



MASSACHUSETTS RIVER OVERVIEW



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Task Force

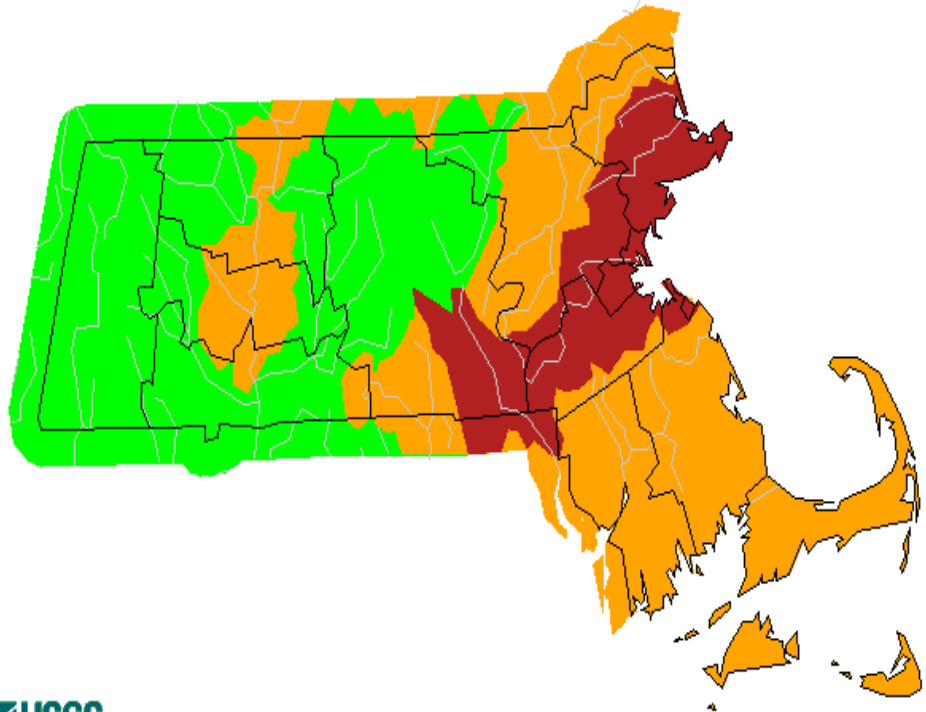
06 November 2024

OUTLINE

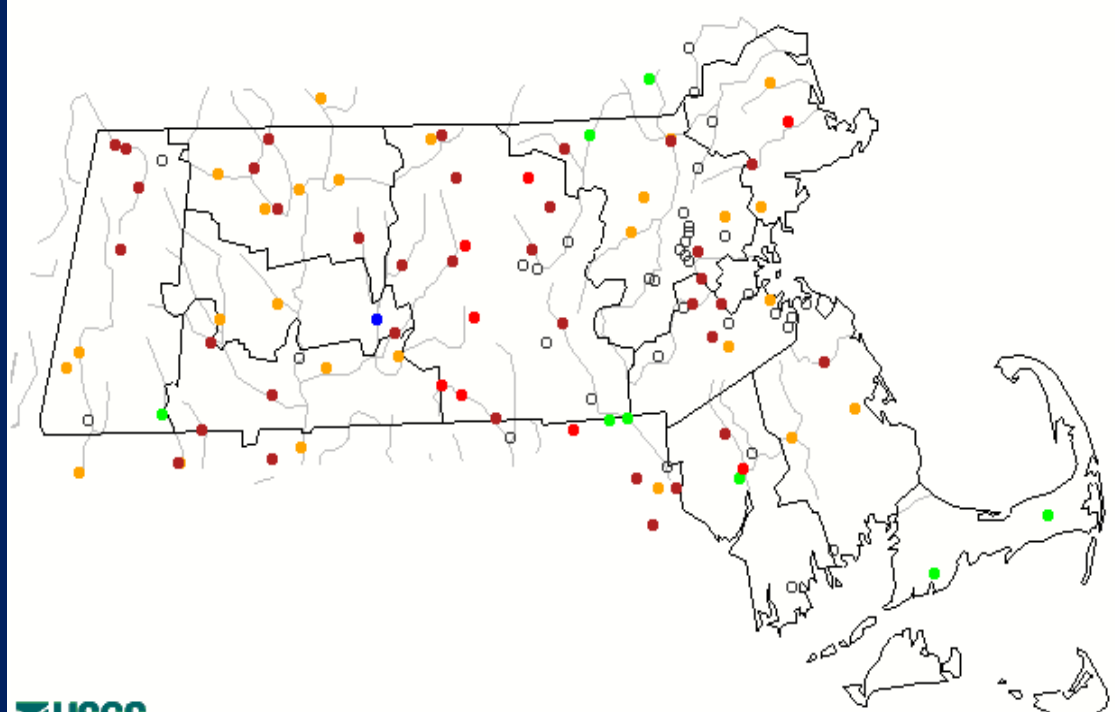
- Snapshot of Massachusetts River Flows
- NERFC River Forecast Outlook Focus – Eastern and Central Portions of the state.
- Brief look at Western Massachusetts River Flows.
- Conclusions

MASSACHUSETTS RIVER FLOWS

Sunday, September 15, 2024



Thursday, October 31, 2024



Explanation - Percentile classes							
Low	<10	10-24	25-75	76-90	>90	High	No Data
	Much below normal	Below normal	Normal	Above normal	Much above normal		

Explanation - Percentile classes							
Low	<10	10-24	25-75	76-90	>90	High	No Data
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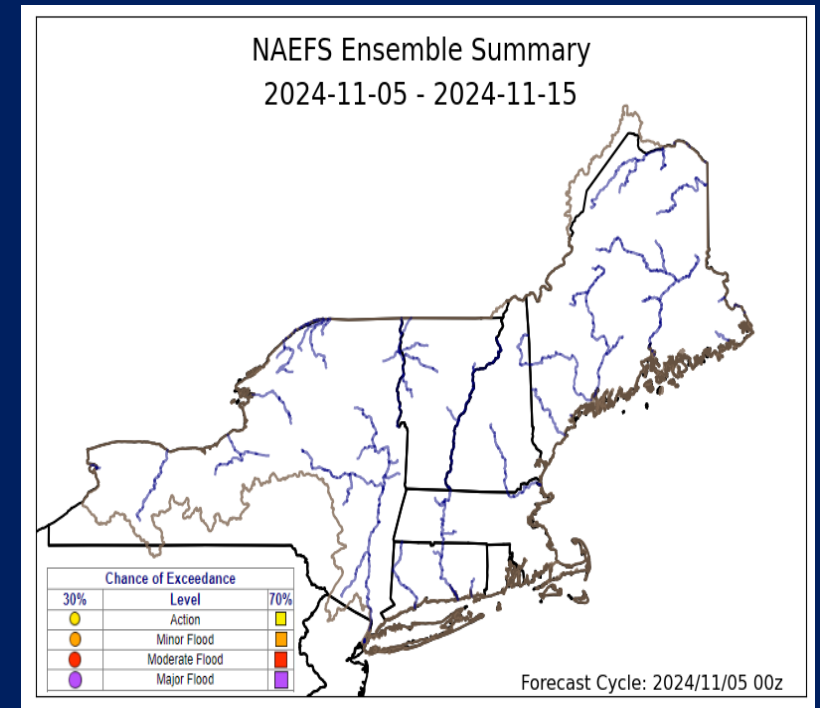
From September 15, 2024 to October 31, 2024...flows relative to normal were below to much below normal values across most of the state particularly eastern Massachusetts...Worcester County in central Massachusetts and the Pioneer Valley region of Western Massachusetts into Berkshire County. Pockets of near normal flows remained.

NAEFS ENSEMBLE RIVER FORECAST OUTLOOK

- A 52 member ensemble run for all NERFC forecast points to give us an idea of the possible range of river flows out 10 days.
 - Basically 52 slightly different initial conditions in the weather models lead to 52 different river forecasts based on rainfall and temperature.
- Will show results for...
 - Concord River at Lowell (LCNM3)
 - Neponset River at Norwood (NRWM3)
 - North Nashua River at Fitchburg (FBGM3)
 - Housatonic River at Great Barrington (GTBM3)

This table provides the status of hydrologic information generated using various meteorological model ensemble forcings for the NERFC.

System	Last Updated	Fcst Cycle	Analysis Period	Fcst Hours	Members
GEFS	2024-11-05 13:02 UTC	2024-11-05 06 UTC	2024-11-05 - 2024-11-15	240	31
NAEFS	2024-11-05 10:23 UTC	2024-11-05 00 UTC	2024-11-05 - 2024-11-15	240	52
HEFS	2024-11-05 01:25 UTC	2024-11-05 00 UTC	2024-11-05 - 2024-11-15	240	65



NAEFS RAINFALL – LCNM3

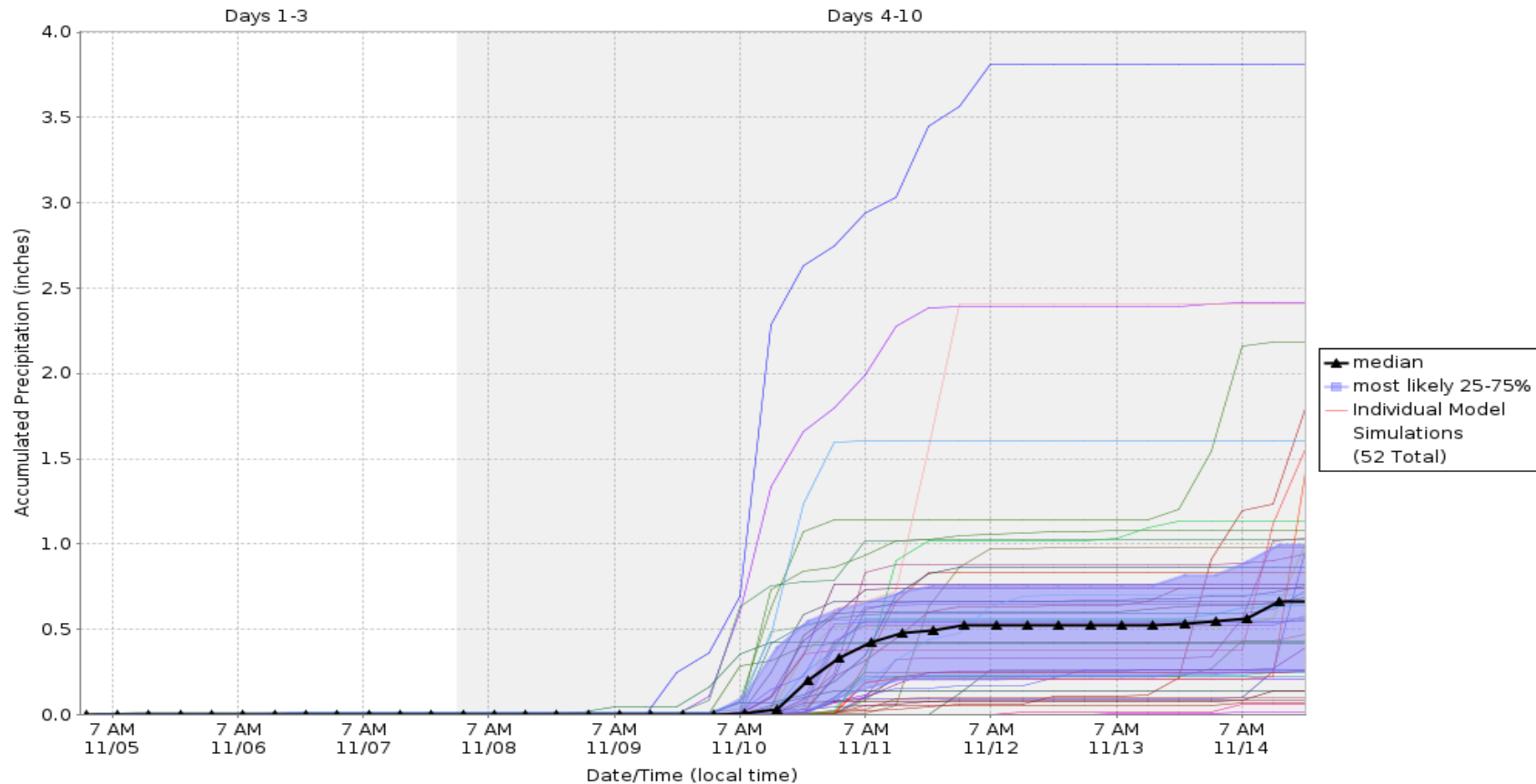
NAEFS - 10 Day Accumulated Precipitation Probabilities

Based on North American Ensemble Forecast System Model Simulations
Used to Estimate the Range of Possible River Levels



Nov 05 - Nov 15, 2024

Concord River at Lowell, MA (LCNM3)



Model runtime: 01:00 AM EST Nov 05 2024
Northeast River Forecast Center

> Over the next 10 days...median forecast rainfall is 0.7 inch.

> There is spread noted among the ensemble precipitation simulations heading into early next week.

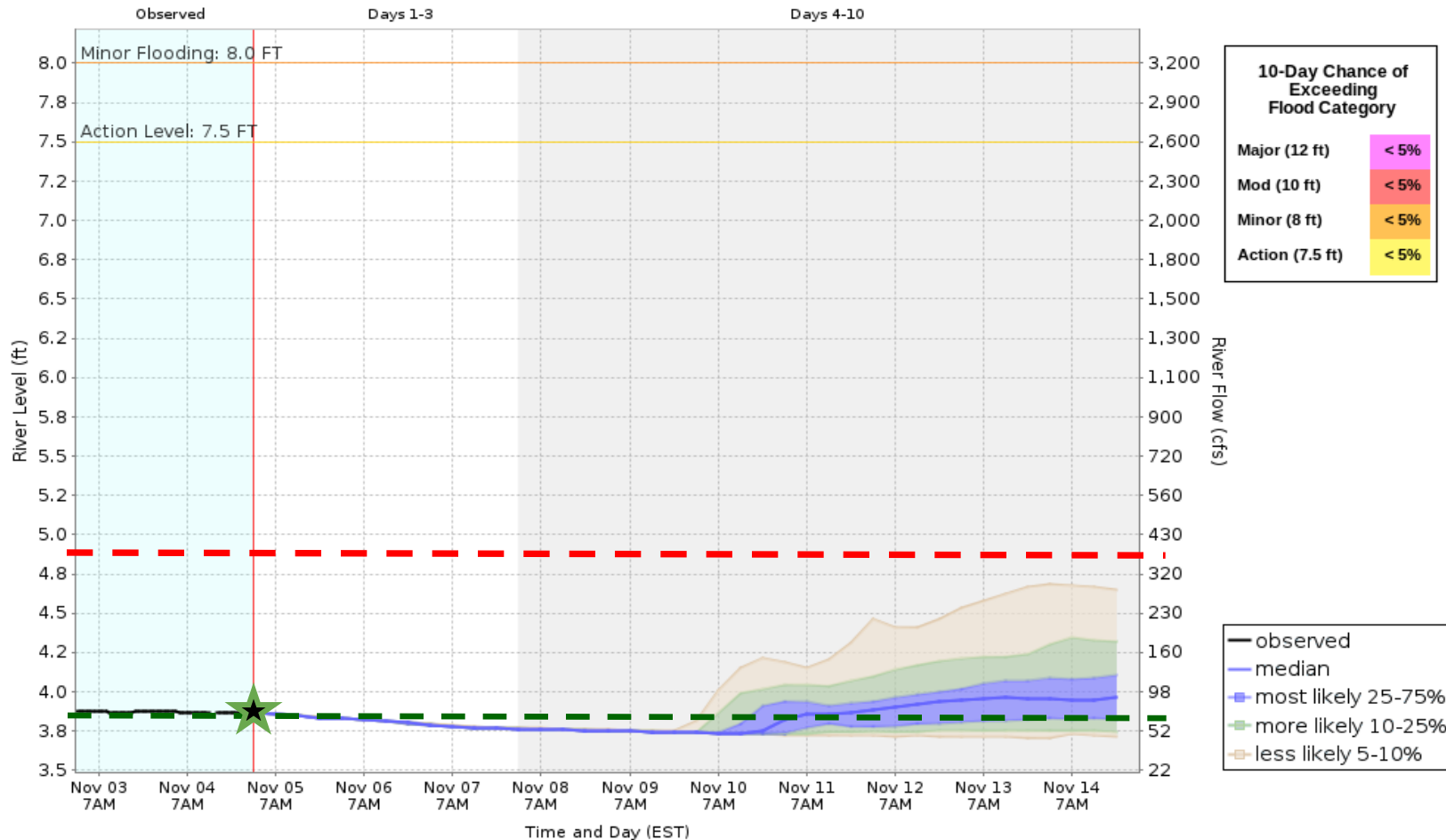
NAEFS – LCNM3

NAEFS - 10 Day River Level Probabilities

Based on North American Ensemble Forecast System Model Simulations
Used to Estimate the Range of Possible River Levels



Nov 05 - Nov 15, 2024 Concord River at Lowell, MA (LCNM3)



Model runtime: 01:00 AM EST Nov 05 2024
Northeast River Forecast Center

> Currently at minimum flow level for early November.

> River flows forecast to remain below median mid November levels (red dashed line).

> Most likely members increase river flows above minimum mid November levels (green dashed line) early next week.

NAEFS RAINFALL – NRW3

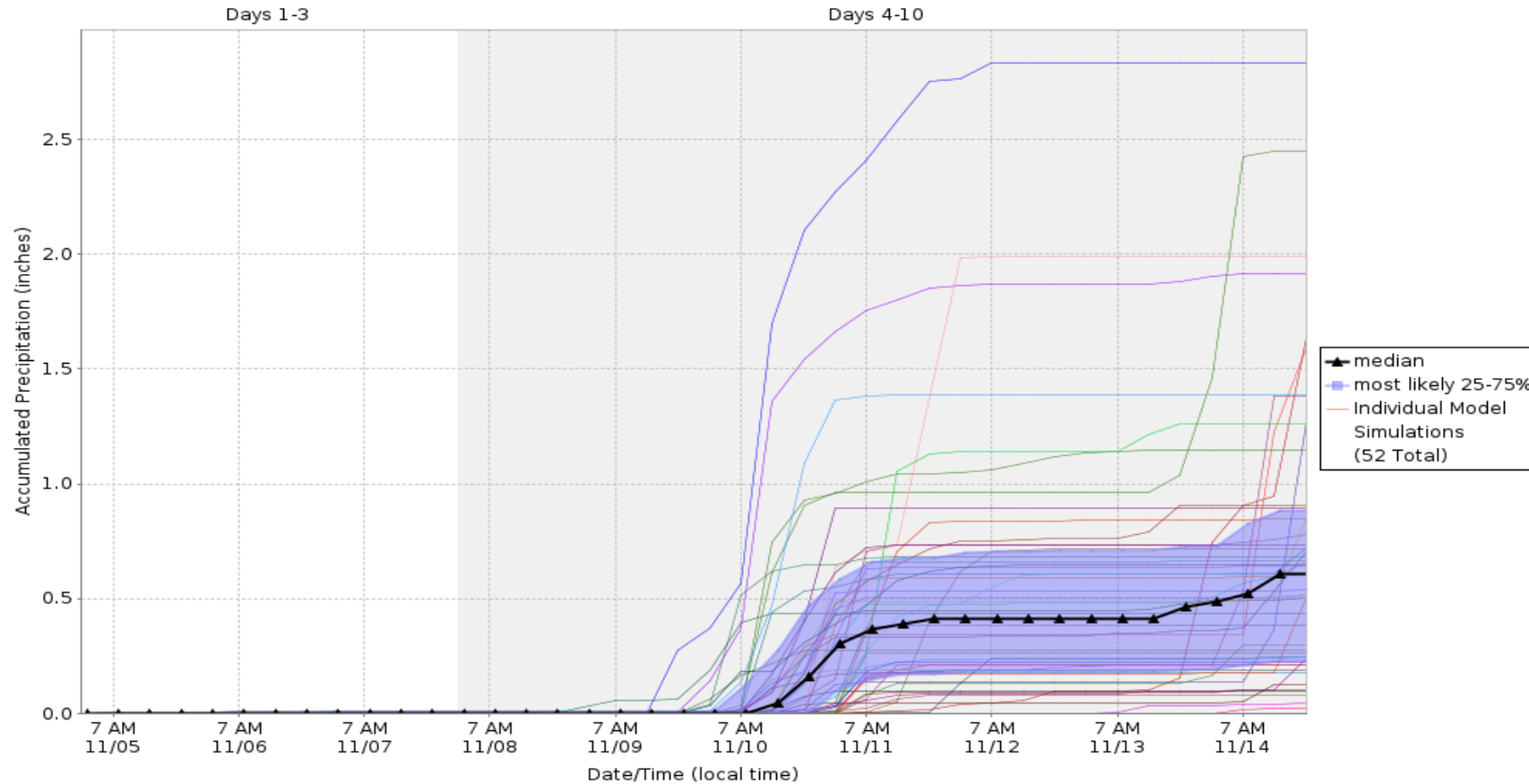
NAEFS - 10 Day Accumulated Precipitation Probabilities

Based on North American Ensemble Forecast System Model Simulations
Used to Estimate the Range of Possible River Levels



Nov 05 - Nov 15, 2024

Neponset River at Norwood, MA (NRWM3)



Model runtime: 01:00 AM EST Nov 05 2024
Northeast River Forecast Center

Over the next 10 days...median forecast rainfall is 0.7 inch.

There is spread in the ensemble forecast precipitation heading into early next week.

NAEFS – NRW3

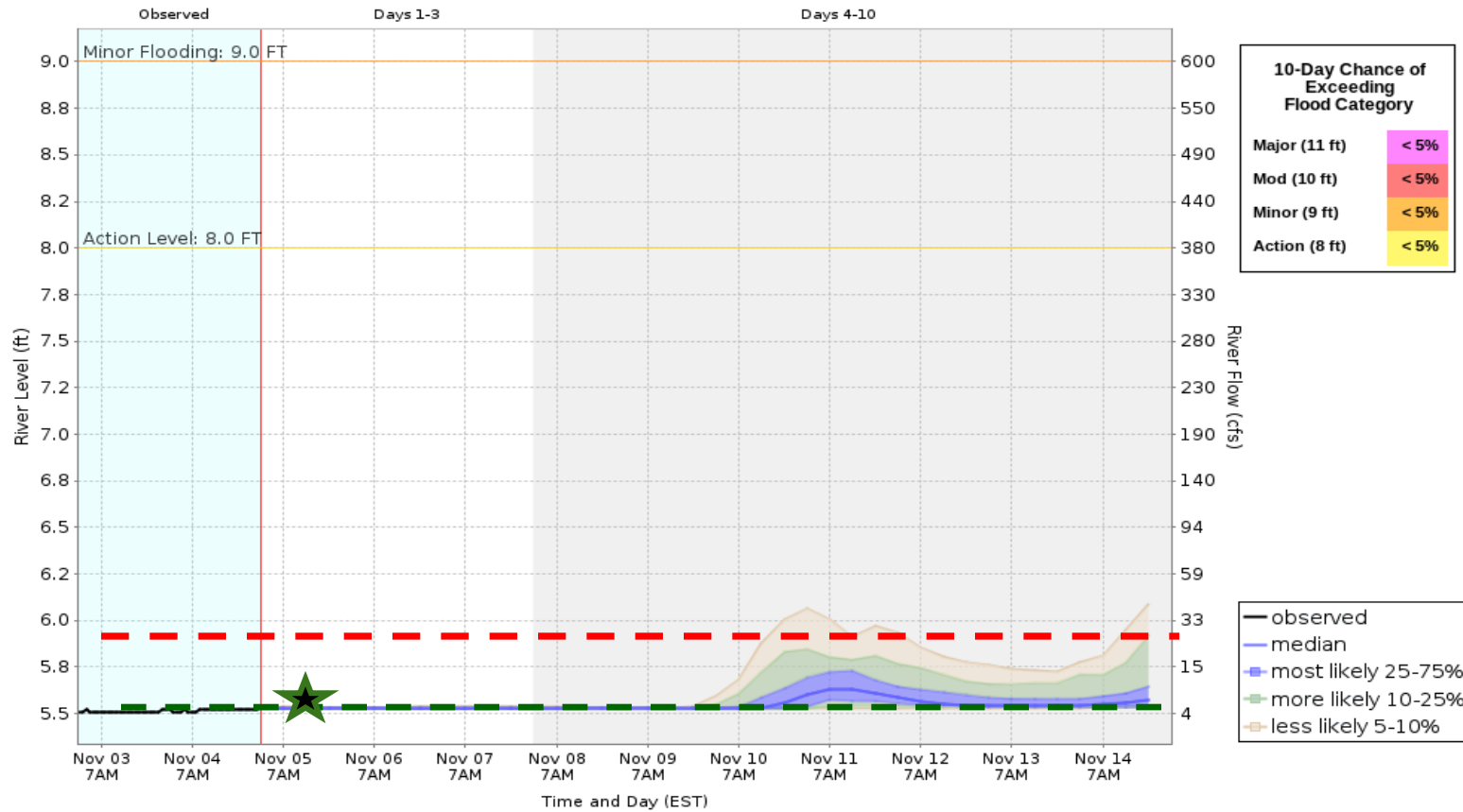


NAEFS - 10 Day River Level Probabilities

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Nov 05 - Nov 15, 2024

Neponset River at Norwood, MA (NRWM3)



Model runtime: 01:00 AM EST Nov 05 2024
Northeast River Forecast Center

> Currently near minimum flow for early November.

> River flows are forecast to remain below median mid November levels (red dashed line)

> Most likely ensemble members show some increases early next week, near or slightly above minimum mid November levels (green dashed line) over the next 10 days.

NAEFS RAINFALL – FBGM3

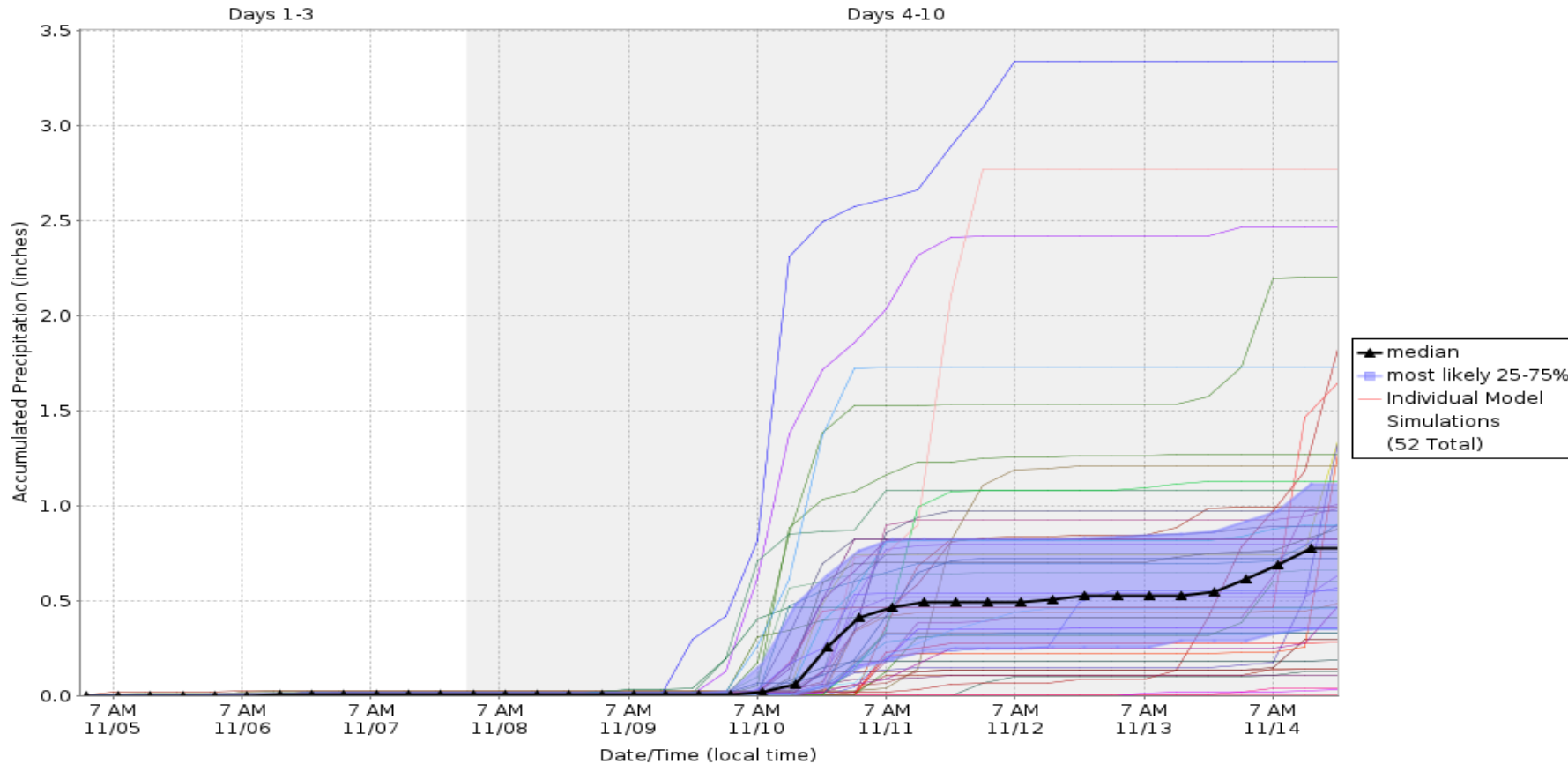
NAEFS - 10 Day Accumulated Precipitation Probabilities

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Nov 05 - Nov 15, 2024

North Nashua River at Fitchburg, MA (FBGM3)



Model runtime: 01:00 AM EST Nov 05 2024
Northeast River Forecast Center

Over the next 10 days...median forecast rainfall is 0.75 inch.

There is spread in the ensemble forecast precipitation heading into early next week.

NAEFS – FBGM3

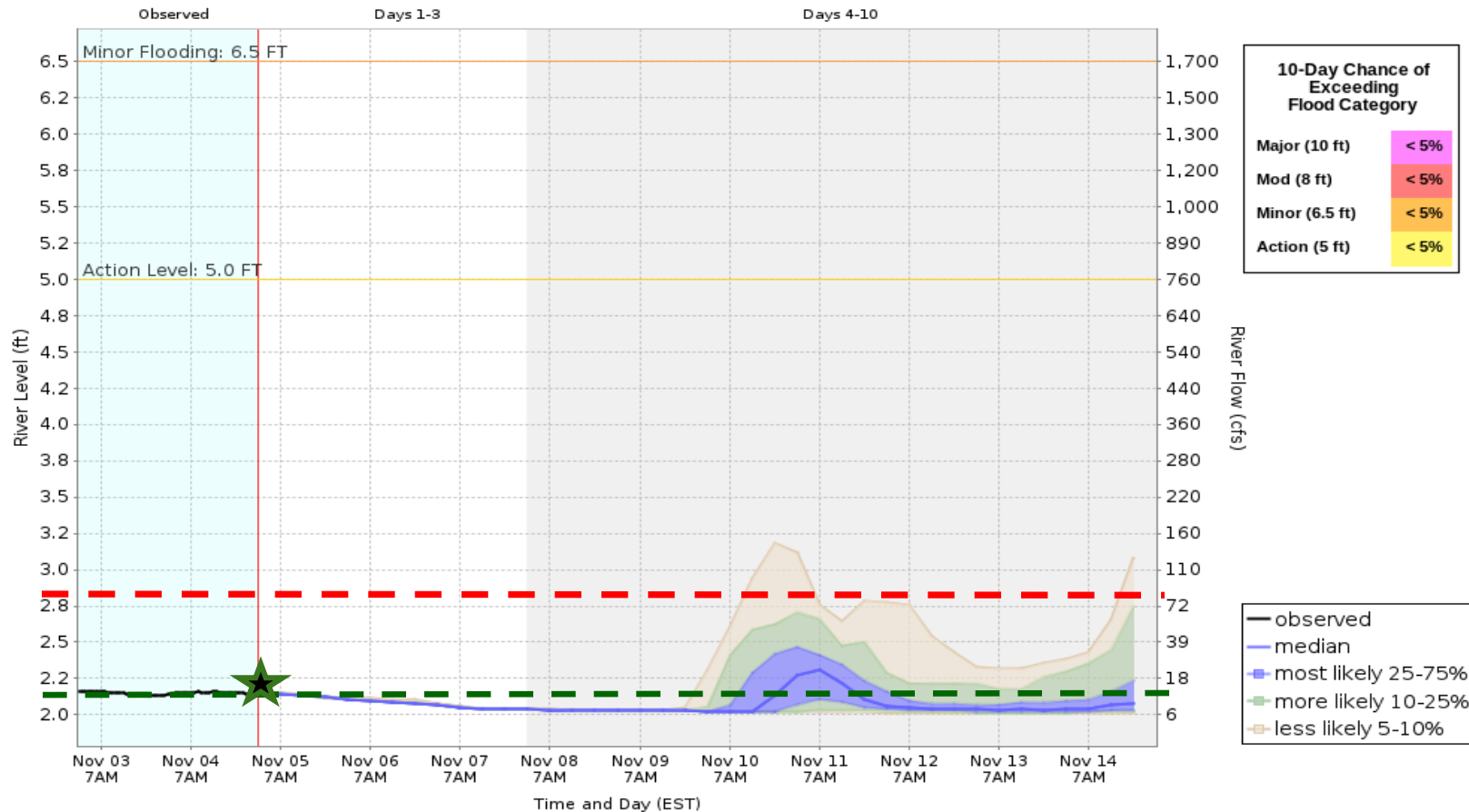


NAEFS - 10 Day River Level Probabilities

Based on North American Ensemble Forecast System Model Simulations
Used to Estimate the Range of Possible River Levels

Nov 05 - Nov 15, 2024

North Nashua River at Fitchburg, MA (FBGM3)



Model runtime: 01:00 AM EST Nov 05 2024
Northeast River Forecast Center

> River flows are forecast to remain generally below median mid November levels (red dashed line) but some of the ensemble members show increases next week.

> Most likely ensemble members bring river flows above minimum mid November levels (green dashed line) next week.

NAEFS RAINFALL – GTBM3

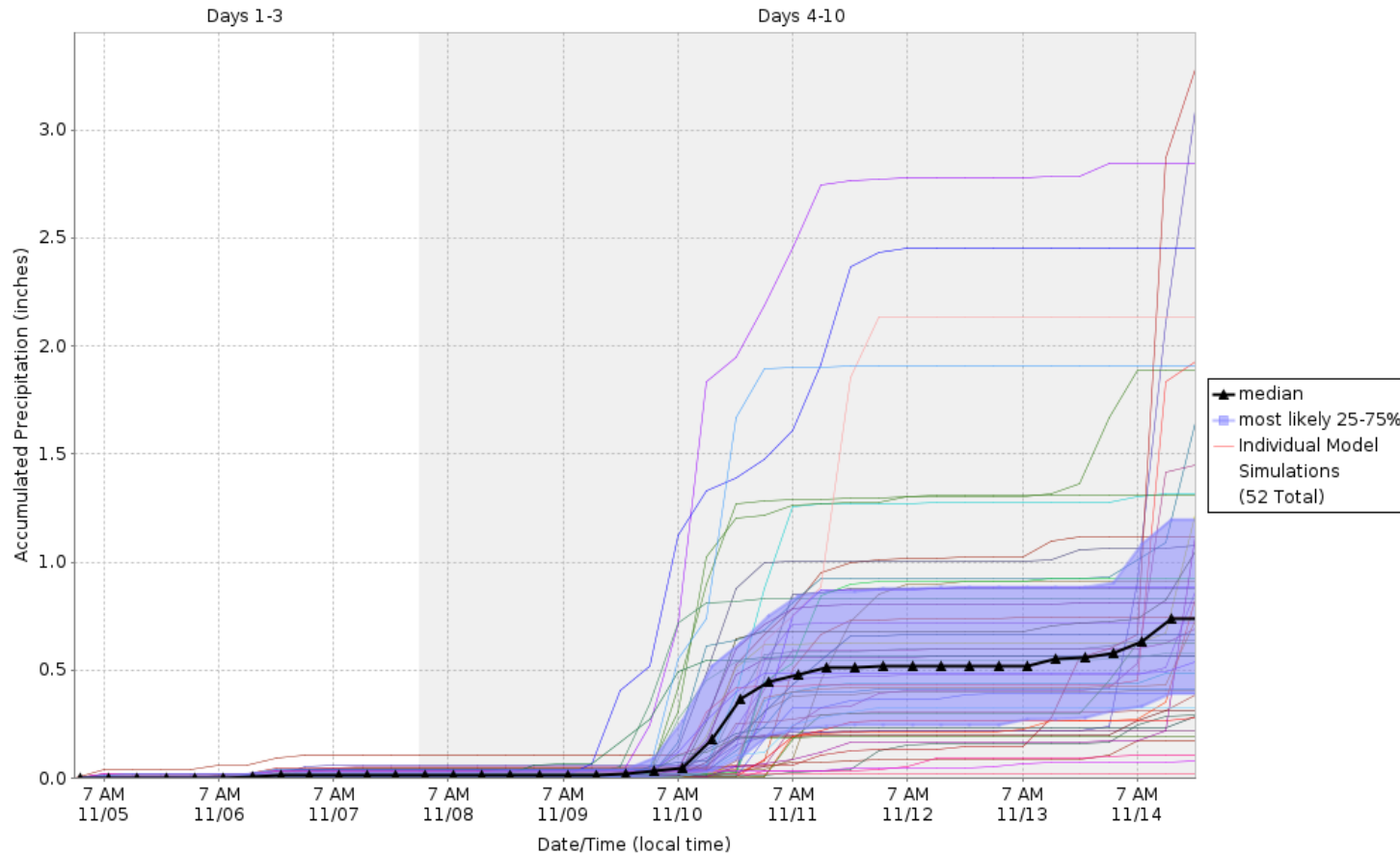
NAEFS - 10 Day Accumulated Precipitation Probabilities

Based on North American Ensemble Forecast System Model Simulations
Used to Estimate the Range of Possible River Levels



Nov 05 - Nov 15, 2024

Housatonic River at Great Barrington, MA (GTBM3)



Model runtime: 01:00 AM EST Nov 05 2024
Northeast River Forecast Center

> Over the next 10 days...median forecast rainfall is 0.8 inch.

> There is spread in the ensemble forecast precipitation noted heading into early next week.

NAEFS – GTBM3

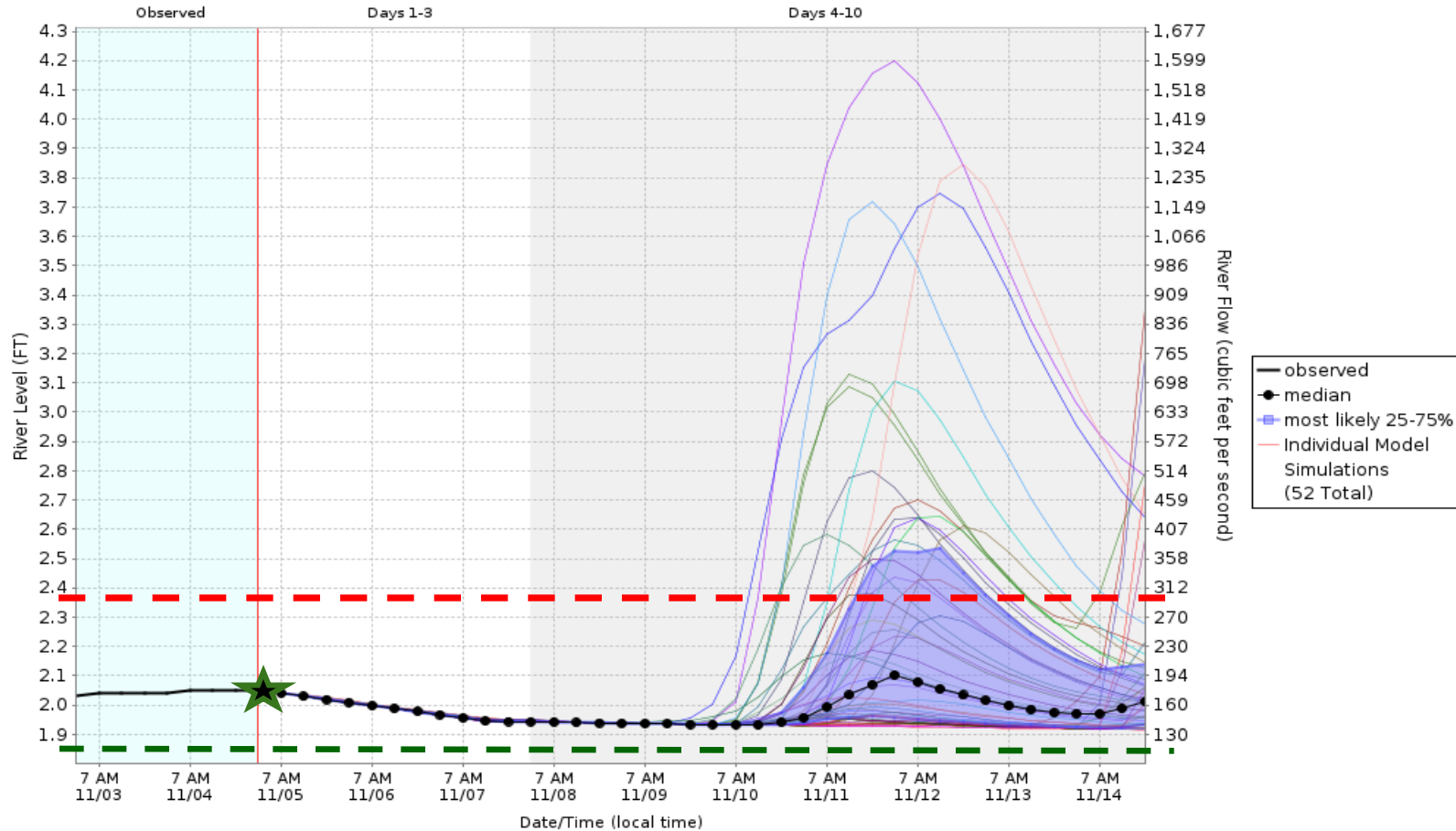


NAEFS - 10 Day River Level Probabilities

Based on North American Ensemble Forecast System Model Simulations
Used to Estimate the Range of Possible River Levels

Nov 05 - Nov 15, 2024

Housatonic River at Great Barrington, MA (GTBM3)



Model runtime: 01:00 AM EST Nov 05 2024
Northeast River Forecast Center

> River flows are forecast to remain generally below median mid November levels (red dashed line) but some of the ensemble members show increases next week.

> Ensemble members maintain river flows above minimum mid November levels (green dashed line) over the next 10 days.

CONCLUSIONS

- From mid September to late October...river flows across most of the Commonwealth gradually decreased. Below to well below normal flows were observed across most of the state.
- The lowest stream flows for late October were found in Essex...Middlesex...Suffolk and Norfolk counties...northern Bristol and northern Plymouth counties in Eastern Massachusetts and Worcester County in Central Massachusetts. Areas of low flows were also observed in western Massachusetts.
- The weather pattern looks somewhat more active next week. Ensemble data indicates the possibility for some rainfall but with some significant spread in amounts. As a result...the NERFC river forecast ensembles call for decreasing flows to continue near term followed by some increase in river flows next week. Temporary increases in rivers and streams develop longer term over the next 10 days.

[weather.gov/nerfc](https://www.weather.gov/nerfc)