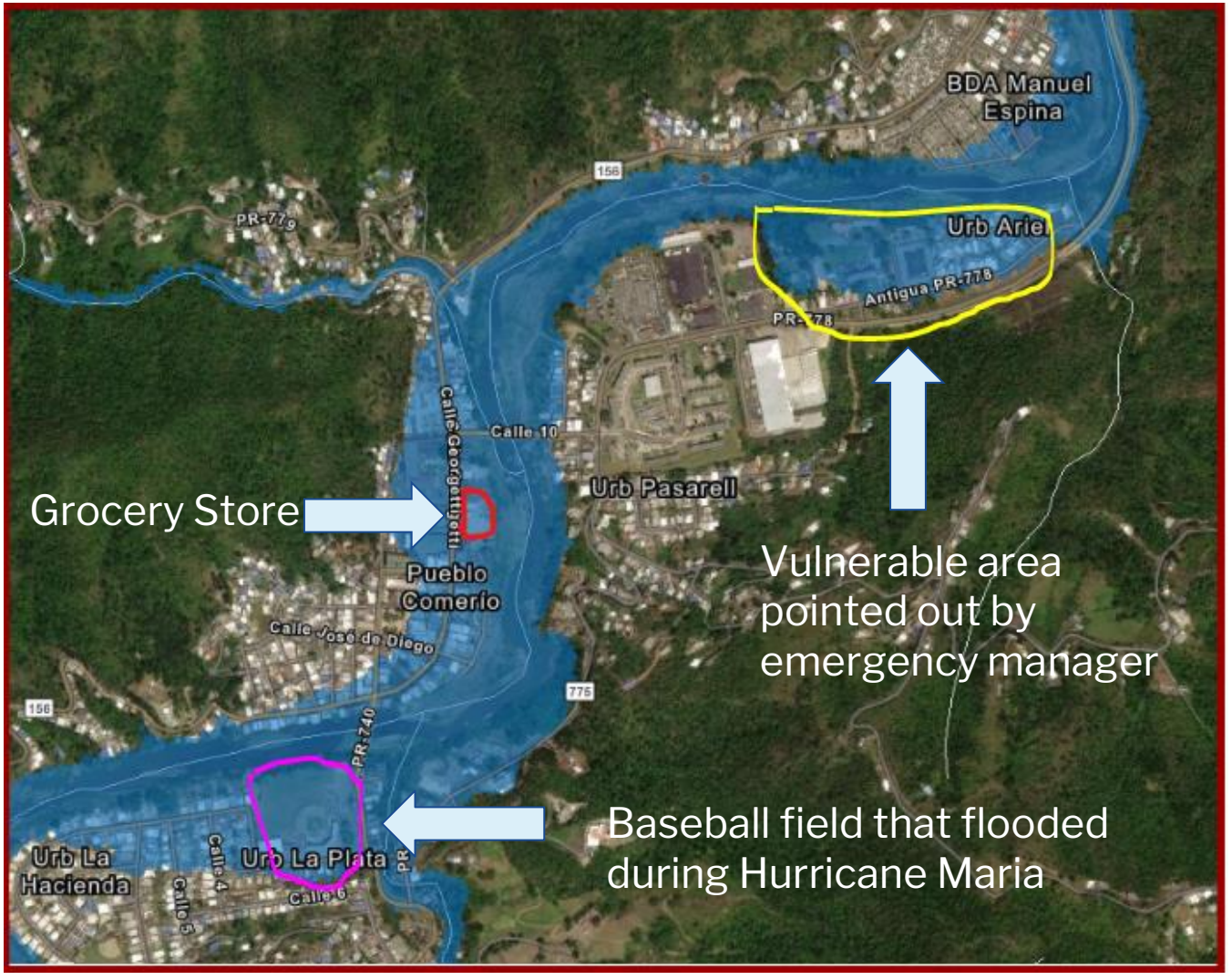
Picture courtesy of Office of Water Prediction

Hurricane Fiona Exercise

- Used to train SERFC staff, partners, and used at FIM Workshops
- Helps to demonstrate potential questions from partners during an event
- Group puts together a slideshow and gives a briefing to the “partner”

Objectives

- Understand how Flow-Based CatFIM can be used in Puerto Rico during outlook period
- Learn how to use provided FIM Review Checklists, NWM Vis Services, gage analysis tool, FIM Reviewer
- Understand differences between types of FIM, how past events can provide insight, how to recognize catchment issues, etc.


BDA Manuel Espina
156
PR-779
Urb Ariel
Antigua PR-778
PR-778
Calle Georgetti Jyotti
Calle 10
Urb Pasarell
Grocery Store
Pueblo Comerio
Calle José de Diego
Vulnerable area pointed out by emergency manager
156
775
PR-740
Urb La Hacienda
Calle 4
Calle 5
Urb La Plata
Calle 6
PR
Baseball field that flooded during Hurricane Maria

Connecting to Real Life



Pieces of the temporary steel bridge lay on the side of the Guaonica River in Utuado, Puerto Rico. (Ricardo Arduengo/Reuters)

- Bridge destroyed by flows from Hurricane Maria replaced with temporary bridge
- Concern for temporary bridge – will water get that high?
- Given known information about temporary bridge, waters during Fiona expected to be similar to Maria

Thank You! Questions?

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