



MASSACHUSETTS RIVER OVERVIEW



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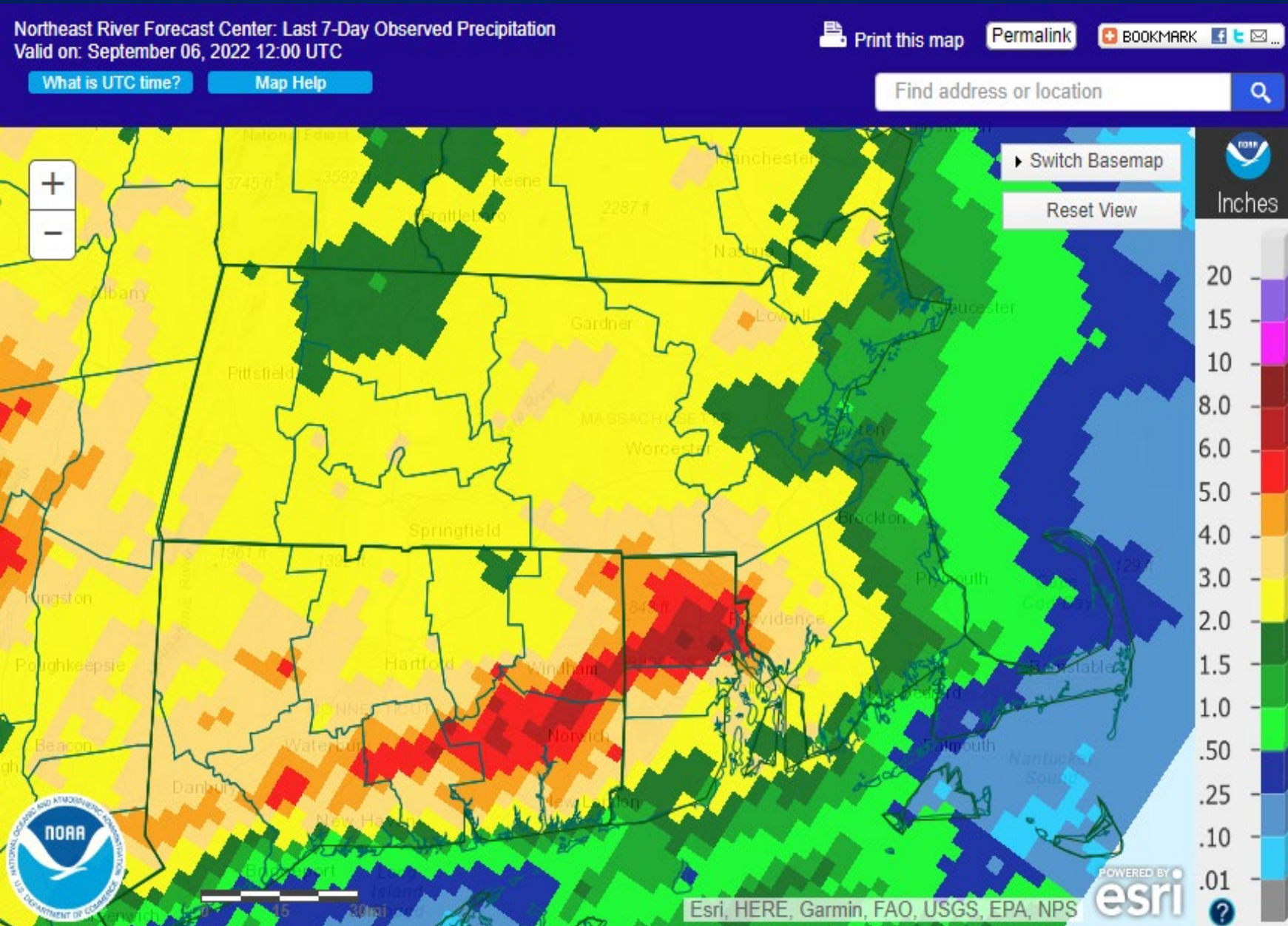
MA Drought
Management Task Force

7 September 2022

OUTLINE

- 7 Day Rainfall Ending 8 AM EDT Tuesday
- Snapshot of Massachusetts River Flows
- NERFC River Forecast Outlook
- Conclusions

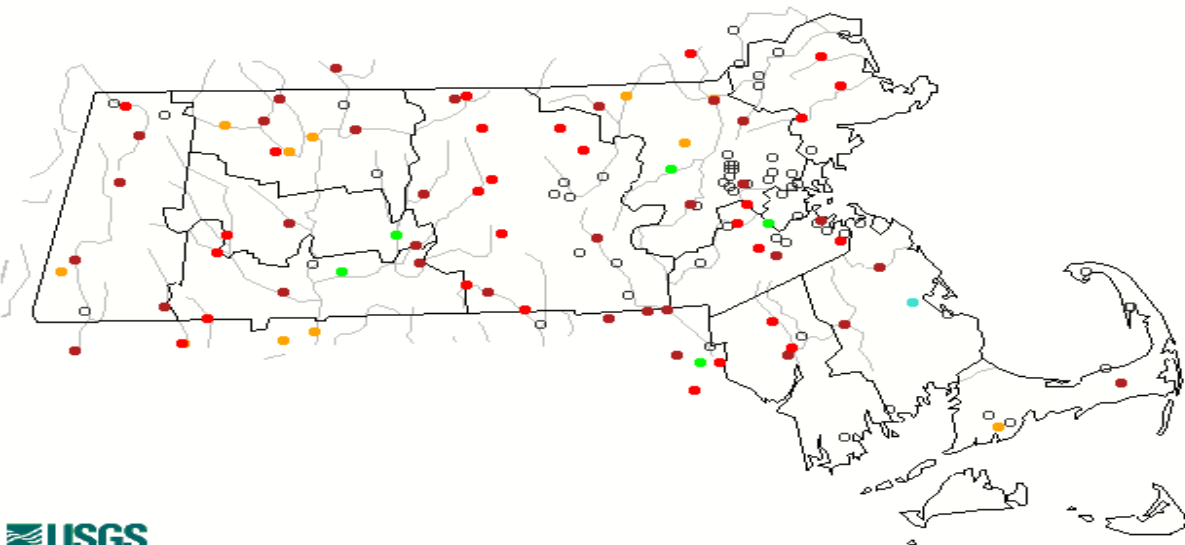
7 DAY RAINFALL ENDING 8 AM EDT 6 SEP 2022



- Most of Massachusetts saw 2-4 inches of rainfall for the week ending yesterday morning (but much less for Cape Cod and the Islands).
- Another 1-2 inches of rain expected on top of this for central and western Massachusetts through this morning.

MASSACHUSETTS RIVER FLOWS

Monday, August 22, 2022 12:30ET



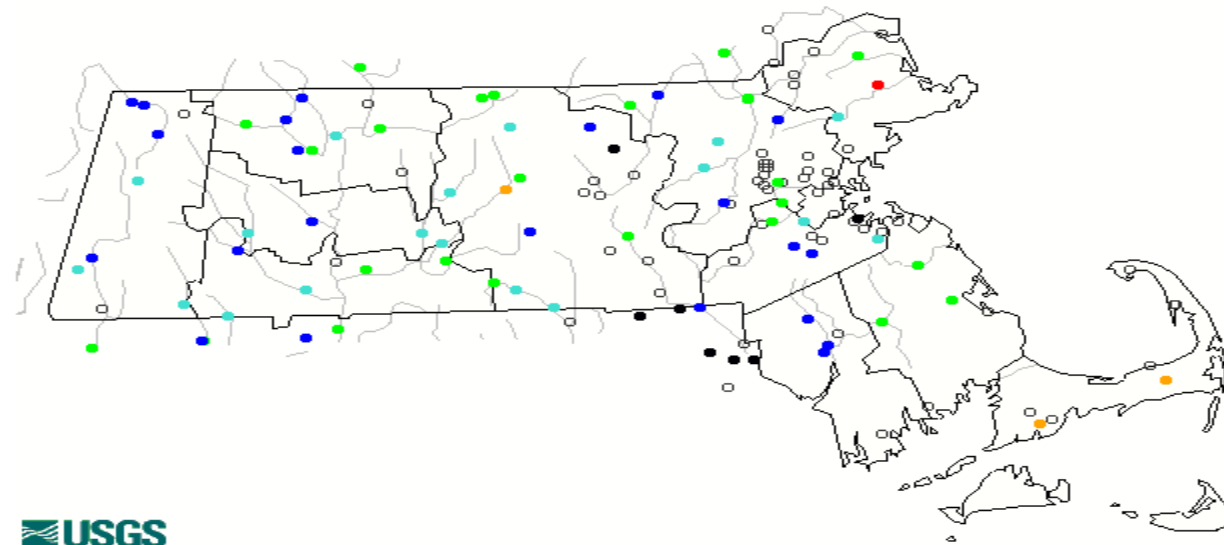
Search USGS streamgage

Choose a data retrieval option and select a location on the map

- List of all stations
 Single station
 Nearest stations
 Peak flow

Explanation - Percentile classes							
Low	<10 Much below normal	10-24 Below normal	25-75 Normal	76-90 Above normal	>90 Much above normal	High	Not-ranked

Tuesday, September 06, 2022 10:30ET



Search USGS streamgage

Choose a data retrieval option and select a location on the map

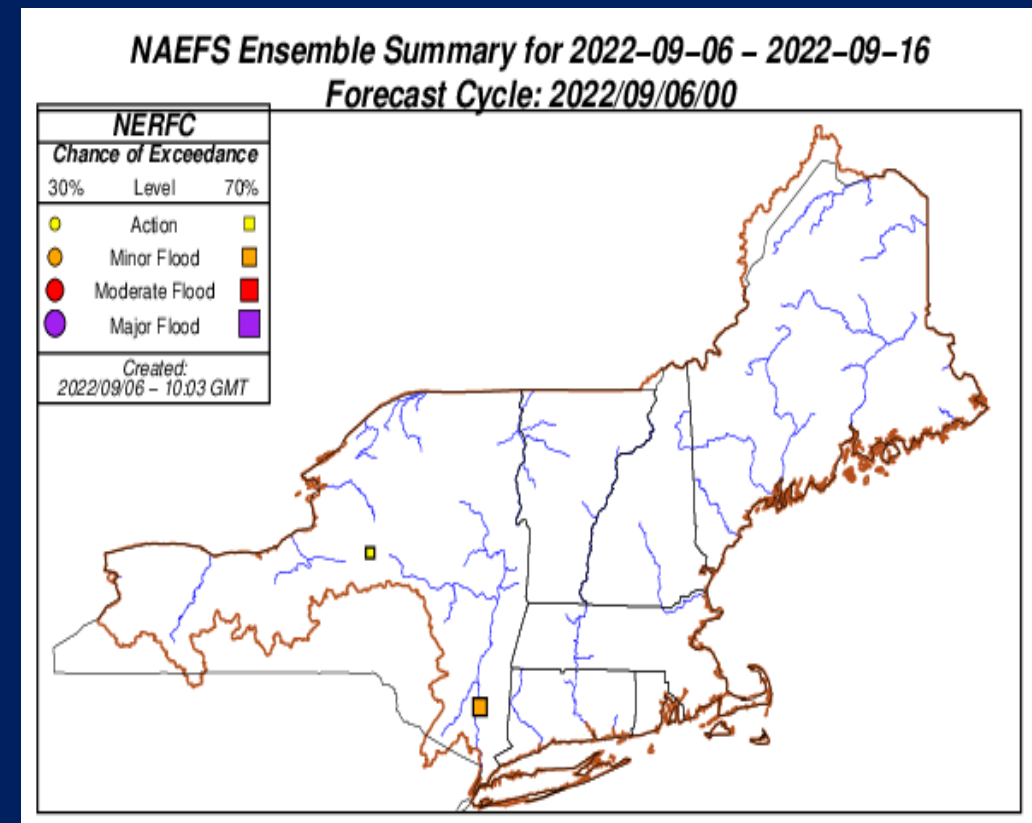
- List of all stations
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Explanation - Percentile classes							
Low	<10 Much below normal	10-24 Below normal	25-75 Normal	76-90 Above normal	>90 Much above normal	High	Not-ranked

Almost all areas in the Commonwealth have seen drastic improvement in river flows due to recent heavy rainfall. Coastal eastern Massachusetts...especially Cape Cod...has missed the heaviest of the rain.

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...
 - Westfield River at Westfield (WSFM3)
 - North Nashua River at Fitchburg (FBGM3)
 - Charles River at Dover (DOVM3)



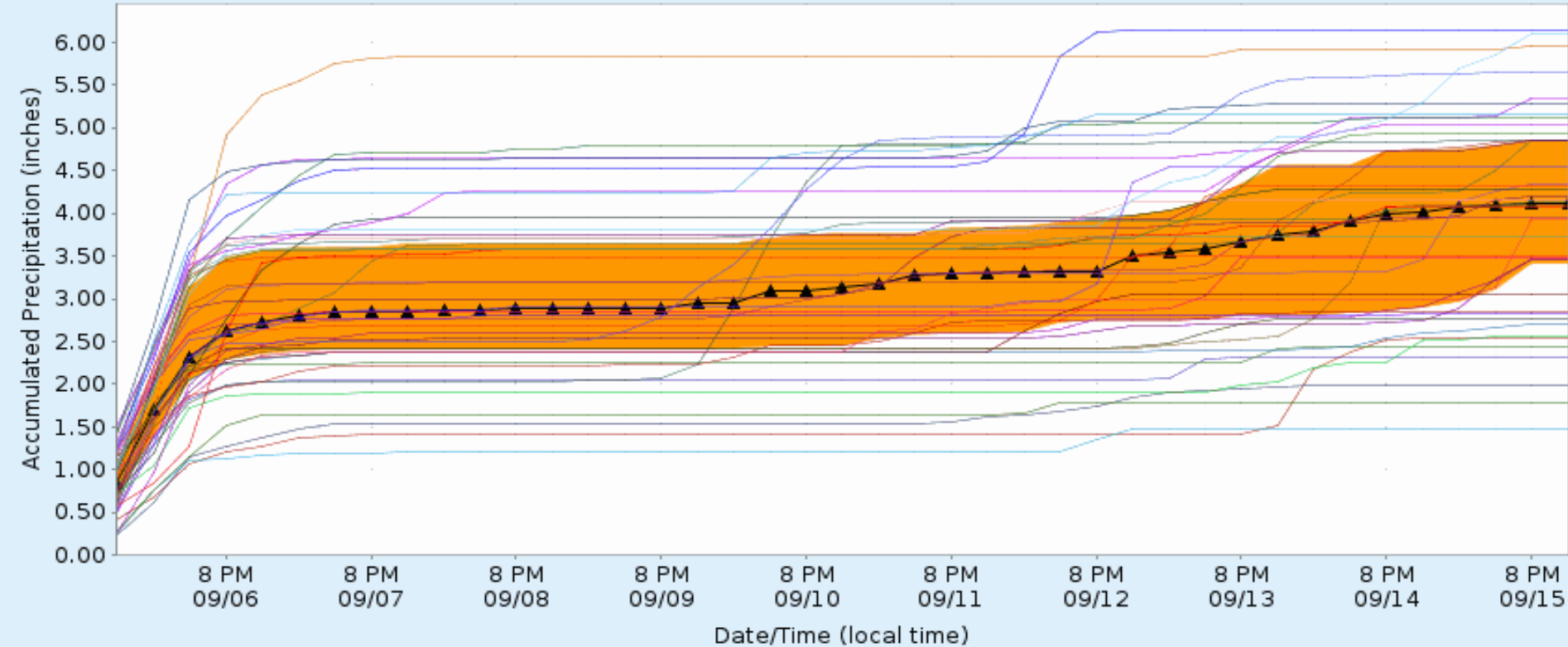
NAEFS PCPN – WSFM3



10 Day NAEFS Accumulated Precipitation Simulations Used as Input to the River Level Simulations



Westfield River at Westfield, MA (WSFM3)



- 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)

A large drink of water expected for western Massachusetts with upwards of 3 inches of rainfall likely through tonight.

36-hour rainfall ending at 8 PM EDT Tuesday at Barnes Airfield in Westfield was 3.14 inches.

NAEFS – WSFM3

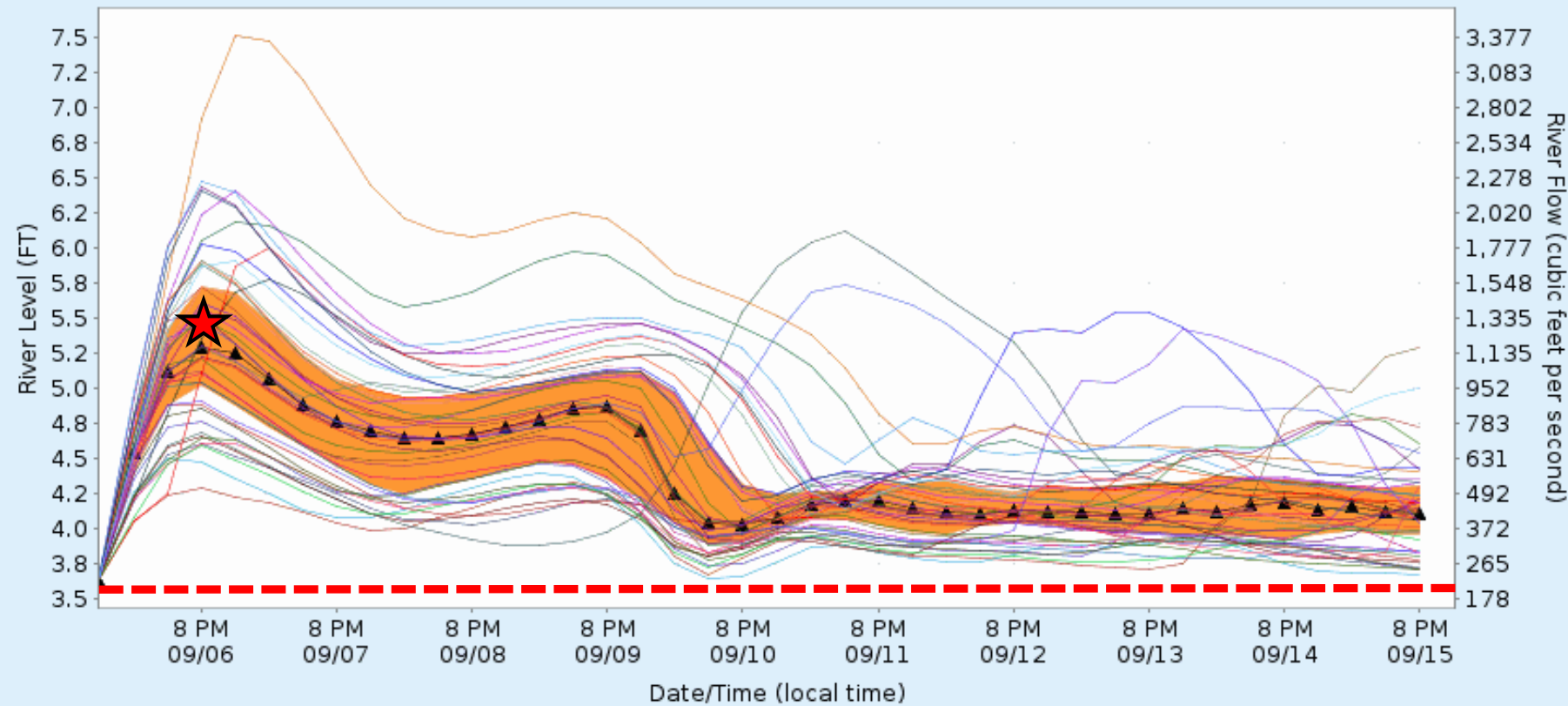


7 Day NAEFS River Level Simulations

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)



River flows are expected to remain above the early September median flow (red dashed line) over the next 10 days.

- 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)

NAEFS – FBGM3

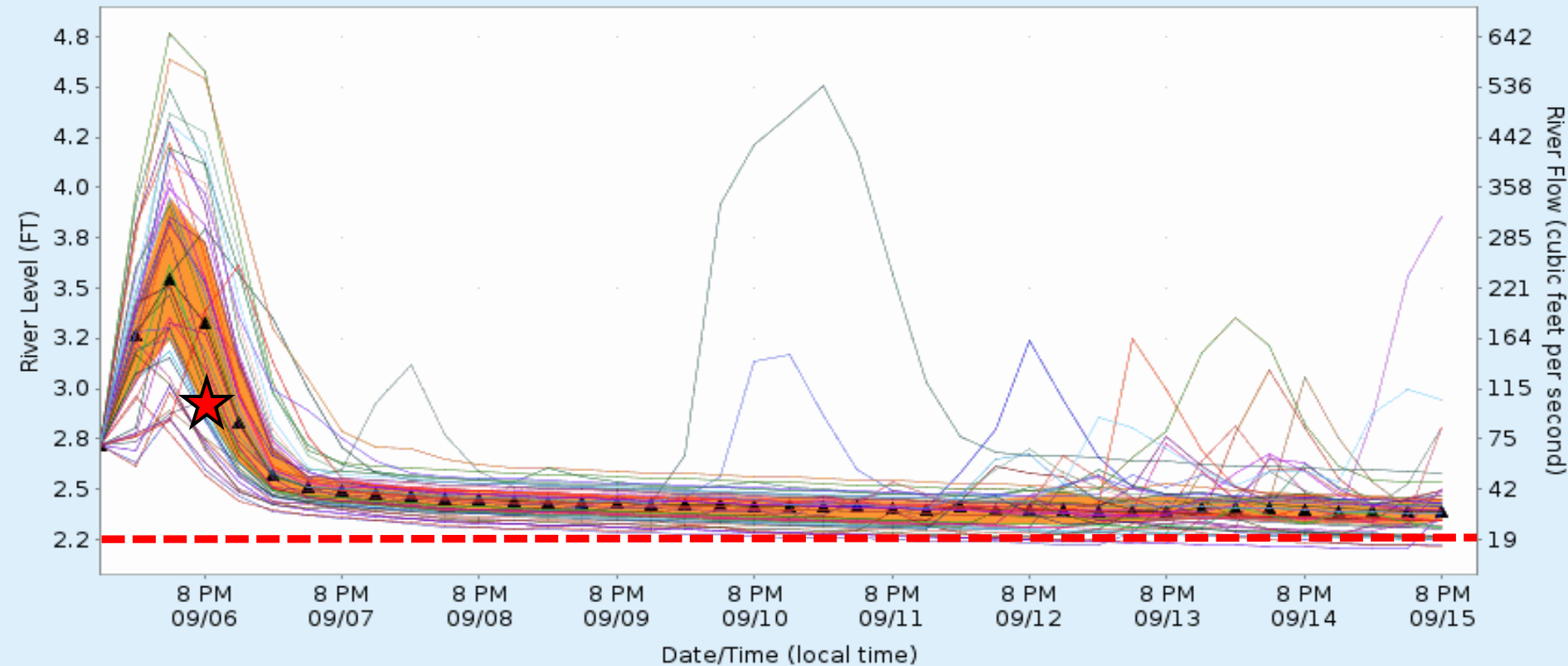


7 Day NAEFS River Level Simulations

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)



Again...we see flow recovery to above the median flow into mid-September.

- 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)

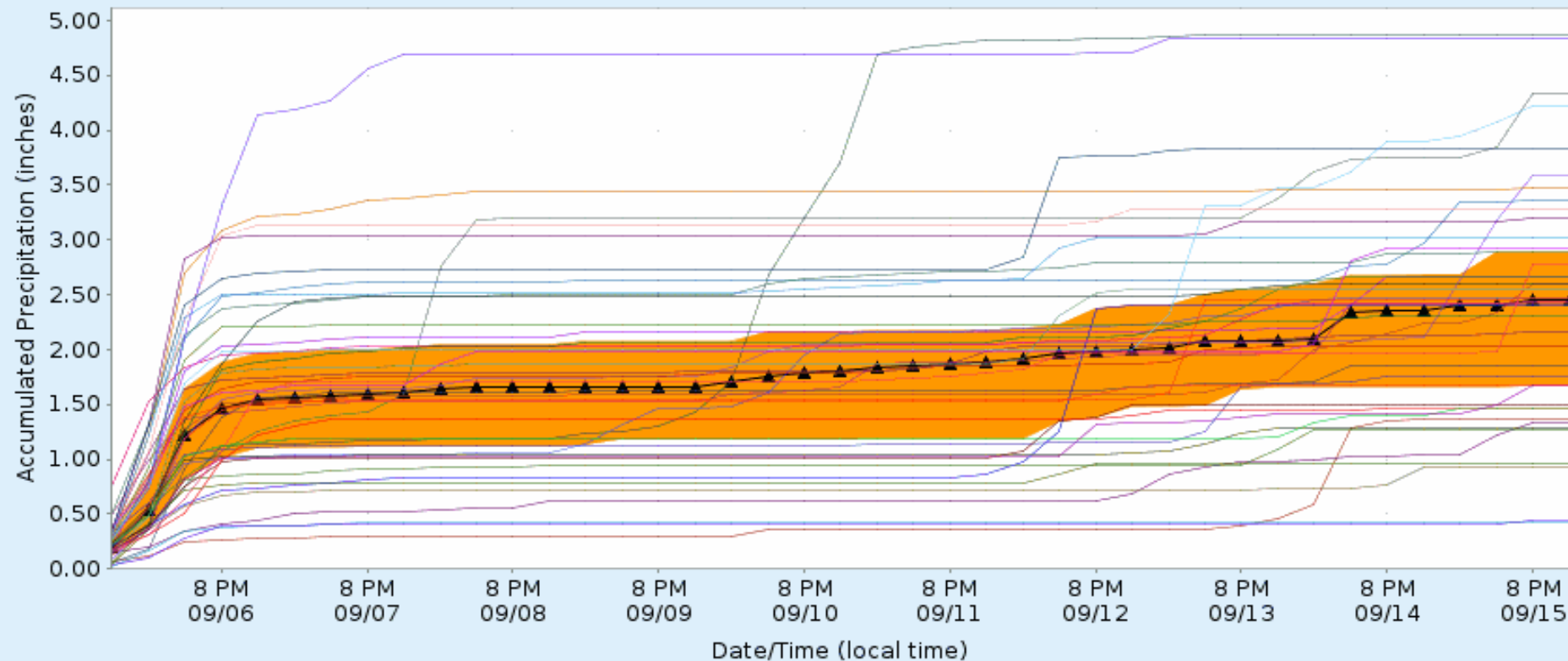
NAEFS PCPN – DOVM3



10 Day NAEFS Accumulated Precipitation Simulations Used as Input to the River Level Simulations



Charles River at Dover, MA (DOVM3)



- 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 notably lighter than what was forecast for western Massachusetts.
- 36-hour rainfall amount ending at 8 PM EDT Tuesday at Norwood Airport was 2.42 inches (overachieved).

NAEFS – DOVM3

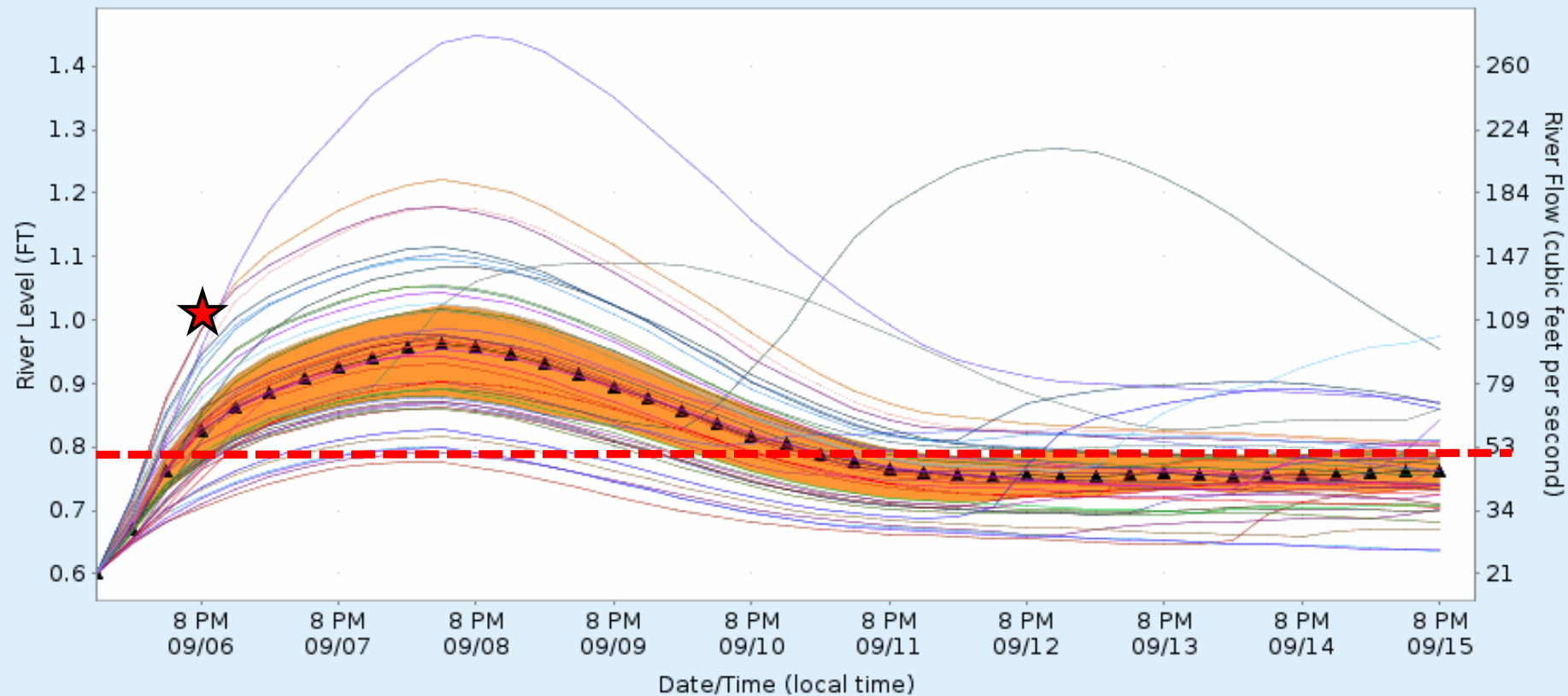


7 Day NAEFS River Level Simulations

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



Charles River at Dover, MA (DOVM3)



- 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)

- The recovery in flows is not as pronounced as across western Massachusetts. This would apply to Essex County and Cape Cod as well.

CONCLUSIONS

- A generalized 3 to 5 inches of rain since 31 August 2022 will have occurred across central and western Massachusetts through this morning. However...Cape Cod and the Islands missed out with generally an inch or less.
- River flows have improved dramatically across the Commonwealth since our last meeting (outside of Cape Cod).
- Most rivers and streams will see recovery and stay near or above median flow levels into mid-September.
 - Coastal eastern Massachusetts rivers will not fare quite as well. Concerns remain for Essex County...metro Boston and Cape Cod as the most beneficial rainfall has remained west.

weather.gov/nerfc