



MASSACHUSETTS RIVER OVERVIEW



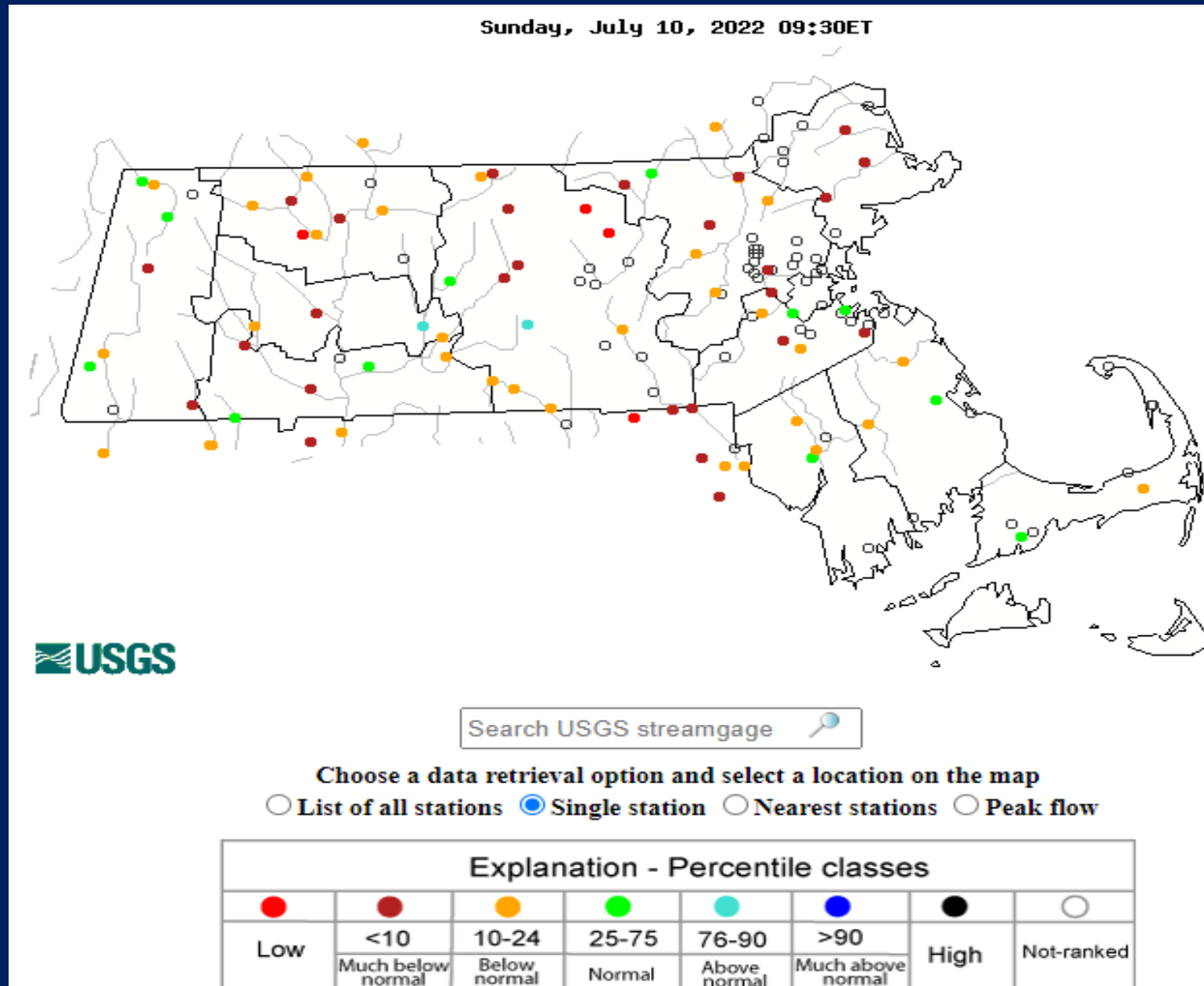
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OUTLINE

- Snapshot of Current Massachusetts River Flows
- NERFC River Forecast Outlook
- Takeaways

CURRENT RIVER FLOWS

- Flows are lowest across northern Massachusetts from the Connecticut Valley eastward.
- Several record low daily flows (bright red circles) were observed across northern Massachusetts on 10 July 2022.
 - North Nashua River at Fitchburg
 - North Nashua River near Leominster
 - South River at Conway



NAEFS ENSEMBLE RIVER FORECAST OUTLOOK

- A 42 member ensemble run for all NERFC forecast points to give us an idea of the possible range of river flows out 10 days.
 - Basically 42 slightly different initial conditions in the weather models lead to 42 different river forecasts based on rainfall and temperature.
- Will show results for the Shawsheen River at Wilmington (WLMM3)...Taunton River near Bridgewater (BDGM3)...North Nashua River at Fitchburg (FBGM3) and the Westfield River at Westfield (WSFM3).

NAEFS – WLMM3

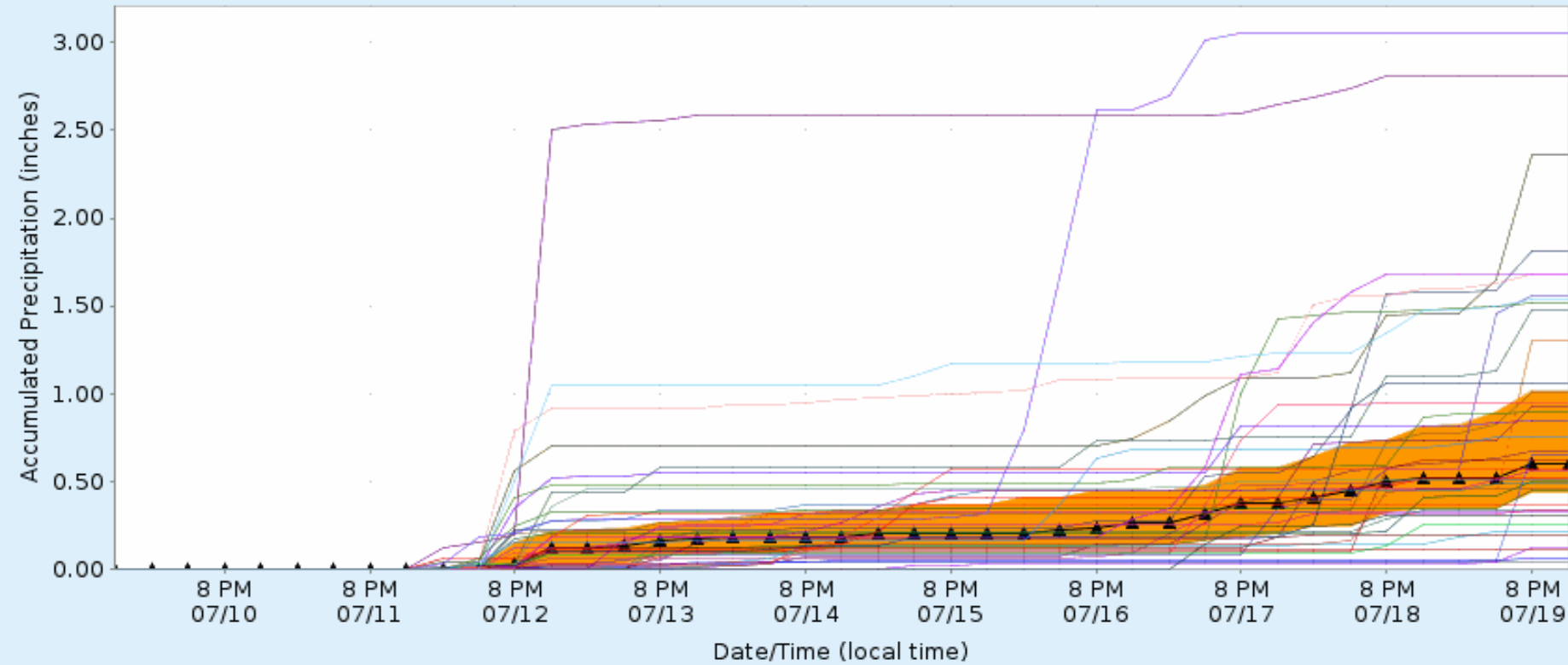


10 Day NAEFS Accumulated Precipitation Simulations

Used as Input to the River Level Simulations



Shawsheen River at Wilmington, MA (WLMM3)



- 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)

Rainfall forecasts are clustered in the 0.25 – 0.75 inch range over the next 10 days.

A few outlier solutions suggest 2+ inches of rainfall.

NAEFS – WLMM3

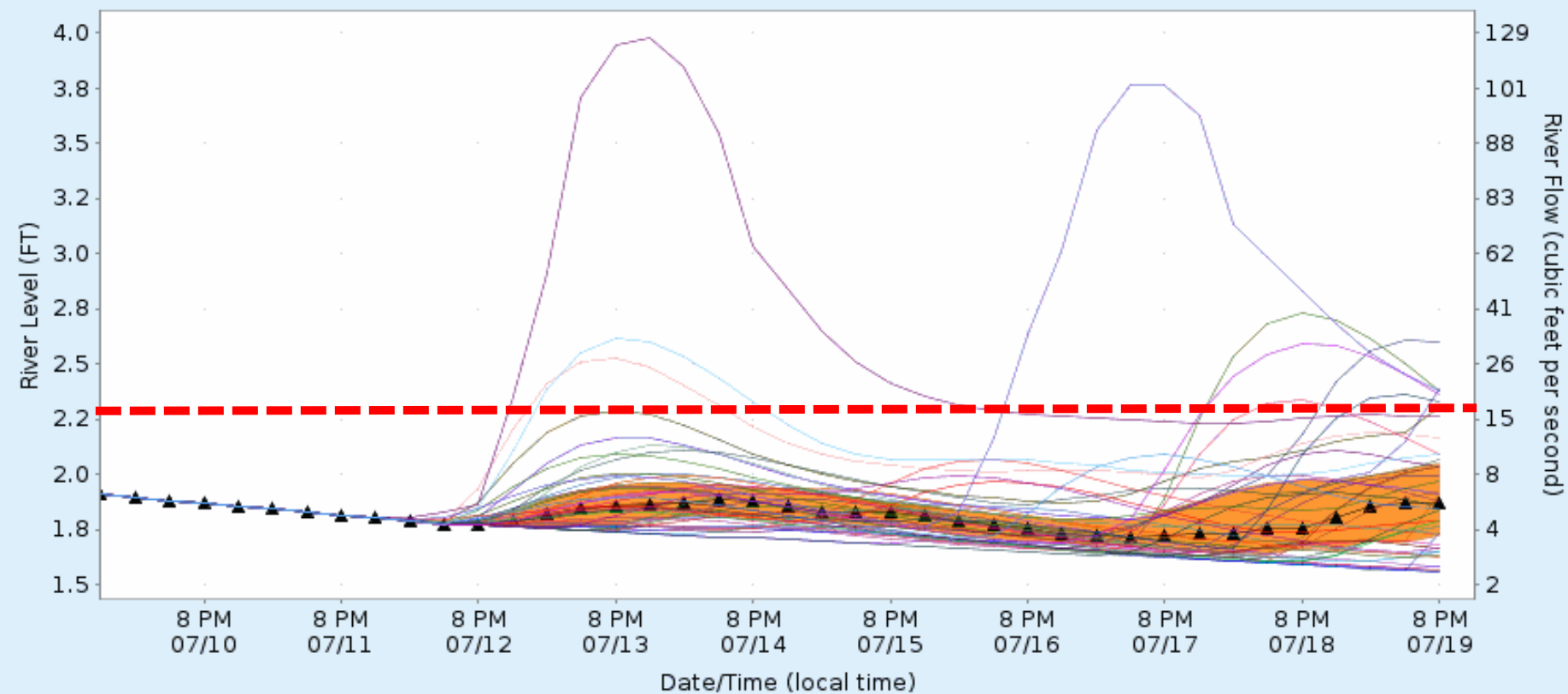


7 Day NAEFS River Level Simulations

Used to Estimate the Chance of Flooding and the Range of Possible River Levels
Each Line Shows an Individual Model Simulation (42 Total)



Shawsheen River at Wilmington, MA (WLMM3)



- Individual Model Simulations (42 Total)
- ▲ Median River Level (Simulations indicate a 50% Chance of Exceeding this Level)
- More Likely Range (Simulations indicate a 40% chance river levels will fall within this range)

Most solutions agree that flow will not change much over the next 10 days.

Flows are very likely to stay below the median flow for this time of year (dashed red line).

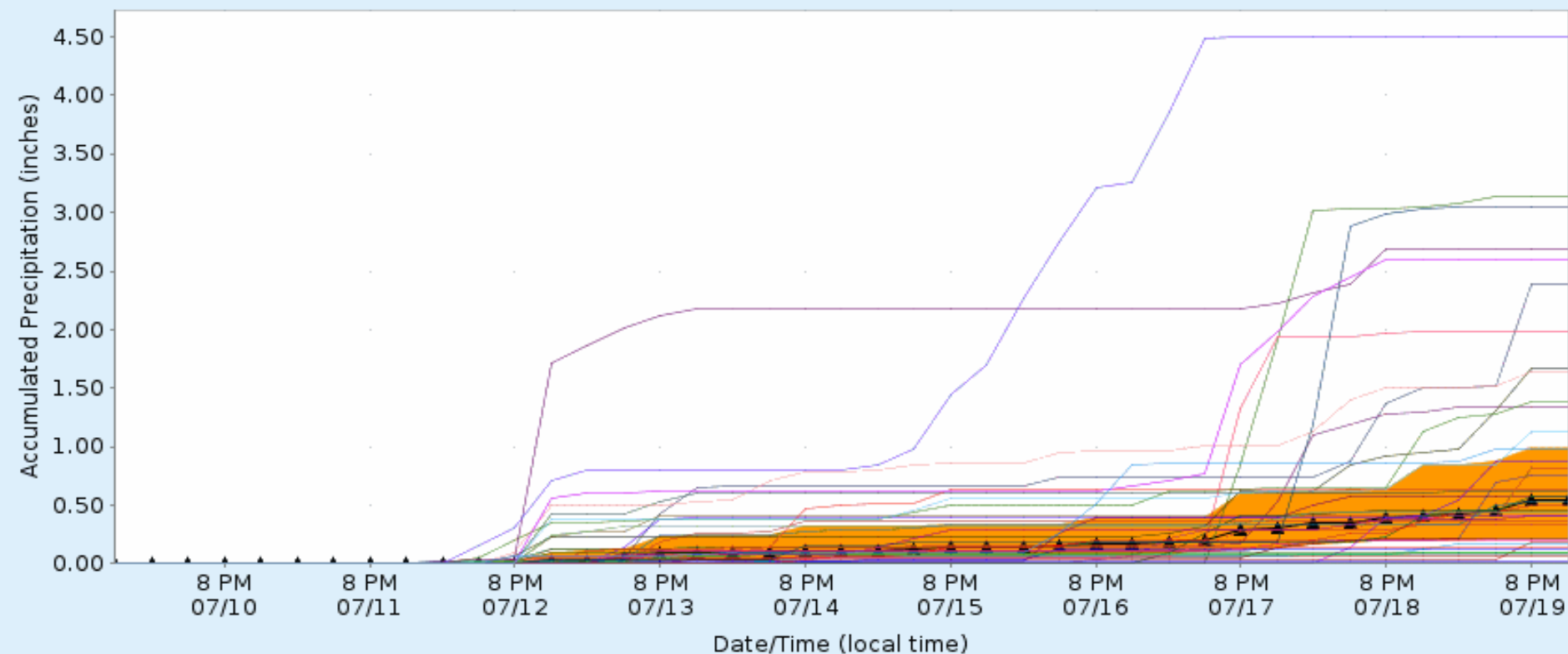
NAEFS – BDGM3



10 Day NAEFS Accumulated Precipitation Simulations

Used as Input to the River Level Simulations

Taunton River at Bridgewater, MA (BDGM3)



— 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)

Rainfall is projected to be under an inch over the next 10 days which is below normal.

There is more uncertainty with less clustering around the median during the upcoming weekend.

NAEFS – BDGM3

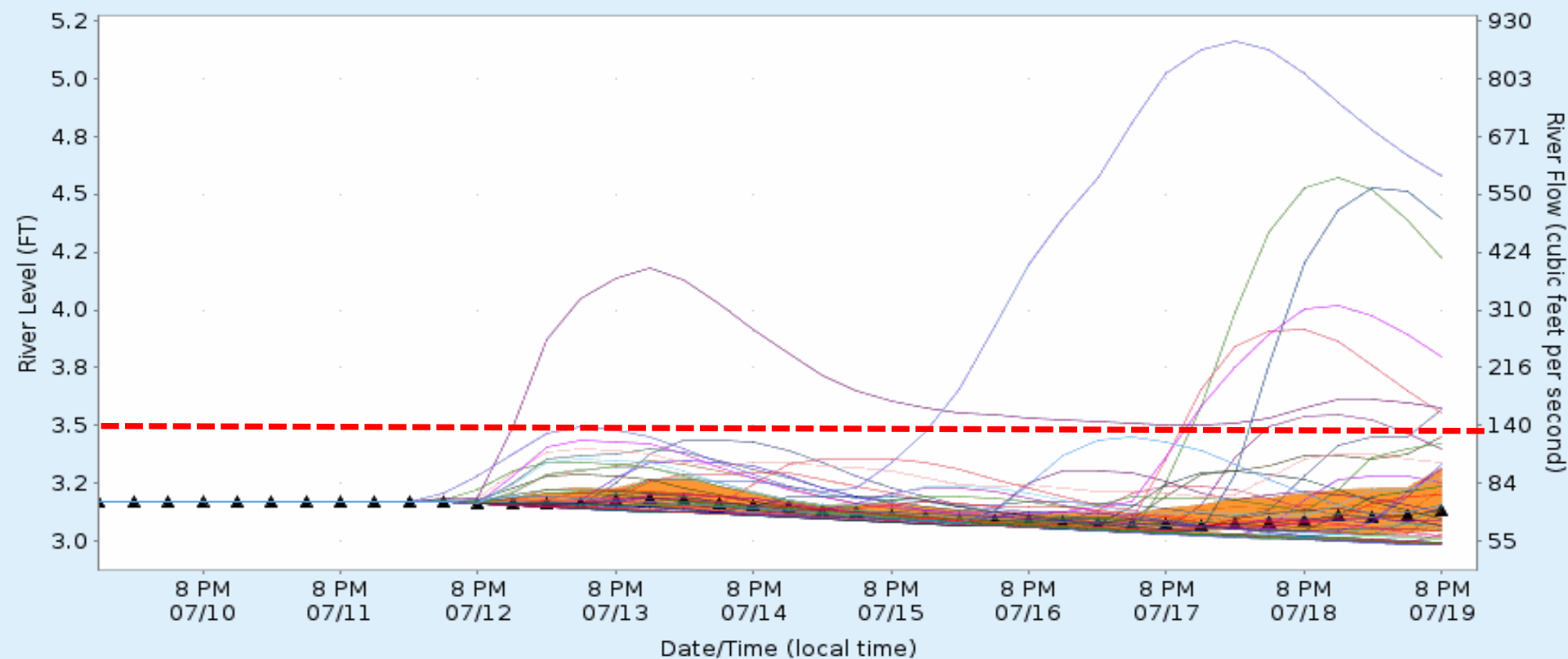


7 Day NAEFS River Level Simulations

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Each Line Shows an Individual Model Simulation (42 Total)



Taunton River at Bridgewater, MA (BDGM3)



- Individual Model Simulations (42 Total)
- ▲ Median River Level (Simulations indicate a 50% Chance of Exceeding this Level)
- More Likely Range (Simulations indicate a 40% chance river levels will fall within this range)

- Flows in 10 days are likely to be near their current levels.

NAEFS – FBGM3

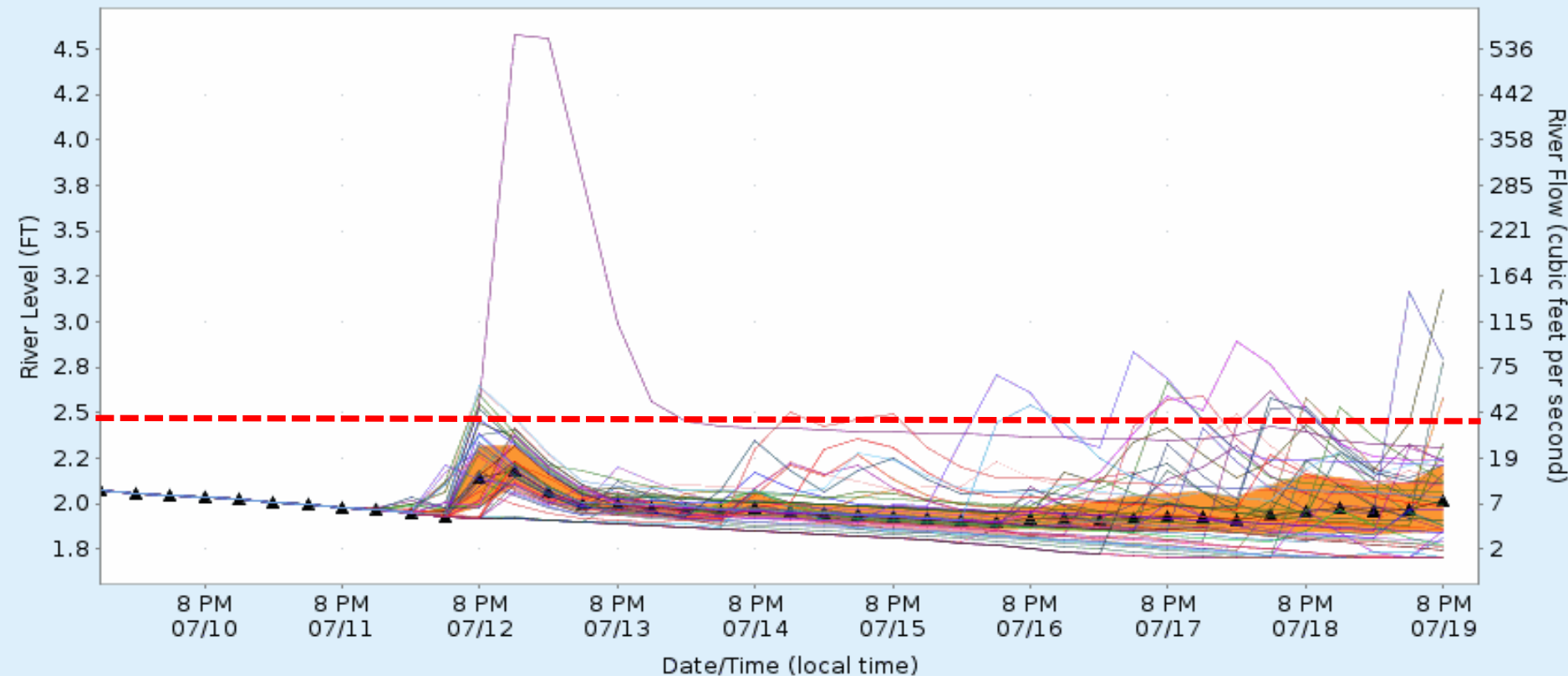


7 Day NAEFS River Level Simulations

Used to Estimate the Chance of Flooding and the Range of Possible River Levels
Each Line Shows an Individual Model Simulation (42 Total)



North Nashua River at Fitchburg, MA (FBGM3)



- Individual Model Simulations (42 Total)
- ▲ Median River Level (Simulations indicate a 50% Chance of Exceeding this Level)
- More Likely Range (Simulations indicate a 40% chance river levels will fall within this range)

- Record low flows were occurring as of yesterday (10 July 2022).
- Very little overall improvement expected over the next 10 days.

NAEFS – WSFM3

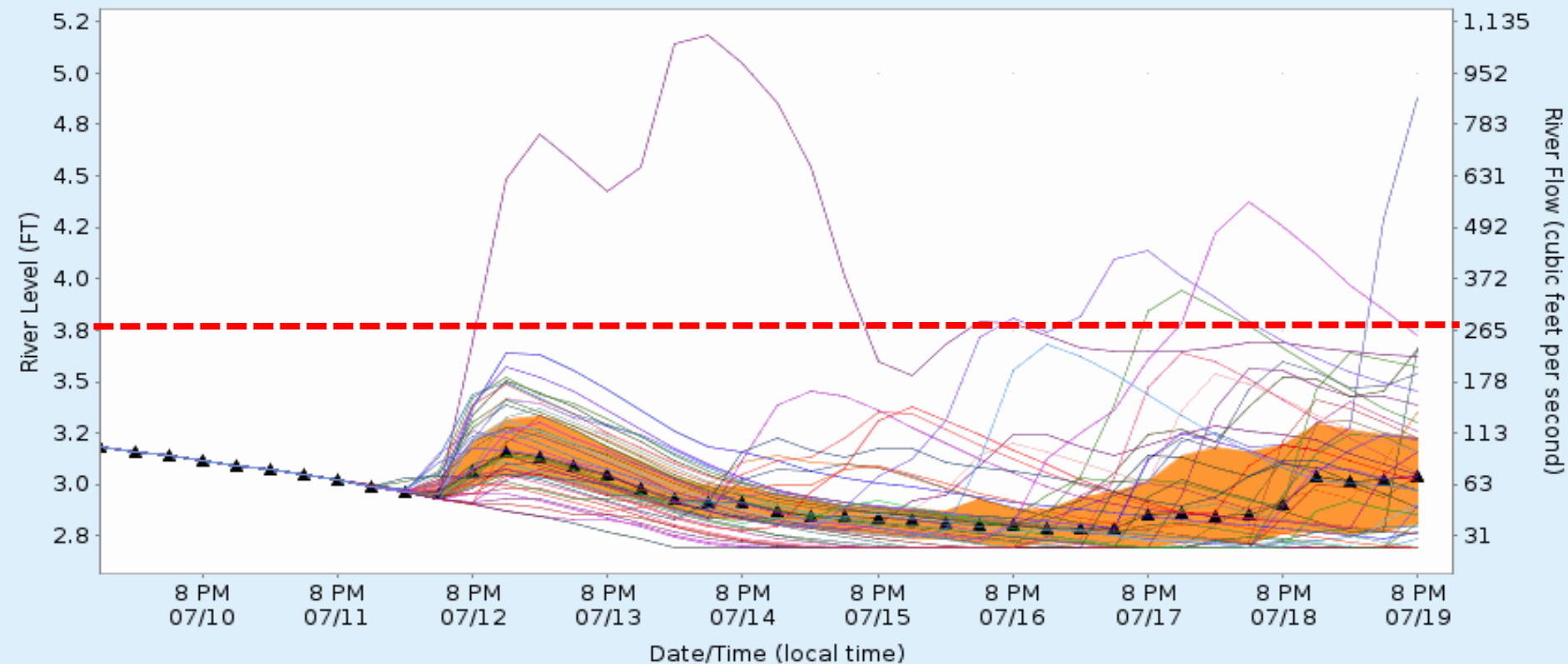


7 Day NAEFS River Level Simulations

Used to Estimate the Chance of Flooding and the Range of Possible River Levels
Each Line Shows an Individual Model Simulation (42 Total)



Westfield River at Westfield, MA (WSFM3)



- Individual Model Simulations (42 Total)
- ▲ Median River Level (Simulations indicate a 50% Chance of Exceeding this Level)
- More Likely Range (Simulations indicate a 40% chance river levels will fall within this range)

- It is likely that flows on the Westfield River will deteriorate before perhaps recovering to current levels late next week.

TAKEAWAYS

- Current river flows are below to much below normal across most of the Commonwealth.
 - Some record low daily flows are popping up across northern Massachusetts.
 - Far southeast Massachusetts and the Berkshires have marginally higher flows.
- Rain chances overall are not that promising over the next 10 days.
 - Scattered showers and thunderstorms Tuesday and Tuesday night.
 - More storminess this upcoming weekend. No sign of widespread heavy rainfall at this time but confidence low out that far.
- Chance for low dewpoints (40s and low 50s) later this week/weekend (especially across northern Massachusetts).
- NERFC ensemble river forecasts do not call for widespread improvement in river levels into late July.

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