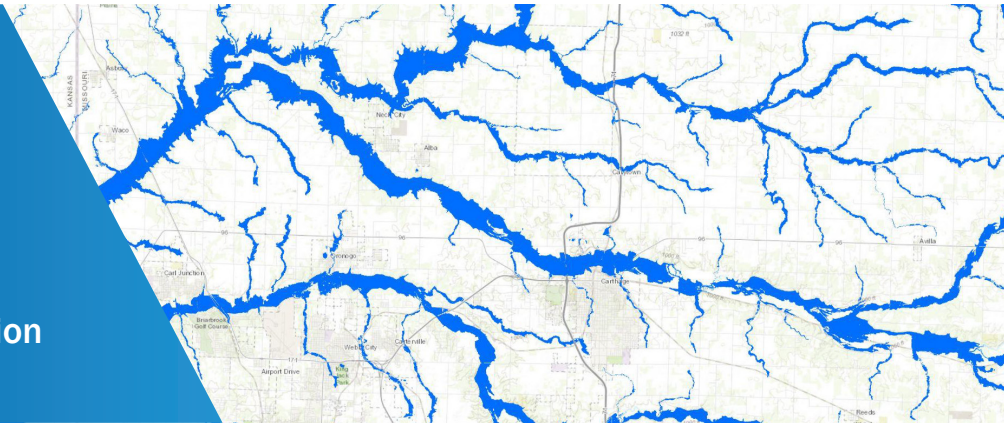
NEIGHBORHOOD LEVEL FLOOD INUNDATION MAPS:

Transforming NWS Water Prediction across the U.S.



The longstanding demand for event-driven flood inundation mapping (FIM) has increased dramatically in recent years as a high value source of actionable information for emergency and water resource managers to prepare, mitigate, and respond to flood impacts. In response, the National Water Center (NWC) of the National Weather Service (NWS), in coordination with NWS River Forecast Centers (RFC) and Weather Forecast Offices (WFO) along with Federal and other partners, has developed and demonstrated high-resolution inundation modeling capabilities which complement and expand upon existing static FIM libraries providing geo-referenced visualizations of forecast flooding extent at the continental scale.

New inundation mapping capabilities translate analysis and forecasts of streamflow into operational maps that communicate impact by showing where flooding may occur.

Flood inundation mapping will be provided based on the RFC streamflow forecasts as well as from the National Water Model (NWM) streamflow analysis and forecasts. RFC-based inundation mapping will be provided at and downstream of official RFC forecast locations and will provide a forecast of maximum inundation extent over the next 5 days.

> **"Had I had this tool in 2011, we would have had a larger evacuation area established earlier, would have moved emergency assets out of the flood zone, pre-positioned support resources and been able to provide better information to the residents of the affected area."**
>
> *New York state emergency manager from 2021 tabletop exercise*

NWM Latest Analysis

- Observation-based
- Updated hourly
- To be used as a snapshot of the most recent modeled flooding
- Generated where NWM analysis indicates flows exceed the highflow threshold

RFC 5-Day Max Forecast

- Based on up-to-5-day RFC forecasts
- National Water Prediction Service (NWPS) forecast points
- To be used where and when an RFC forecast is available
- Generated when RFC forecast reaches "action stage"

NWM 5-Day Max Forecast

- Based on 5-day weather forecast
- Updated every 6 hours
- To be used for rivers and streams not covered by an RFC forecast
- Generated only where NWM forecast indicates flows exceed the high flow threshold

NWM 48-Hour Max Forecast for Puerto Rico, U.S. Virgin Islands, and Hawaii

- Based on the 48-hour weather forecast
- Updated every 6 hours, except Hawaii, which is updated twice daily
- Generated where NWM forecast indicates flows exceed the high flow threshold

Scan the QR codes to view our Fact Sheets.

Dynamic FIM Services Factsheet

Dynamic FIM Services Comparison Table

Alaska Dynamic FIM Services Factsheet

Hawaii Dynamic FIM Services Factsheet

Puerto Rico & U.S. Virgin Island Factsheet

Where Will These Services Be Accessible?

FIM services will be made available for nearly 100% of the U.S. population in **September 2026**:

- The National Water Prediction Service (NWPS)
- The NWC Operations Page at National Water Center Products and Services
- The NWS National GIS Viewer
- Directly via URLs hosted on the Hydrologic Visualization and Inundation Services (HydroVIS) cloud system

Service Delivery Timeline

2025

Operational FIM for 60% of the U.S. population

- Expands services to include Hawaii, Cook Inlet and the Copper River basin portion of Alaska, as well as, further expansion along the West Coast, the Southwest, Great Plains, Great Lakes, and interior Southeast.

2026

Operational FIM for nearly 100% of the U.S. population

- Expands services across remaining areas of the Southwest, Great Basin, Rocky Mountains, Great Plains, Great Lakes, Northeast, and Southeast, while some portions of Alaska, American Samoa, and Guam remain outside the service area.

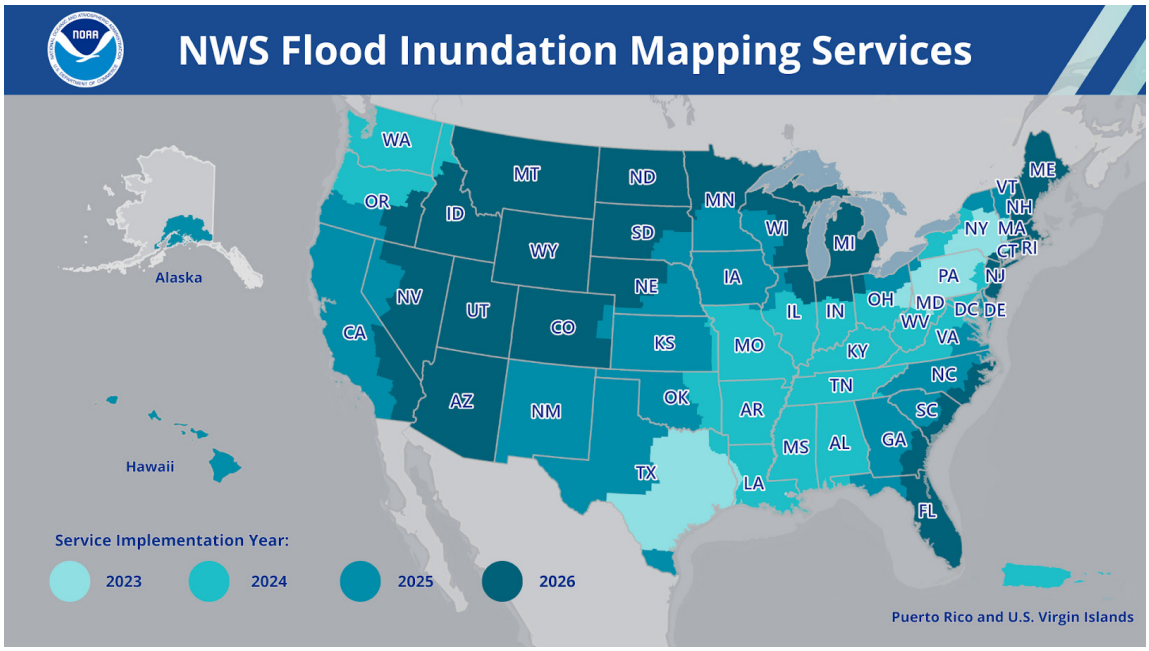
Scan the QR codes for more information on our services.

NWC Operations Page

NWS National GIS Viewer

HydroVIS Cloud System

NWPS



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