

The National Weather Service's Role in Ice Jam Forecasting

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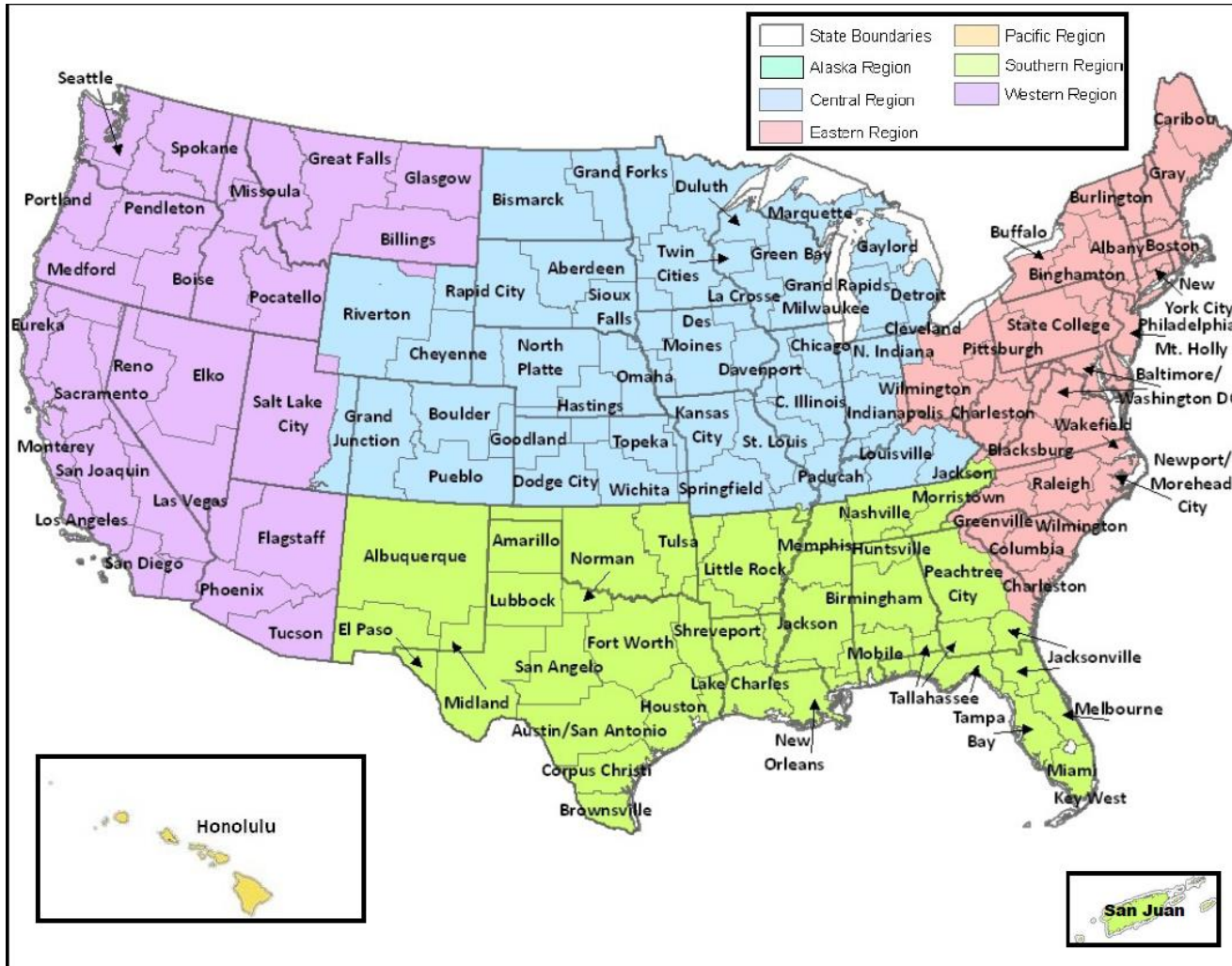


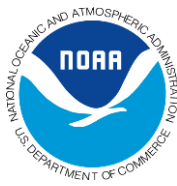
About Us

- National Weather Service mission is to provide weather, water and climate data, forecasts and warnings for the protection of life and property and the enhancement of the national economy.
- Federal Government: Department of Commerce
 - National Oceanic and Atmospheric Administration (NOAA)
 - National Weather Service



Your Weather Forecast Offices





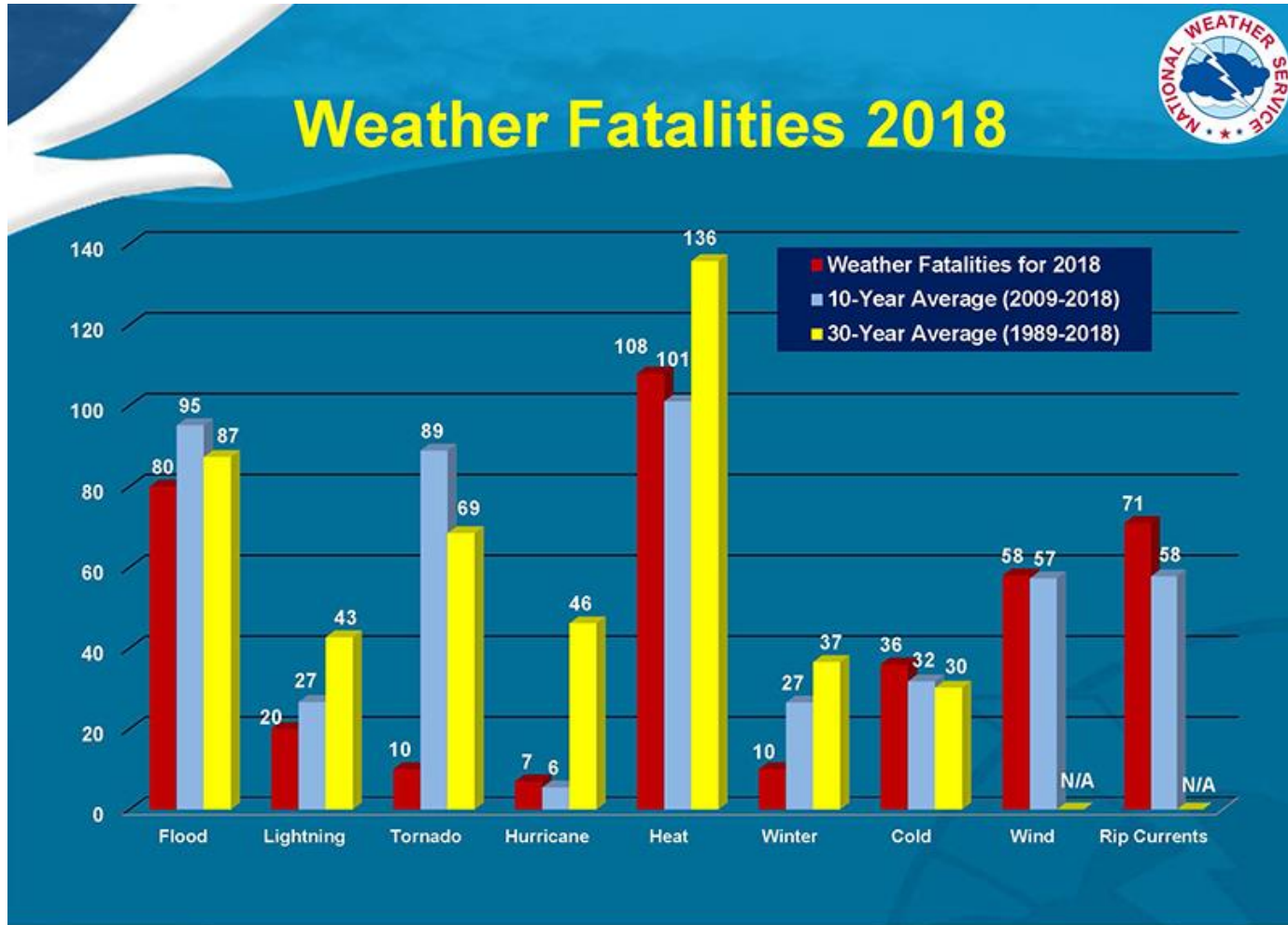
Why Forecast Rivers?

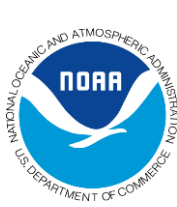
- Protection of life and property
 - Each year, countless lives are saved due to accurate forecasts of rising rivers
 - Millions of dollars in property are also saved by accurate forecasts
- For Hydro Power Production/Industry
- Recreation
- Dam Operations
- Navigation

The National Weather Bureau Organic Act of 1890 (U.S. Code title 15, section 311) mandates that the National Weather Service is the responsible agent for *"the forecasting of weather, the issue of storm warnings, the display of weather and flood signals for the benefit of agriculture."*



Flooding: #2 Weather Hazard in U.S.





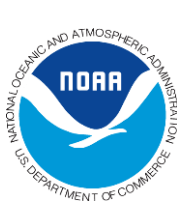
Common Causes of CT Floods

Floods can occur any time of year:

- Winter/Spring:
 - Rain plus snowmelt / ice jams
 - Heavy rain with large storm systems
- Spring/Summer: Thunderstorms
- Summer/Fall: Tropical Storms



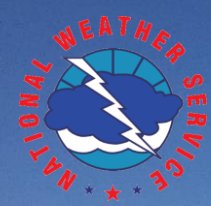
Precautionary shutdown of Route 1 on Westerly-Stonington Town line, at Pawcatuck River. April 6th, 2010



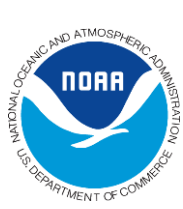
Midwinter/Breakup Ice Jam Ingredients

- Significant river ice thickness
 - Extended period of below freezing temperatures w/limited thawing
- Increase in river flow
 - From rainfall and/or snowmelt
- Jam site
 - Location where ice stops moving and blocks the channel

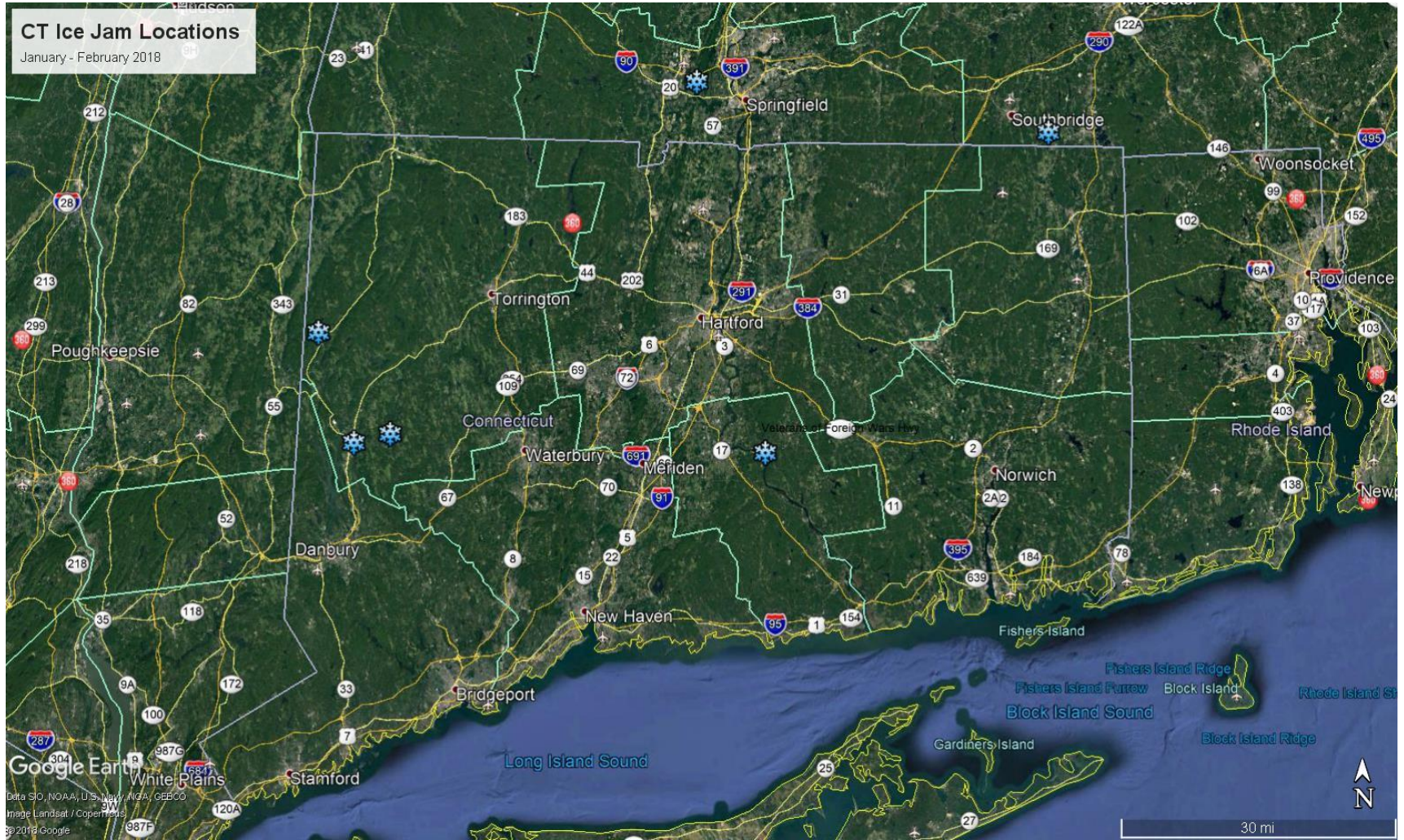
Slide courtesy USACE CRREL Ice Engineering Group

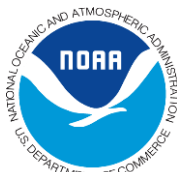


Ice Jams in Connecticut Jan-Feb 2018



Ice Jam Locations Jan/Feb 2018

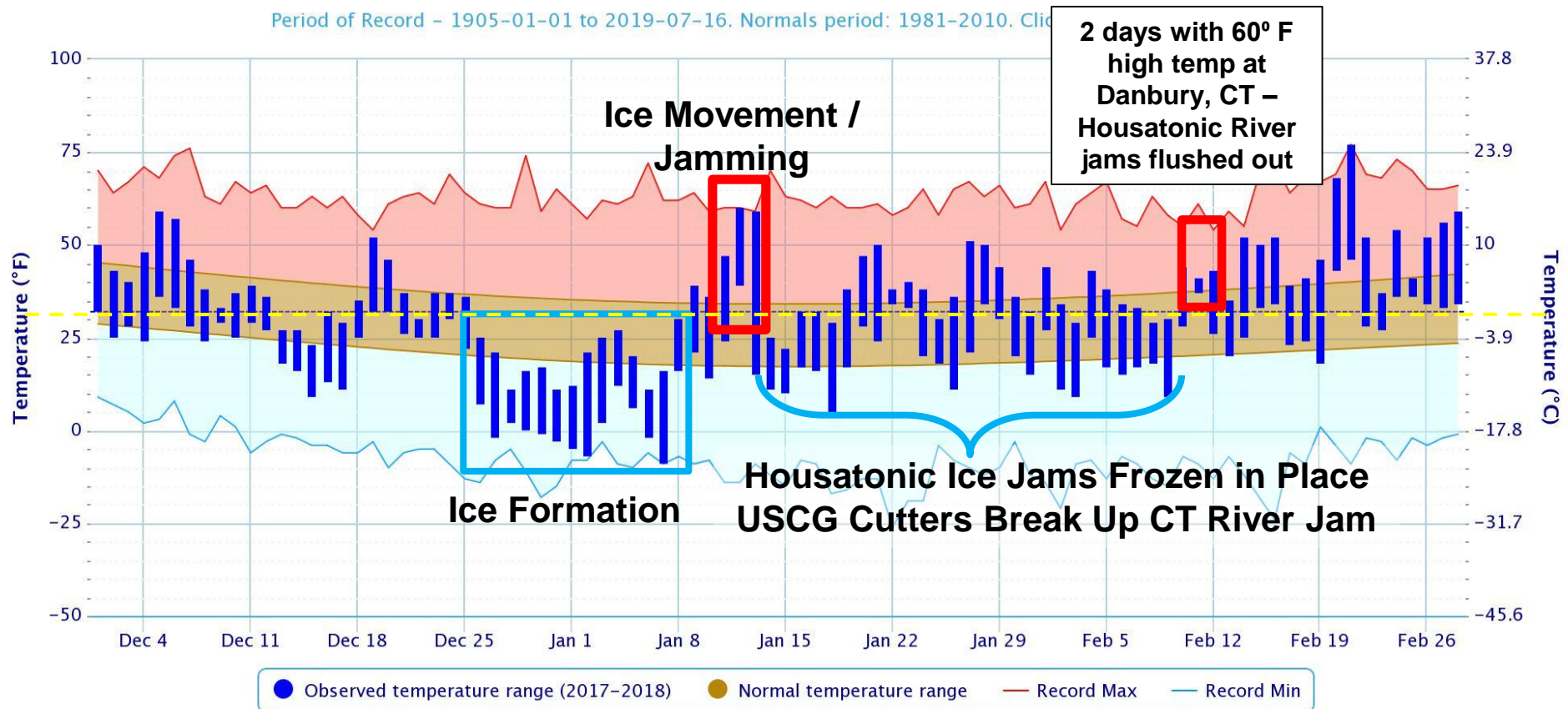




Ingredients: Thick River Ice

Daily Temperature Data – Hartford Area, CT (ThreadEx)

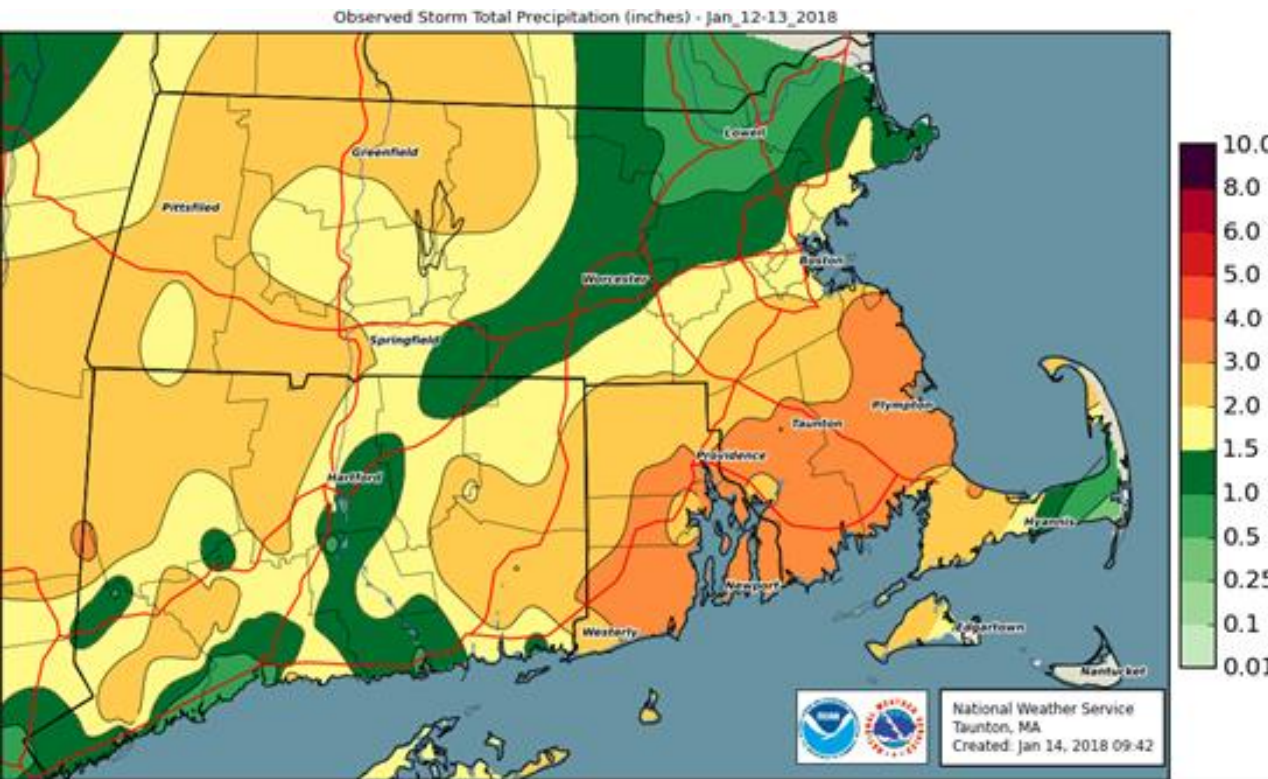
Period of Record – 1905-01-01 to 2019-07-16. Normals period: 1981-2010. Click



Powered by ACIS

Ingredients: Increased River Flow

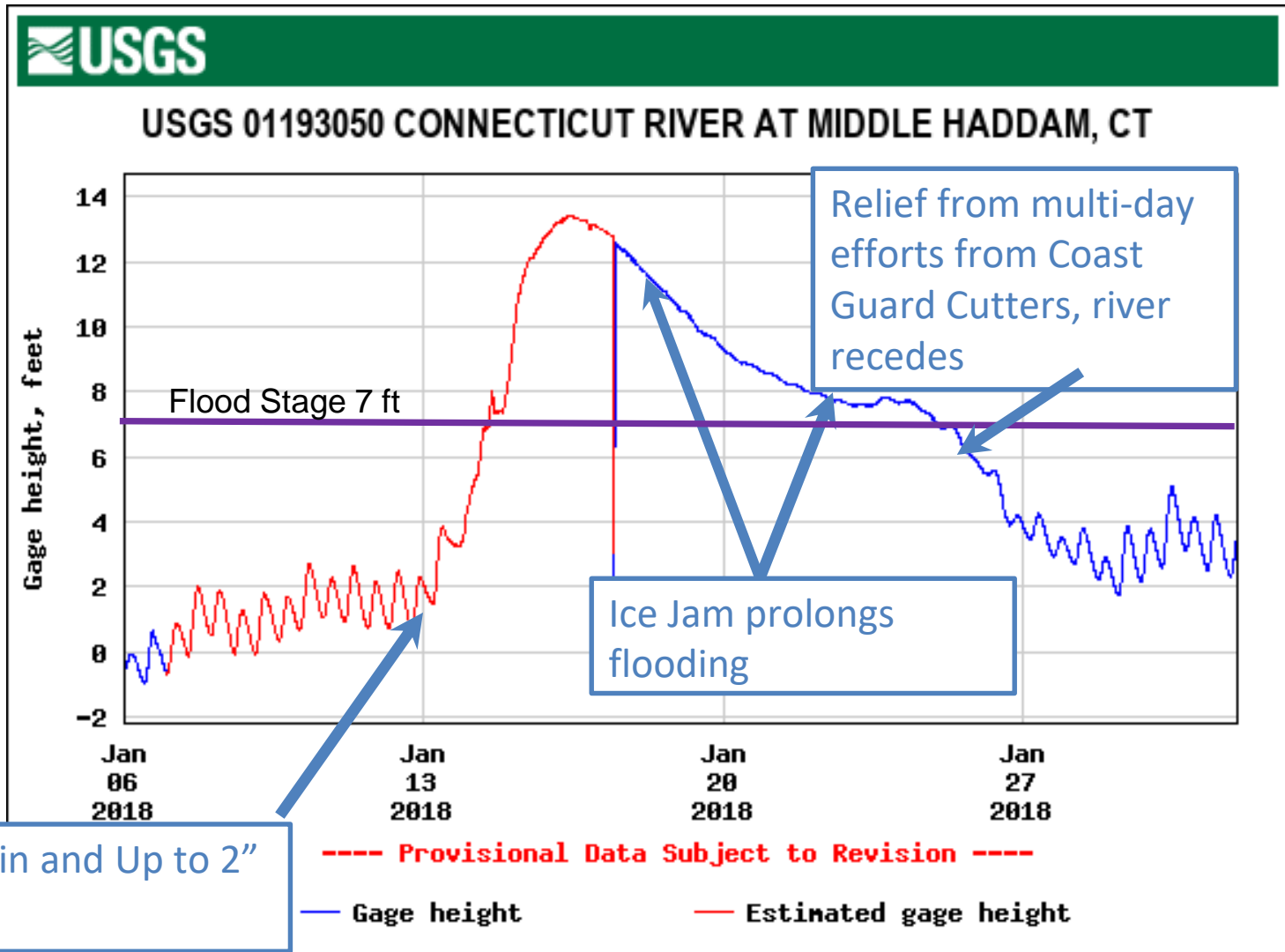
Comparable rainfall amounts in the CT River Headwaters of VT/NH



- Rainfall/snowmelt with a thaw will enhance the potential for break up jams as rising water helps to lift and break up the ice.
- A very short thaw with little or no rain or snowmelt may not be enough to break up thick ice.
- Generally need a river rise about 3 times the ice thickness to break it up.



Ice Jam on Connecticut River





East Haddam Swing Bridge



Downstream view, Jan 18th 2018



Upstream view, Jan 18th 2018



East Haddam, Harper's Landing



Upstream view, Jan 18th 2018



Close-up on ice, Jan 18th 2018

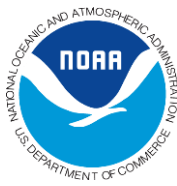
Civil Air Patrol Picture of Connecticut River Ice Jam at the East Haddam Swing Bridge: Jan 19th, 2018.





Forecasting Ice Jams

- When conditions favor ice breakup and/or river rise NWS will highlight the risk using these public products:
 - Hazardous Weather Outlook
 - Flood Watch (if confidence high)
 - Flood Warning or Flash Flood Warning
- In addition to our public products, we also provide Decision Support Services to Emergency Management, including:
 - Conference calls
 - Email briefings
 - One-on-one phone briefings



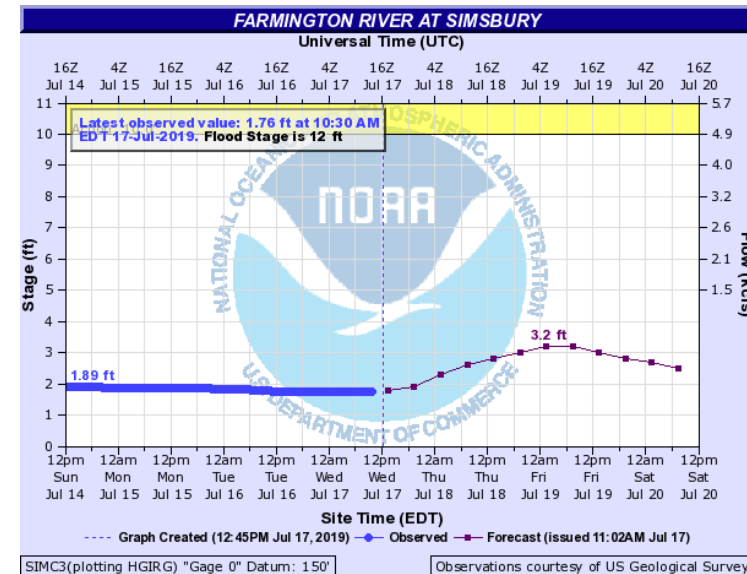
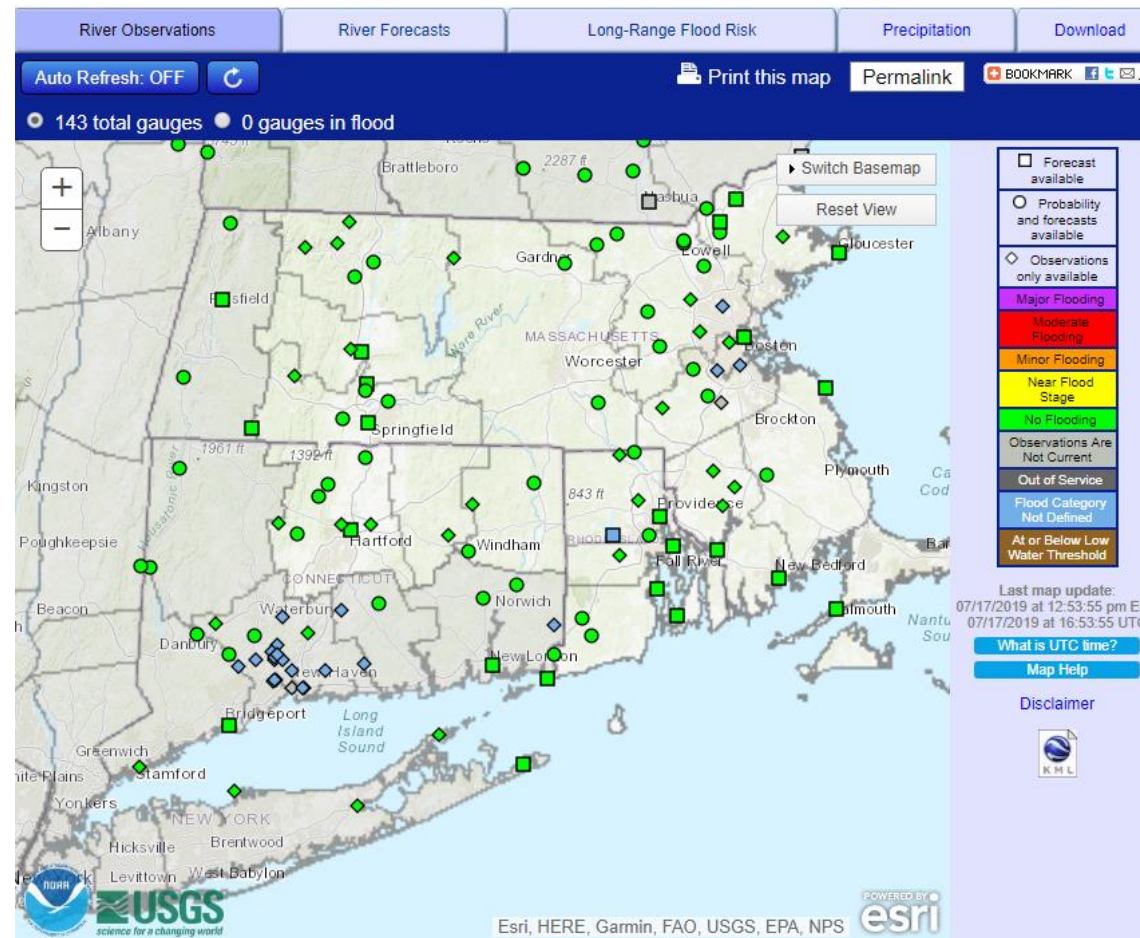
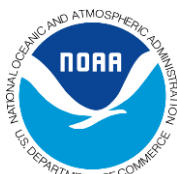
Getting the Message Out

- NOAA Weather Radio
- Emergency Alert System → Cell phone alerts
- Website: www.weather.gov
- Local officials: iNWS/NWS Chat

- Social media:  FOLLOW US ON **twitter**  Find us on **Facebook**
- Twitter: @NWSAlbany @NWSBoston



Advanced Hydrologic Prediction Service (AHPS)



Real-time river observations and forecasts at water.weather.gov



Flood Categories (in feet)

Major Flood Stage:	18
Moderate Flood Stage:	15
Flood Stage:	12
Action Stage:	10

Historic Crests

- (1) 30.10 ft on 08/20/1955
- (2) 22.10 ft on 10/17/1955
- (3) 18.20 ft on 01/02/1949
- (4) 17.80 ft on 11/05/1927
- (5) 16.98 ft on 08/29/2011

[Show More Historic Crests](#)

(P): Preliminary values subject to further review.

Recent Crests

- (1) 13.81 ft on 06/15/2013
- (2) 14.23 ft on 09/09/2011
- (3) 16.98 ft on 08/29/2011
- (4) 13.71 ft on 03/12/2011
- (5) 15.50 ft on 03/08/2011

[Show More Recent Crests](#)

(P): Preliminary values subject to further review.

Low Water Records

- (1) 0.50 ft on 08/01/1995



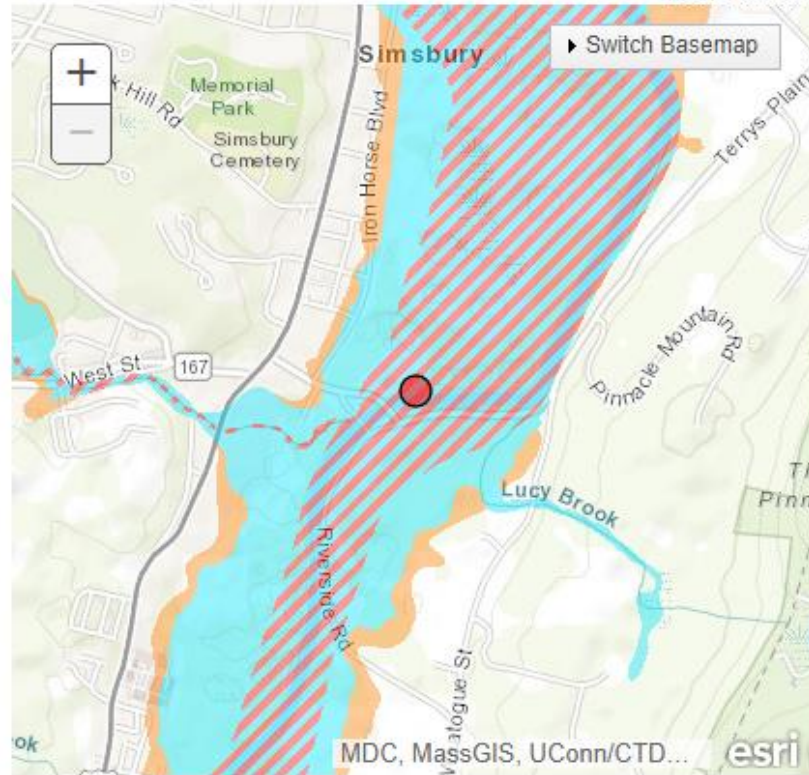
For more information on your flood risk go to www.floodsmart.gov.

Show FEMA's National Flood Hazard Layers

FEMA's National Flood Hazard Layers not showing?

Note: Your zoom level may have changed. ESRI's zoom levels must be between 14 and 16 to show National Flood Hazard layers.

Zoom Level: 14



Legend

- 1% Annual Chance Flood Hazard
- Regulatory Floodway
- Special Floodway
- Area of Undetermined Flood Hazard
- 0.2% Annual Chance Flood Hazard
- Future Conditions 1% Annual Chance Flood Hazard
- Area with Reduced Risk Due to Levee

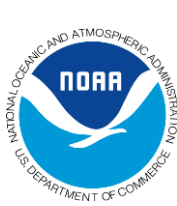
FEMA Layer

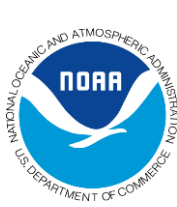


Gauge Location

[Disclaimer](#)

Latitude/Longitude Disclaimer: The gauge location shown in the above map is the approximate location based on the latitude/longitude coordinates provided to the NWS by the gauge owner.





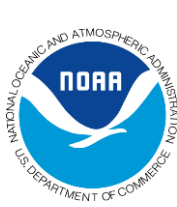
Impact Statements

Flood Impacts & Photos

Collapse

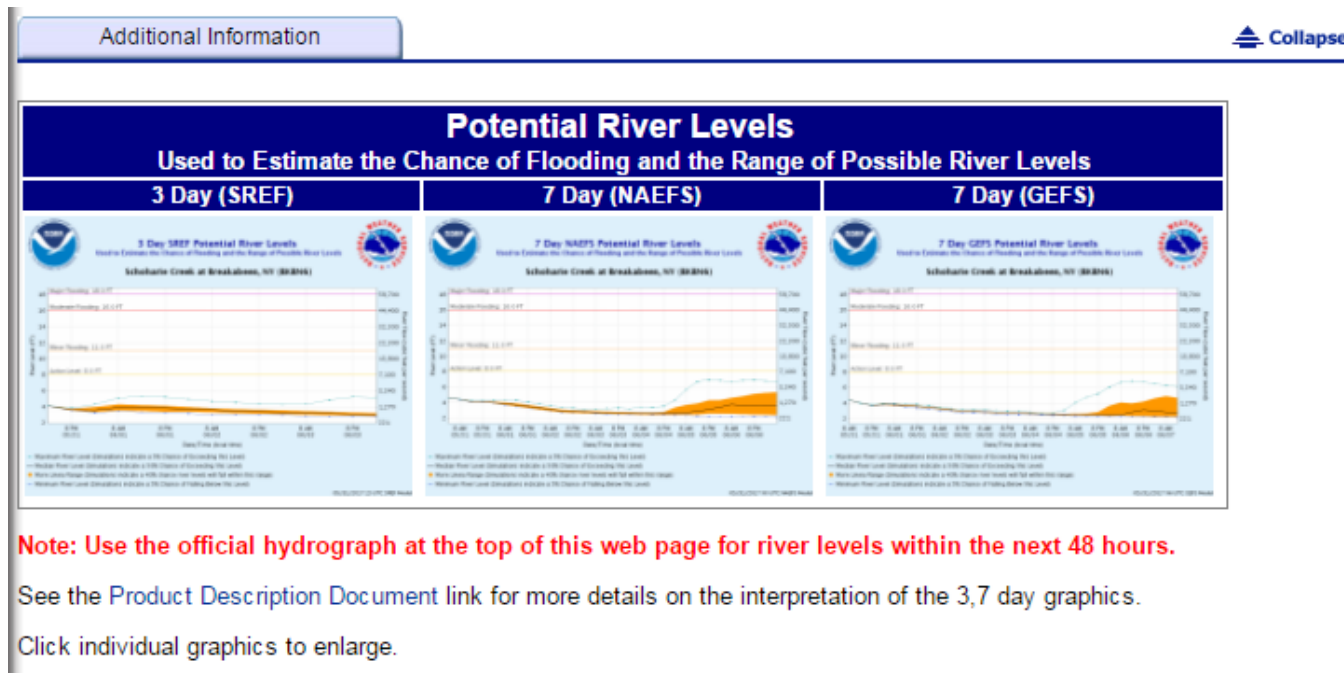
If you notice any errors in the below information, please contact our Webmaster

- 30 Widespread catastrophic flooding occurs throughout the Valley. Follow the advice of local officials, and evacuate if asked to do so.
- 22 Widespread flooding will affect portions of Farmington, Avon, Simsbury, Bloomfield and East Granby. Follow the advice of local officials, and evacuate if asked to do so.
- 18 This is a serious flood event and will affect numerous areas along the river. Act now to protect life and property. Follow the directions of your local emergency management officials. If you are asked to evacuate do so immediately.
- 16 Moderate flooding occurs with numerous roads and residences affected. Evacuations may be needed along various roads in Avon and Simsbury, including Riverside Road in Simsbury. Flooding also begins to affect low lying sections of Bloomfield and East Granby. Follow the directions of emergency management officials and obey all road closures.
- 15 Moderate flooding begins with numerous roads and residences affected. Evacuations may be needed along various roads in Avon and Simsbury, including Riverside Road in Simsbury. Flooding also begins to affect low lying sections of Bloomfield and East Granby. Follow the directions of emergency management officials and obey all road closures.
- 13 Flooding affects Old Farms and Tolliston Roads in Avon, Meadow Road in Farmington, and Nod, Riverside, and Terrys Plain Roads in Simsbury. Route 315 in Simsbury is also impacted. Flooding spreads into Plantation Country Club and adjoining Town Farm Road in Simsbury. Also, flooding will approach the Paine Boathouse.
- 12 Flooding begins on Riverside Road in Simsbury. Flooding also begins along Old Bridge and Drake Hill Roads.



Potential River Levels

- 3 and 7 day forecasts
- Computer based only, no human forecast
- Ensemble Blend of model forecasts
- Access at www.weather.gov/erh/mmefs or the bottom of individual river forecast point pages:

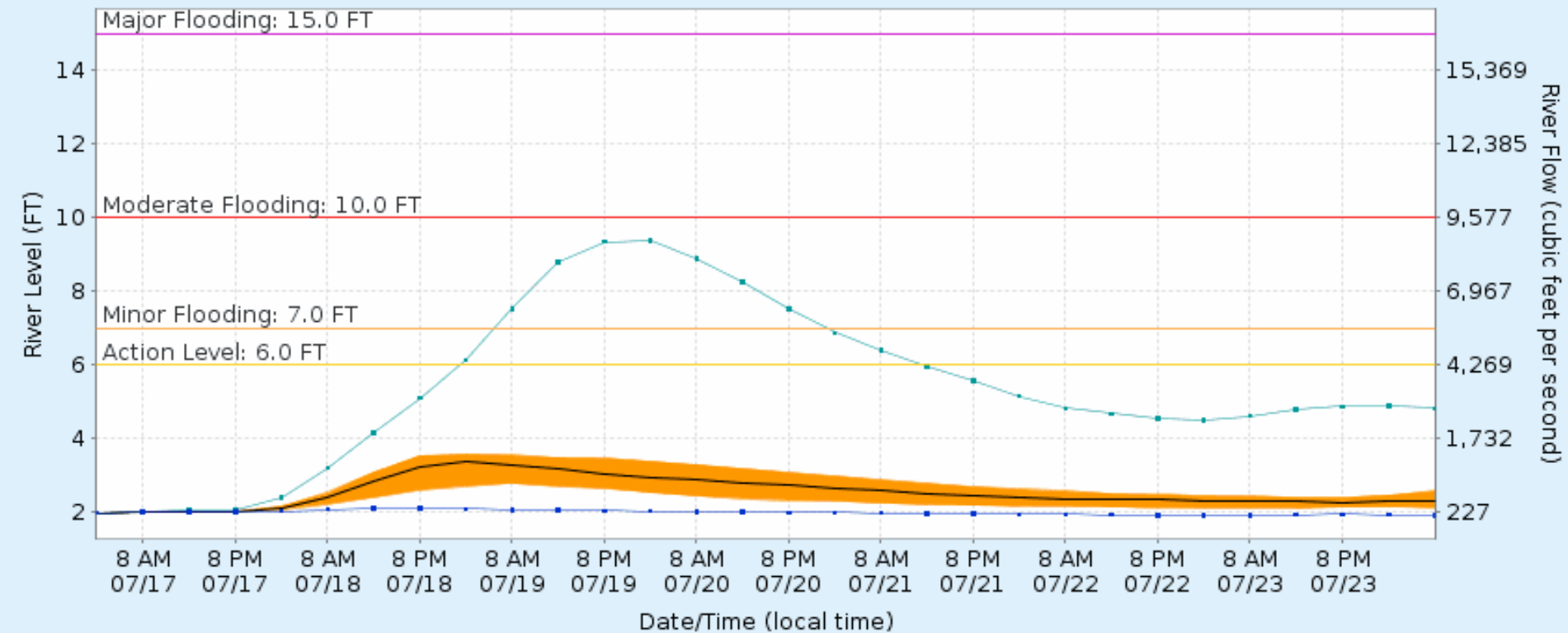




7 Day NAEFS Potential River Levels

Used to Estimate the Chance of Flooding and the Range of Possible River Levels

Housatonic River at Falls Village, CT (FLVC3)



- Minimum River Level (Simulations indicate a 5% Chance of Falling Below this Level)
- Median River Level (Simulations indicate a 50% Chance of Exceeding this Level)
- Maximum River Level (Simulations indicate a 5% Chance of Exceeding this Level)
- More Likely Range (Simulations indicate a 40% chance river levels will fall within this range)

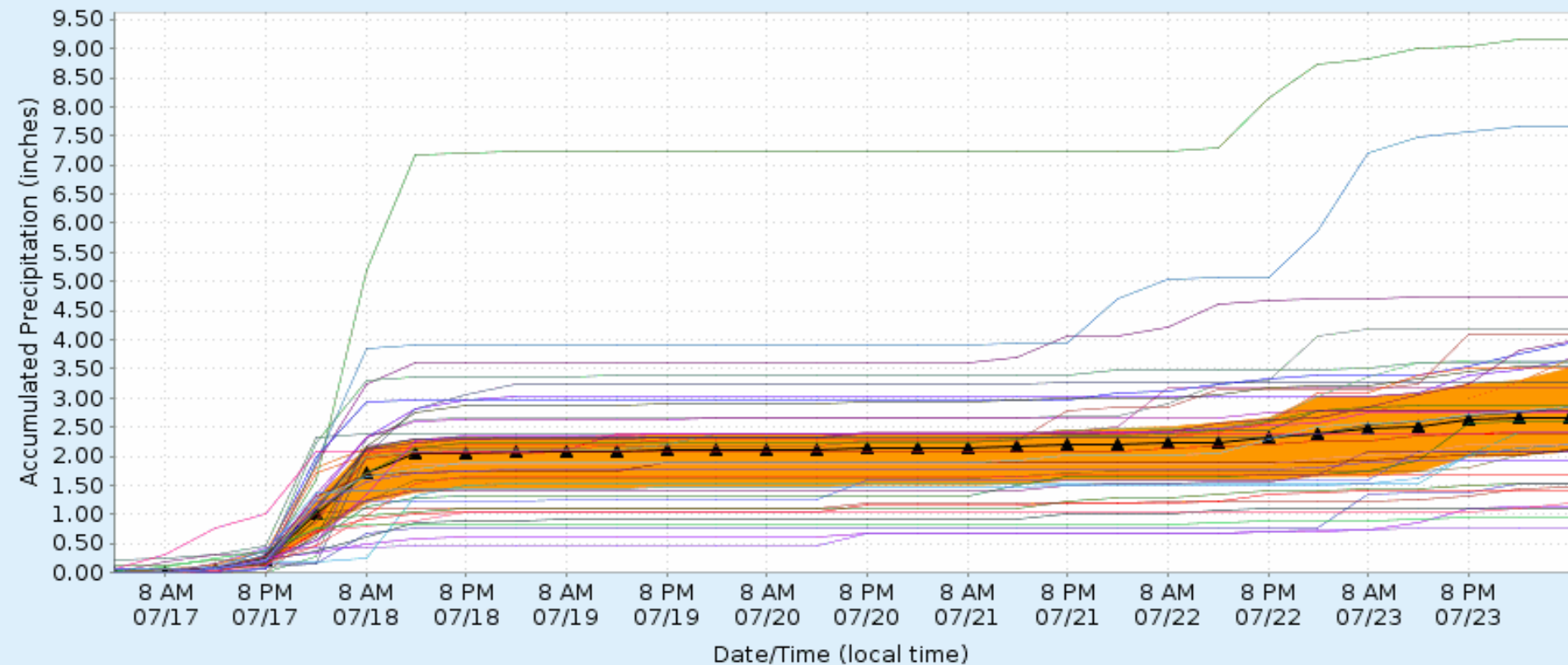


7 Day NAEFS Accumulated Precipitation Simulations

Used as Input to the River Level Simulations



Housatonic River at Falls Village, CT (FLVC3)



— Individual Model Simulations (42 Total)

▲ Median Precipitation (Simulations indicate a 50% Chance of Exceeding this Rainfall Amount)

■ More Likely Range (Simulations indicate a 40% chance precipitation amounts will fall within this range)

07/17/2019 00 UTC NAEFS Model



Stay in touch!

