The National Weather Service's Role in Ice Jam Forecasting

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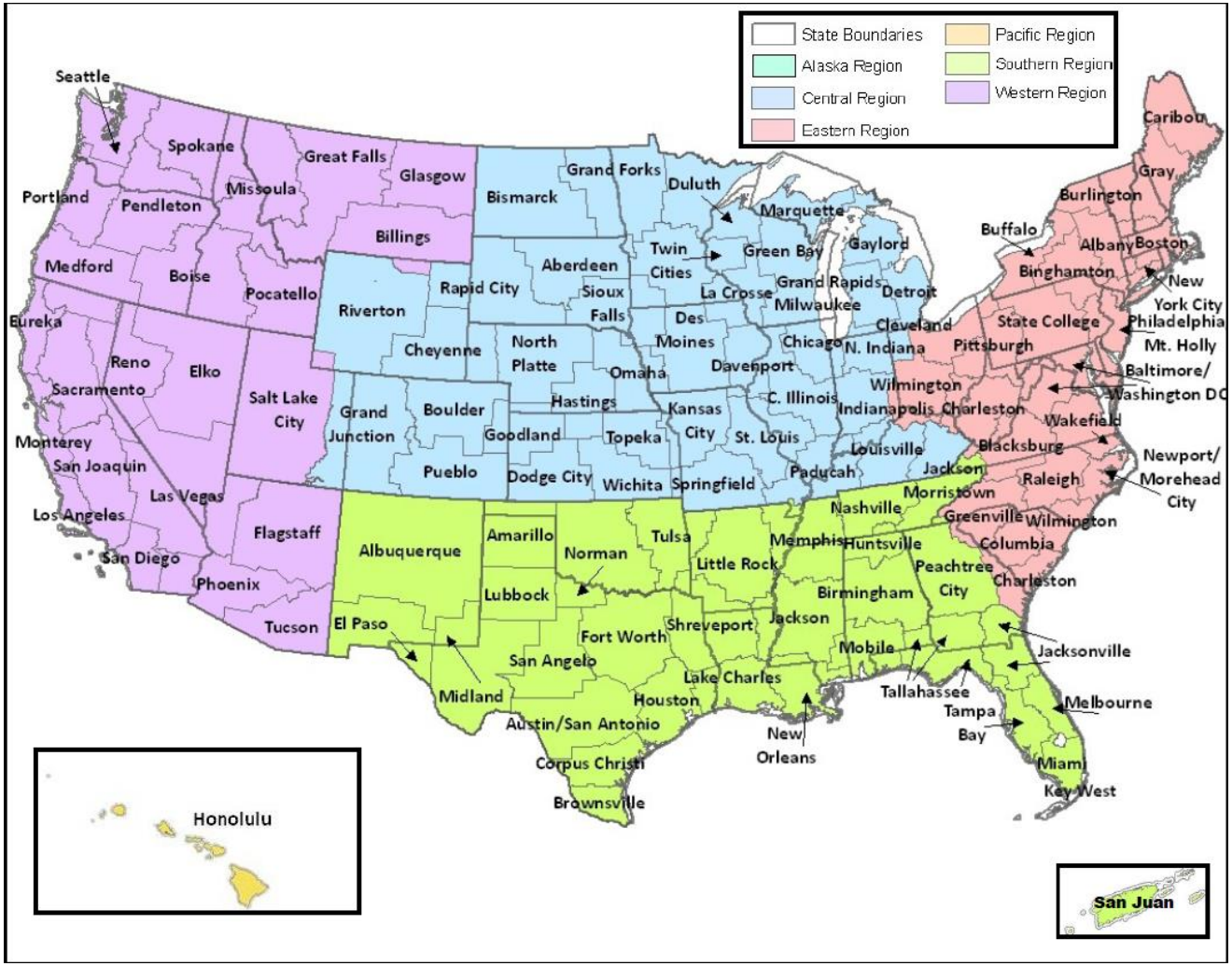
About Us

- 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

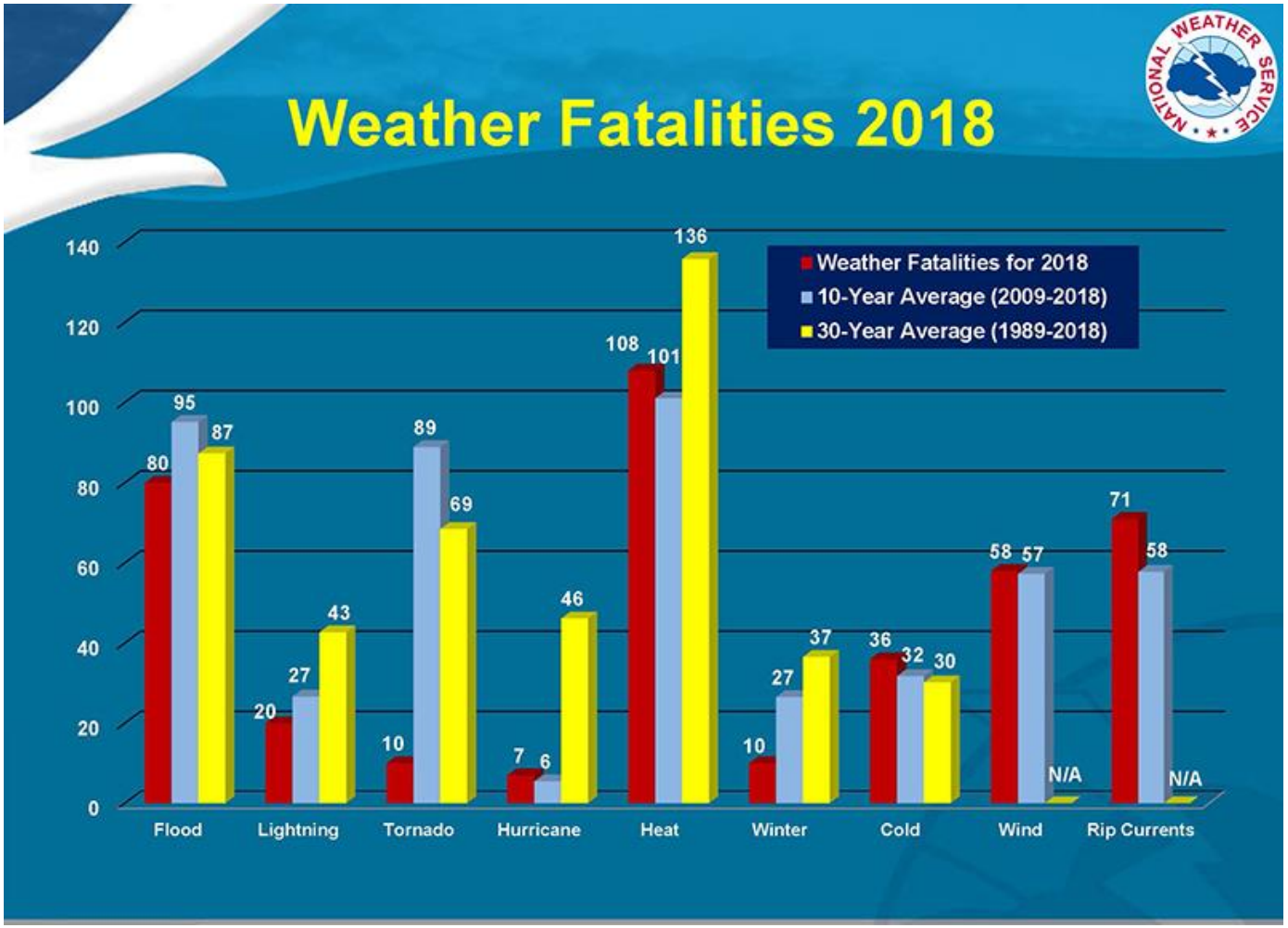


Why Forecast Rivers?

- 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."*

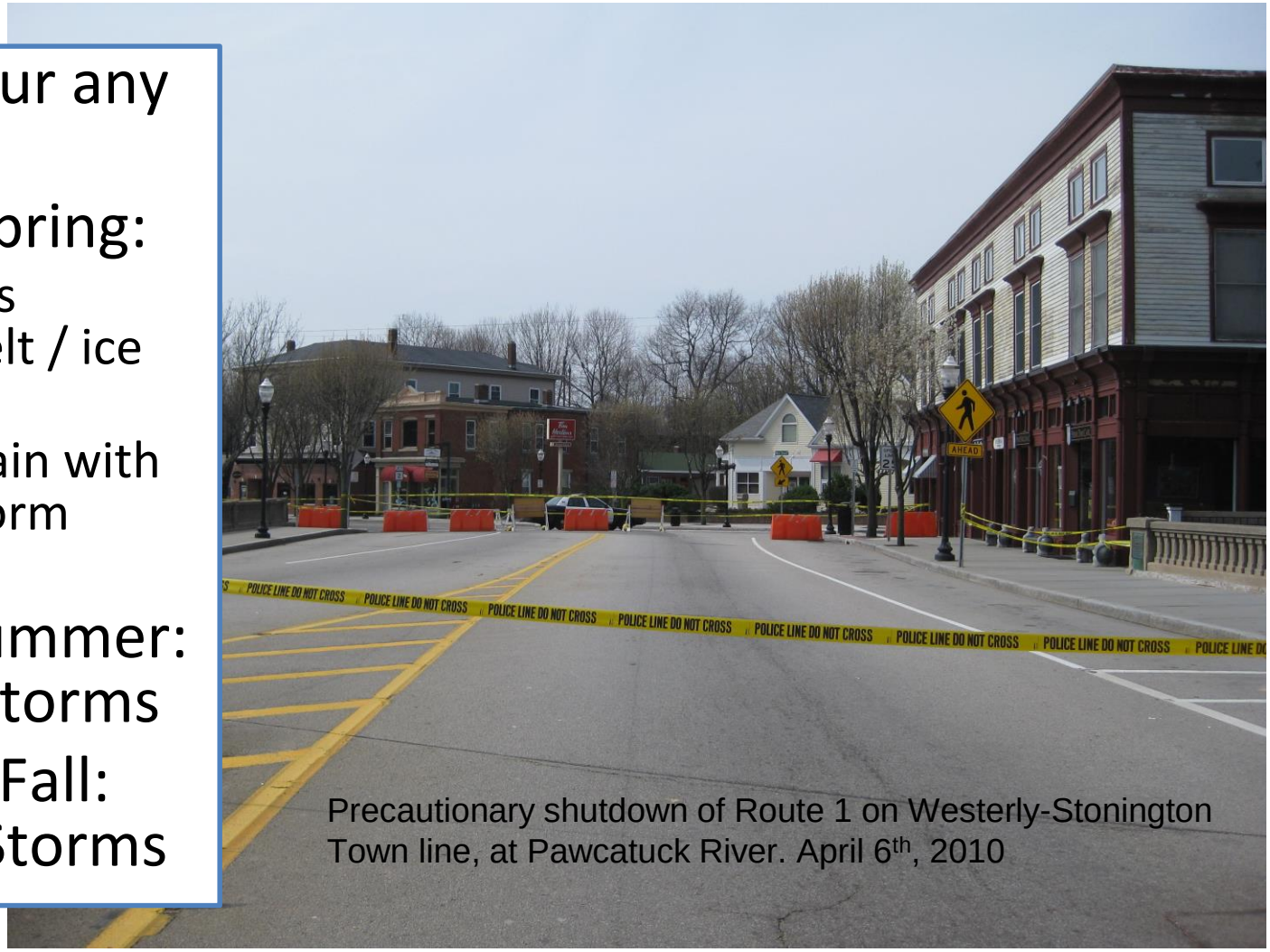
Flooding:
#2 Weather Hazard in U.S.



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

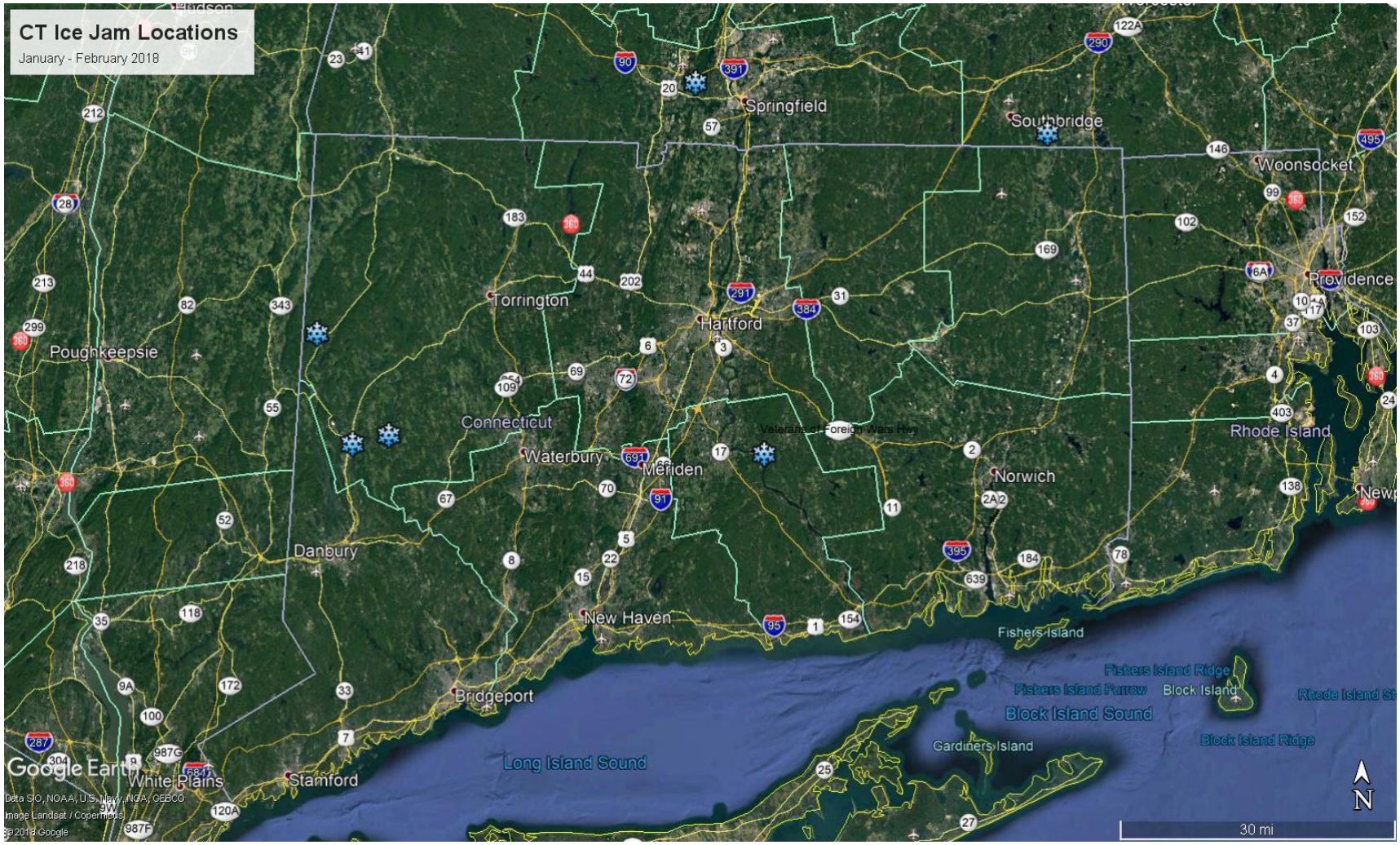
Midwinter/Breakup Ice Jam Ingredients

- 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

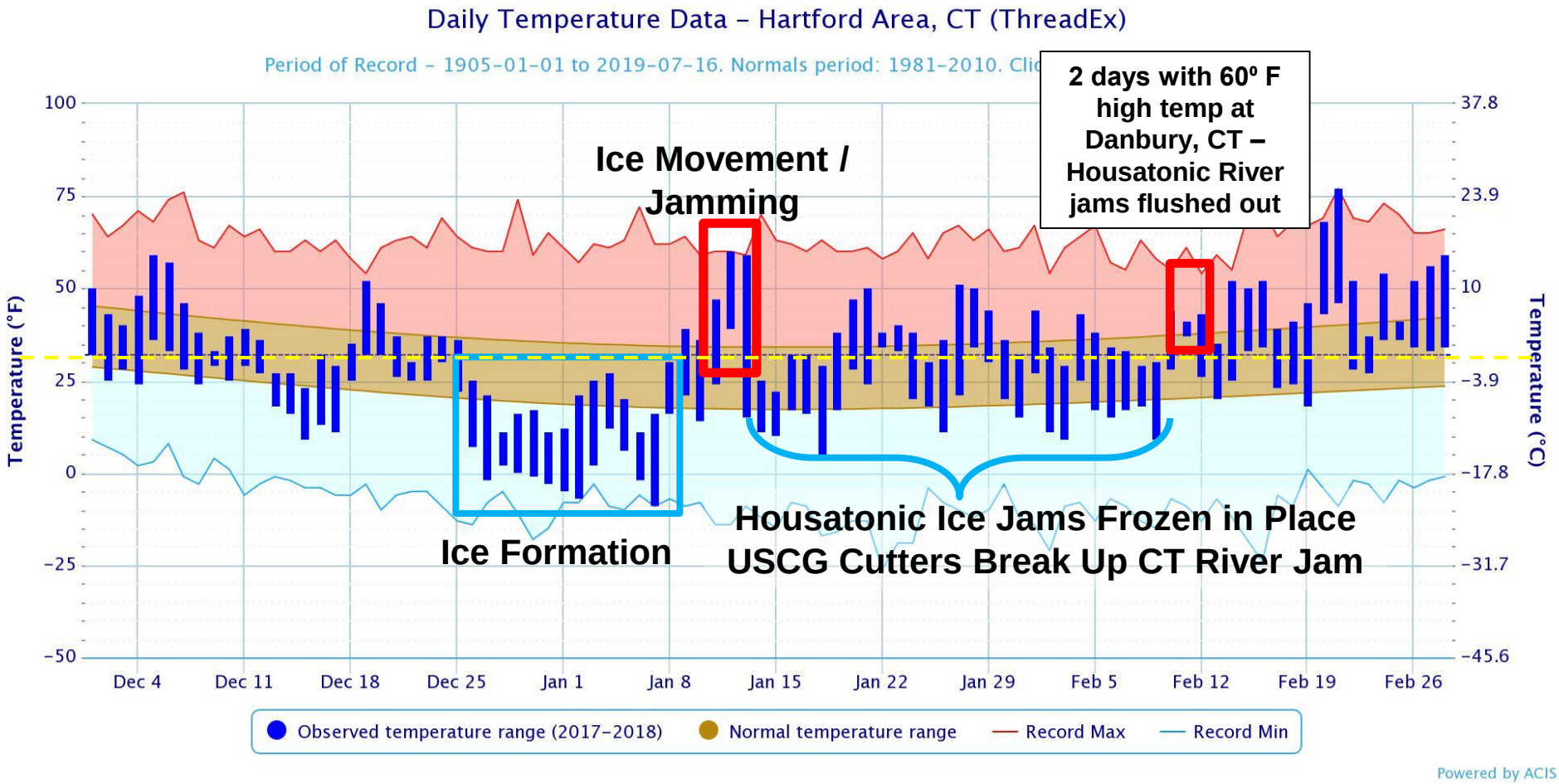
Slide courtesy USACE CRREL Ice Engineering Group

Ice Jams in Connecticut
Jan-Feb 2018

Ice Jam Locations
Jan/Feb 2018

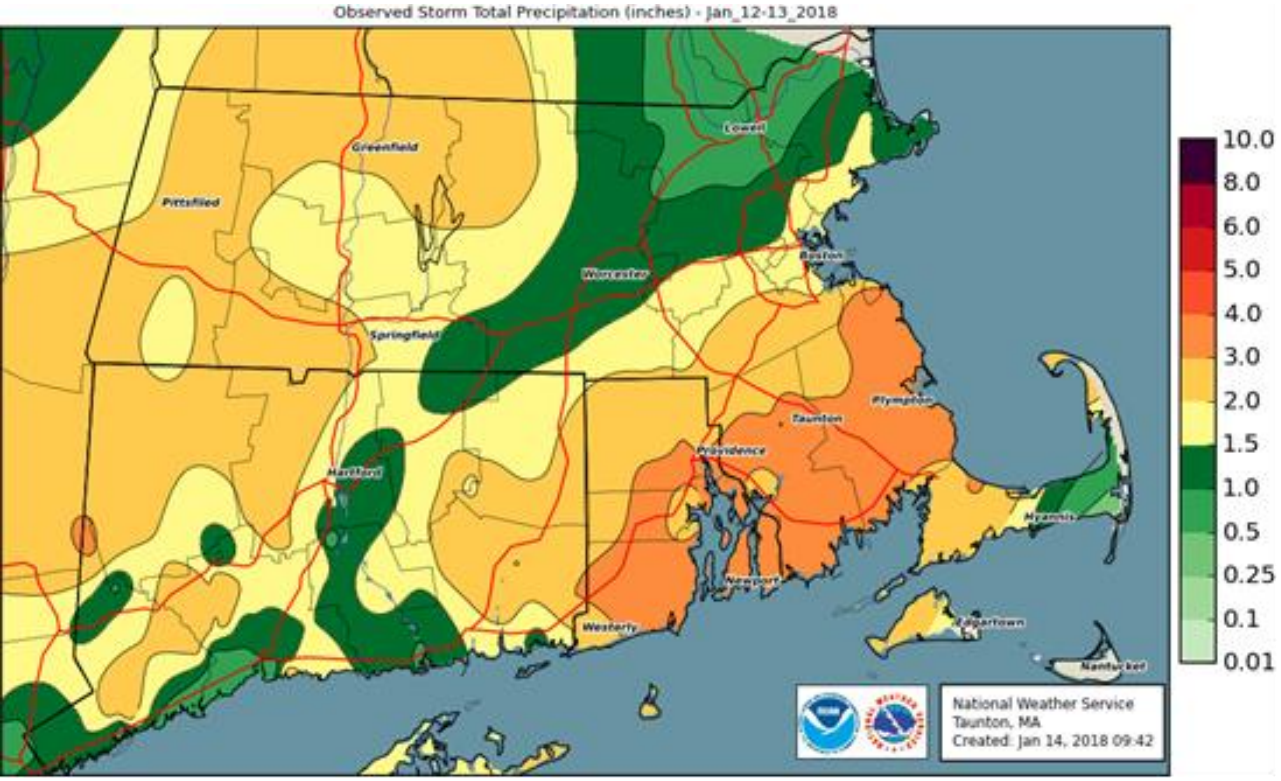


Ingredients: Thick River Ice



Ingredients: Increased River Flow

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

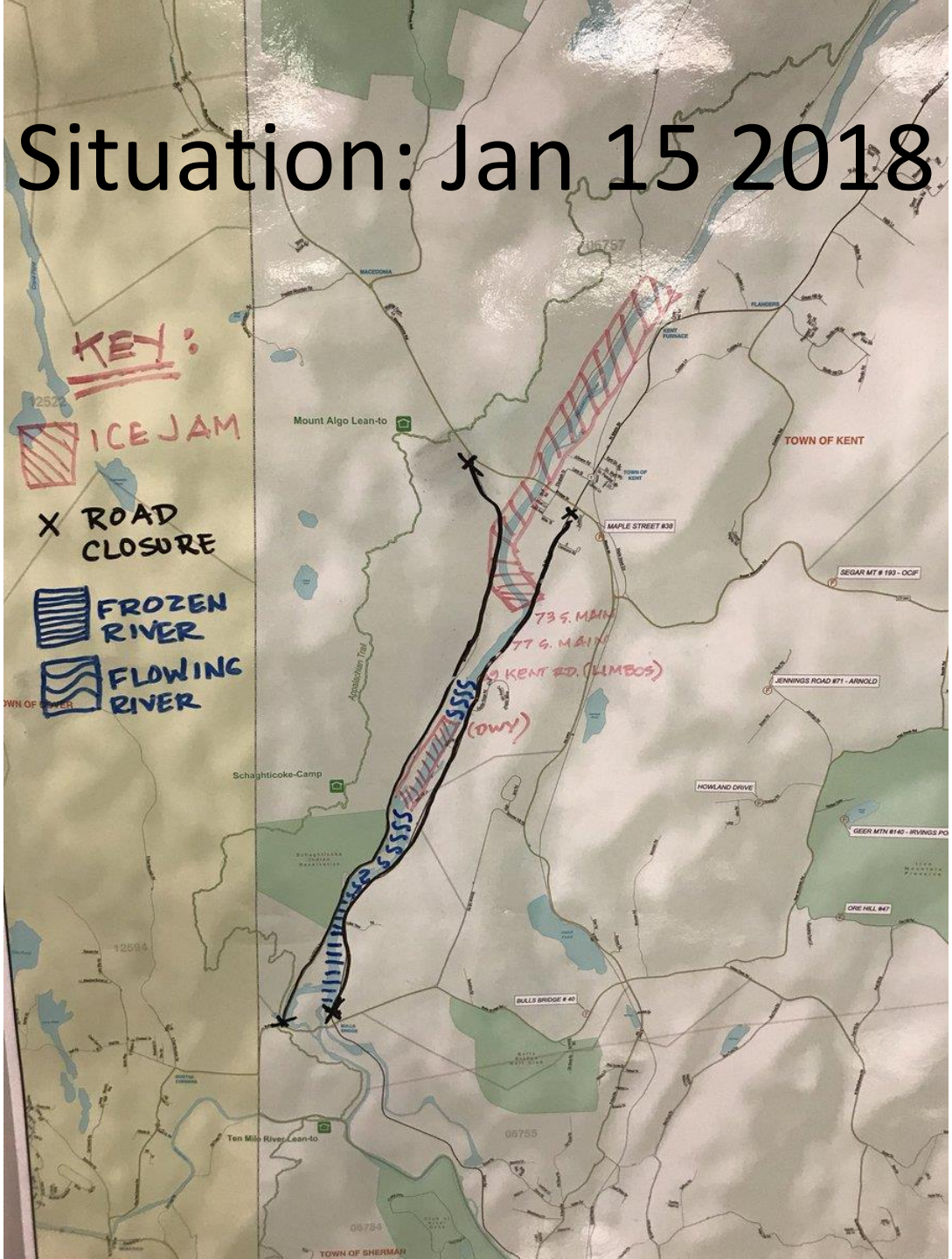


- Rainfall/snowmelt with a thaw will enhance the potential for break up jams as rising water helps to lift and break up the ice.
- A very short thaw with little or no rain or snowmelt may not be enough to break up thick ice.
- Generally need a river rise about 3 times the ice thickness to break it up.

Ingredients: Jam Site

Jan 27, 2018
Civil Air Patrol
Flight

Situation: Jan 15 2018



Jan 27, 2018 CAP flight

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

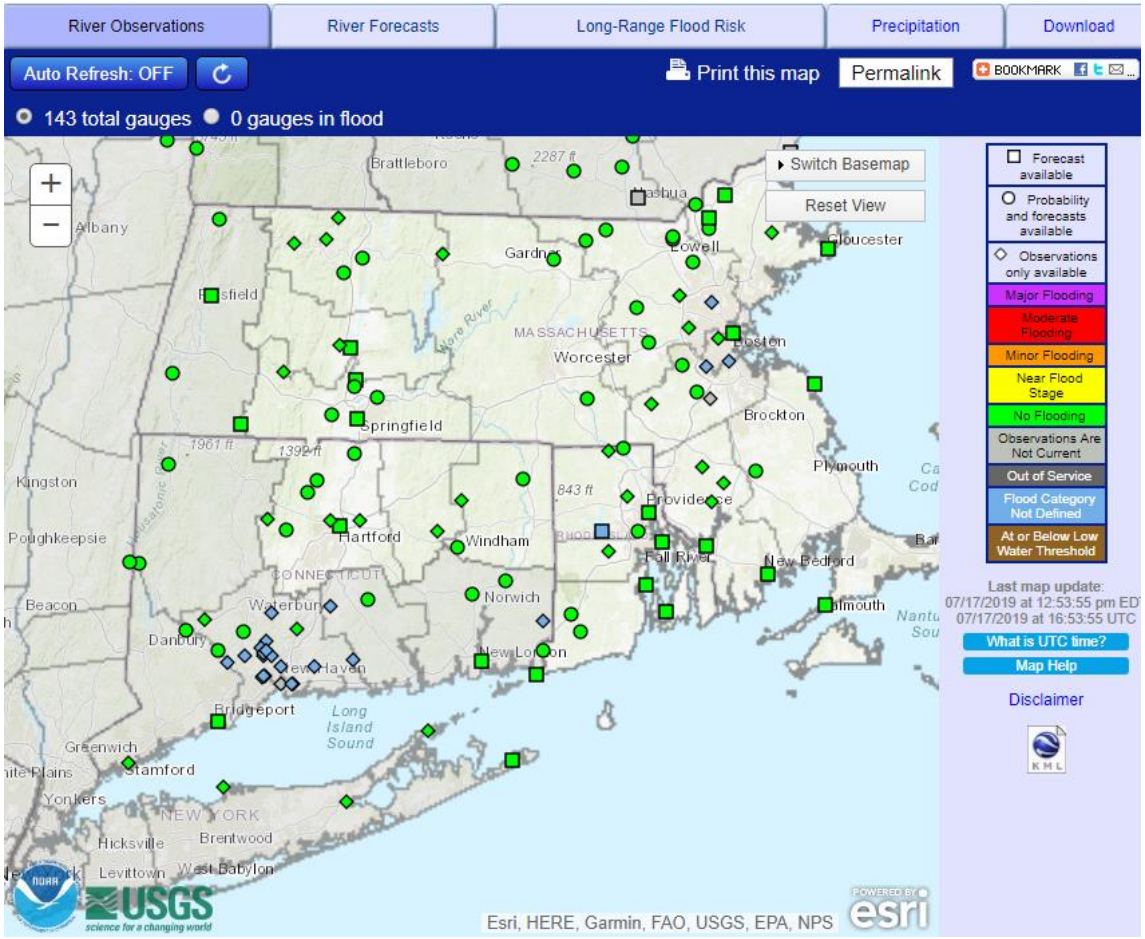
Getting the Message Out

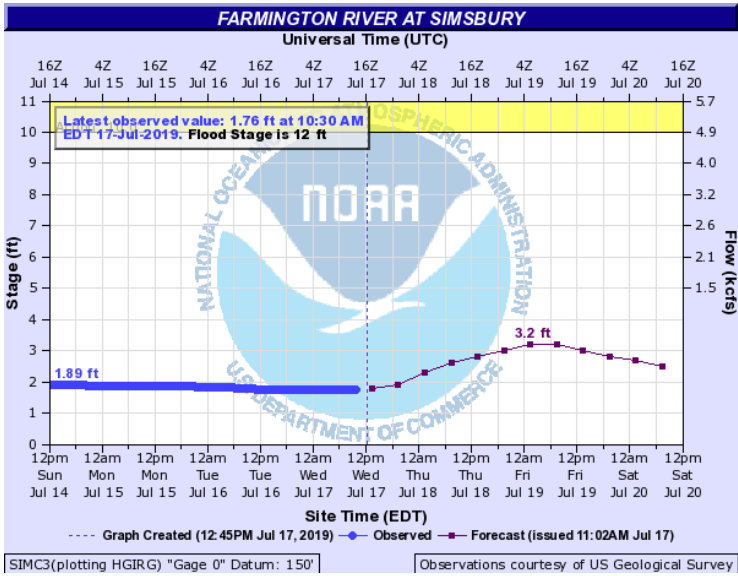
- NOAA Weather Radio
- Emergency Alert System → Cell phone alerts
- Website: www.weather.gov
- Local officials: iNWS/NWS Chat

- Social media: 

- Twitter: @NWSAlbany @NWSBoston

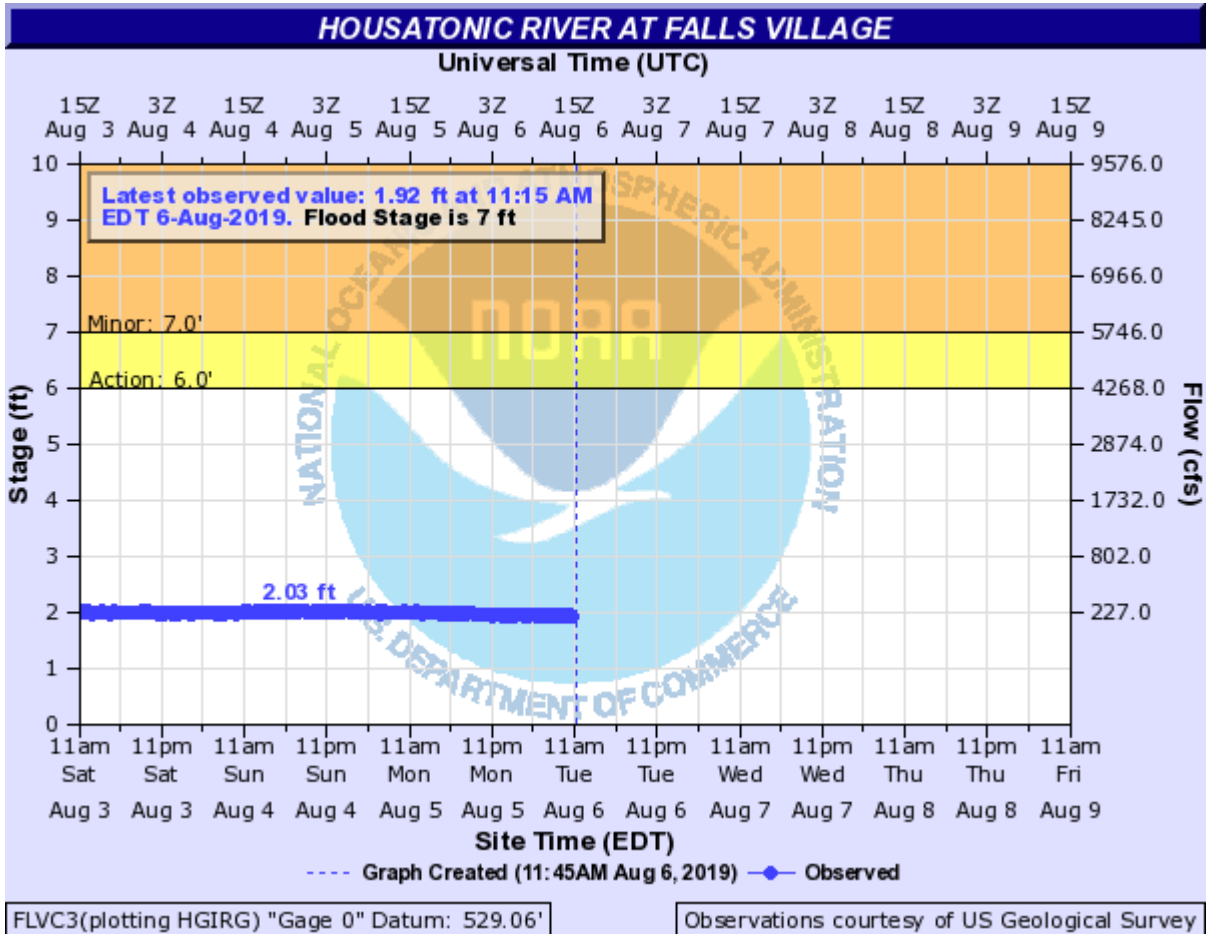
Advanced Hydrologic Prediction Service (AHPS)





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

Falls Village – NWS Forecasts



Flood Categories (in feet)

Major Flood Stage:	15
Moderate Flood Stage:	10
Flood Stage:	7
Action Stage:	6

Historic Crests
(1) 19.00 ft on 01/01/1949
(2) 18.90 ft on 08/19/1955
(3) 16.80 ft on 09/23/1938
(4) 13.47 ft on 09/09/2011
(5) 13.00 ft on 03/20/1936
Show More Historic Crests

(P): Preliminary values subject to further review.

Recent Crests
(1) 7.49 ft on 11/04/2018
(2) 7.59 ft on 02/26/2016
(3) 7.84 ft on 04/01/2014 **(P)**
(4) 8.75 ft on 06/15/2013
(5) 7.02 ft on 09/30/2011
Show More Recent Crests

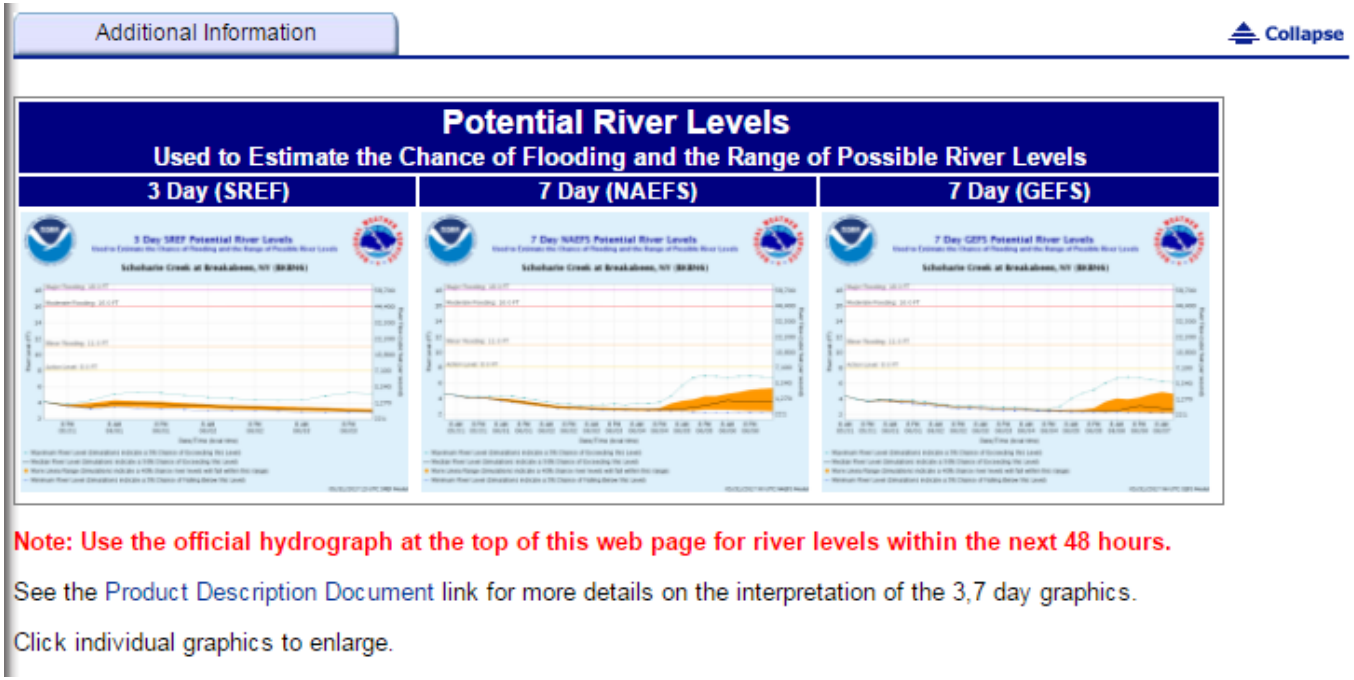
(P): Preliminary values subject to further review.

Low Water Records
(1) 1.23 ft on 09/13/2002

https://water.weather.gov/ahps2/hydrograph.php?wfo=aly&gage=flvc3

Potential River Levels

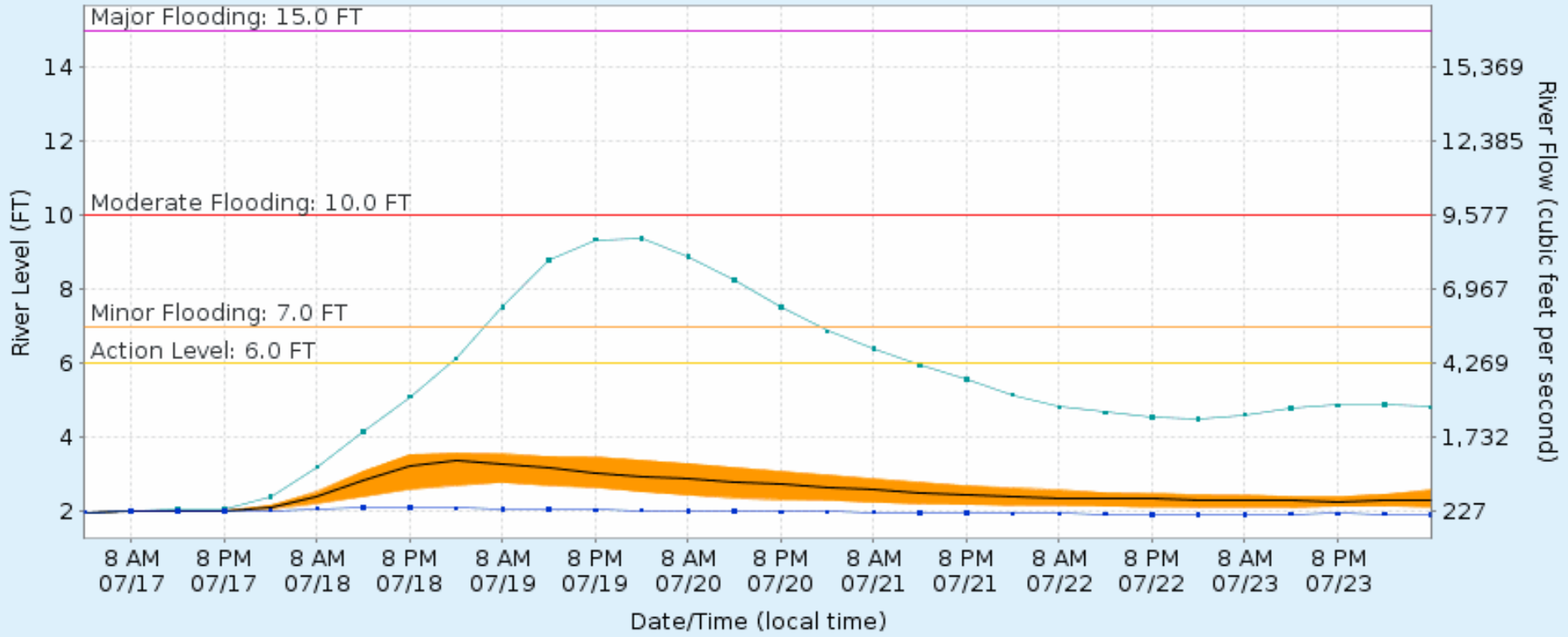
- 3 and 7 day forecasts
- Computer based only, no human forecast
- Ensemble Blend of model forecasts
- Access at www.weather.gov/erh/mmefs or the bottom of individual river forecast point pages:



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)



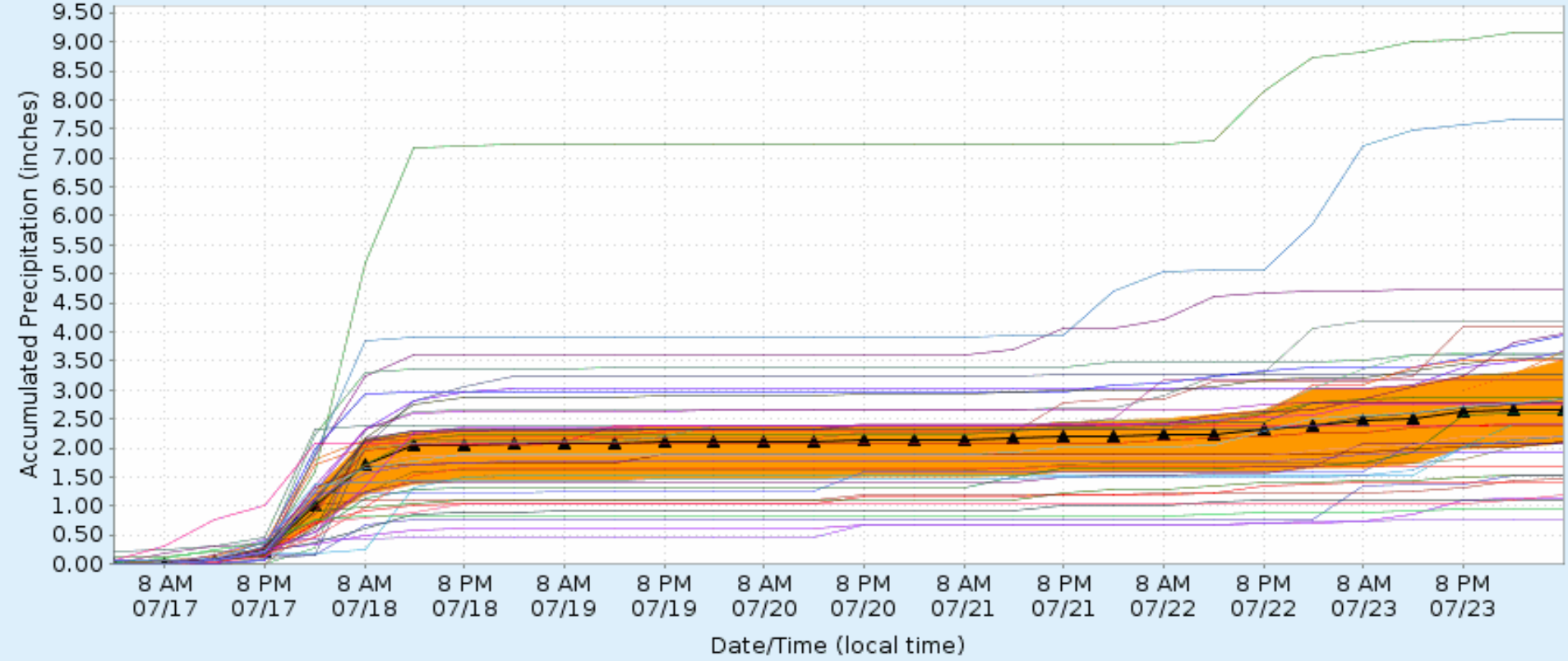
- Minimum River Level (Simulations indicate a 5% Chance of Falling Below this Level)
- Median River Level (Simulations indicate a 50% Chance of Exceeding this Level)
- Maximum River Level (Simulations indicate a 5% Chance of Exceeding this Level)
- More Likely Range (Simulations indicate a 40% chance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

07/17/2019 00 UTC NAEFS Model

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!