

Flood damages average \$3.3 billion annually

Floods account for about 80% of all presidential disaster declarations

Flood

Any high flow, overflow, or inundation by water which causes or threatens damage



Route 2 - Brunswick, NY - July 14, 2021



Flash Flood

A rapid and extreme flow of high water into a normally dry area, or a rapid water level rise in a stream or creek. Requires immediate action to protect life and property!



Route 22 - Whitehall, NY - August 24, 2020

Street/Poor Drainage Flooding

Usually dissipates shortly
after heavy rain ends



Albany, NY



River Flooding

Usually continues until
after river crests



Dolgeville, NY - November 1, 2019

ICE JAMS

WHAT ARE ICE JAMS?

They are chunks of clumped up ice blocking the flow of a river, stream, or creek.

WHY DO THEY DEVELOP?

Runoff from snow melt and/or rainfall can cause rivers to swell and break up the ice.

WHEN DO THEY OCCUR?

They typically occur in the springtime, but can happen during warm spells in the winter.

WHERE DO THEY FORM?

Sharp bends, confluences, bridges, or other obstructions.

WHAT ARE THE IMPACTS?

Upstream flooding from the water building behind the jam.
Flash flooding due to rapid release of an ice jam.

[weather.gov/safety/flood](https://www.weather.gov/safety/flood)



During River Ice Formation Period

- Freeze Up Jams

During River Ice Breakup Season

- Break Up Jams including mid-winter “thaw” Jams

Ice Jams Typically Occur

- Obstructions in the Channel: Islands, Locks, Bridge Piers, Docks
- Changes in the Channel: Narrowing of the Channel, Bends, Gorges, Intact Ice Cover
- Change in the Channel Depth: Deep water to Shallow water
- Merger of River Channels



French Creek - Erie County PA

Freeze Up Jams:

- Early to mid-winter formation
- Consistent sub-freezing temperatures
- Locks into river until air warms
- Natural flows will show steady or declining discharges



Hudson River – January 25, 2019

Two primary physical processes for ice breakup

- Thermal Breakup: warming, insolation, deteriorates ice in place
- Mechanical Breakup: increase in flow stresses the ice cover causing cracks, fragmentation and movement
 - Breakup events typically a combination
 - Mechanical breakup is most dangerous due to flow and large ice fragments



- Long, gradual warming period with limited rainfall
- Ice cover thins, weakens and melts in place
- February 2015 in NY State
- Usually there is little to no issue with ice jams and flooding in this scenario

When Will Ice Break Up?



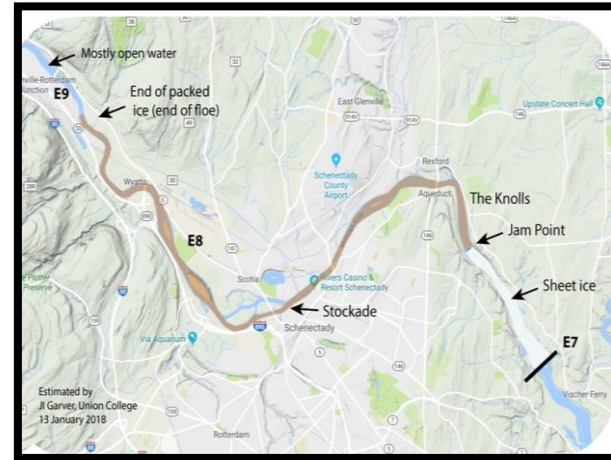
Seasonally, it is fairly predicable.

Situationally, specific prediction is unlikely.

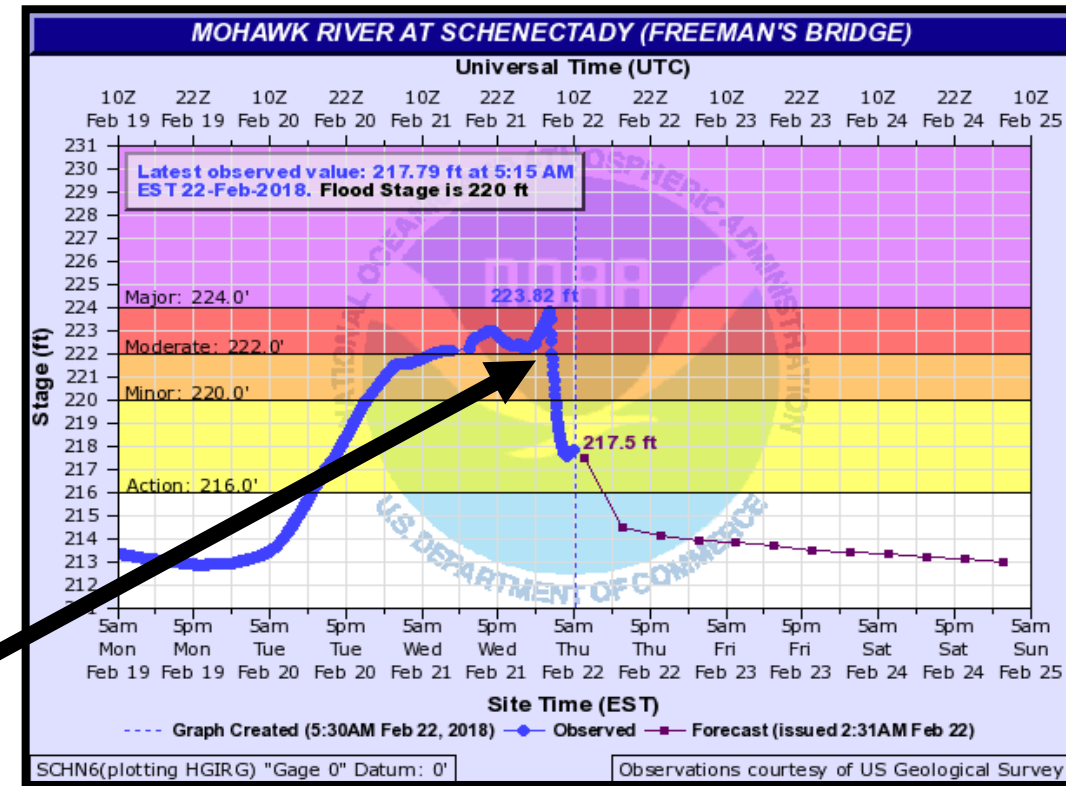
Watch for:

- Daily average temperatures above 42 degrees
- Heavy rainfall* + snow melt
- Forecast rises in water level of at least 3 times the ice thickness

*most important



February 2018 Mohawk River Ice Jam



Jam Release during the overnight February 22, 2018