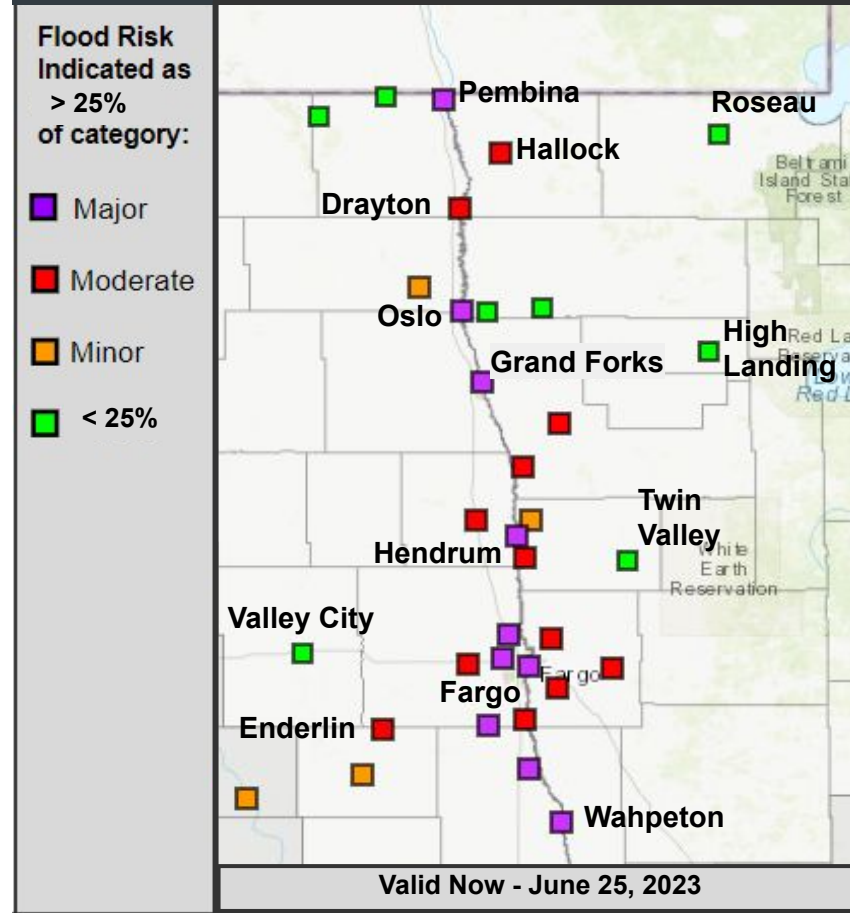


Key Message

- Flood risk is above long-term historical averages across the mainstream Red River and southeastern ND
 - Top 10 flood possible for some locations
- Slightly greater than normal risk for MN tributaries with lower than normal risk for northeast ND tributaries
- Significant overland flooding is also possible in addition to river flooding
 - Note: The map on the right depicts the > 25% probability of reaching the depicted flood categories from the March 23, 2023 outlook. Based on the delayed melt and recent precipitation, these numbers are likely now more representative of the overall flood threat than the 50% numbers.





Key Points

- The outlook probabilities issued on March 23rd remain valid and should be used for flood preparations. However with recent precipitation, the focus for preparedness operations should shift right on the graph toward the lower probabilities (50%-25% and lower) with the higher stage values.
- Snowpack ripening and melting expected to be underway next week.

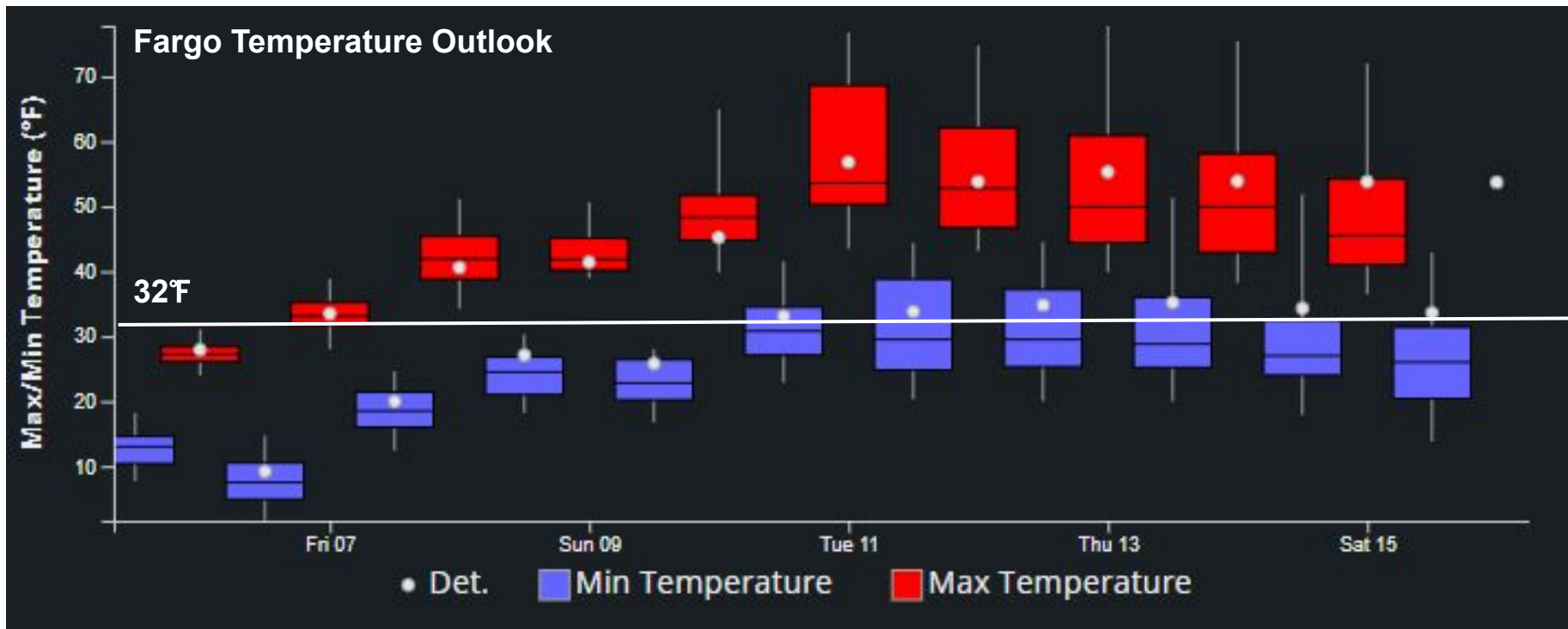


Snowmelt Outlook Discussion:

Temperatures: Warmer temperatures are expected by this weekend and much of next week. These temperatures will ripen the snowpack and allow the melt process to begin in earnest by late next week. As temperatures continue to warm toward the middle of the month, the melt process will become more rapid.

Precipitation: Dry and quiet weather conditions are expected through this weekend and into early next week. By late next week and into next weekend, precipitation chances return to the area. The timing, amounts, and type of precipitation and how it could impact snowmelt runoff is unknown at this time.

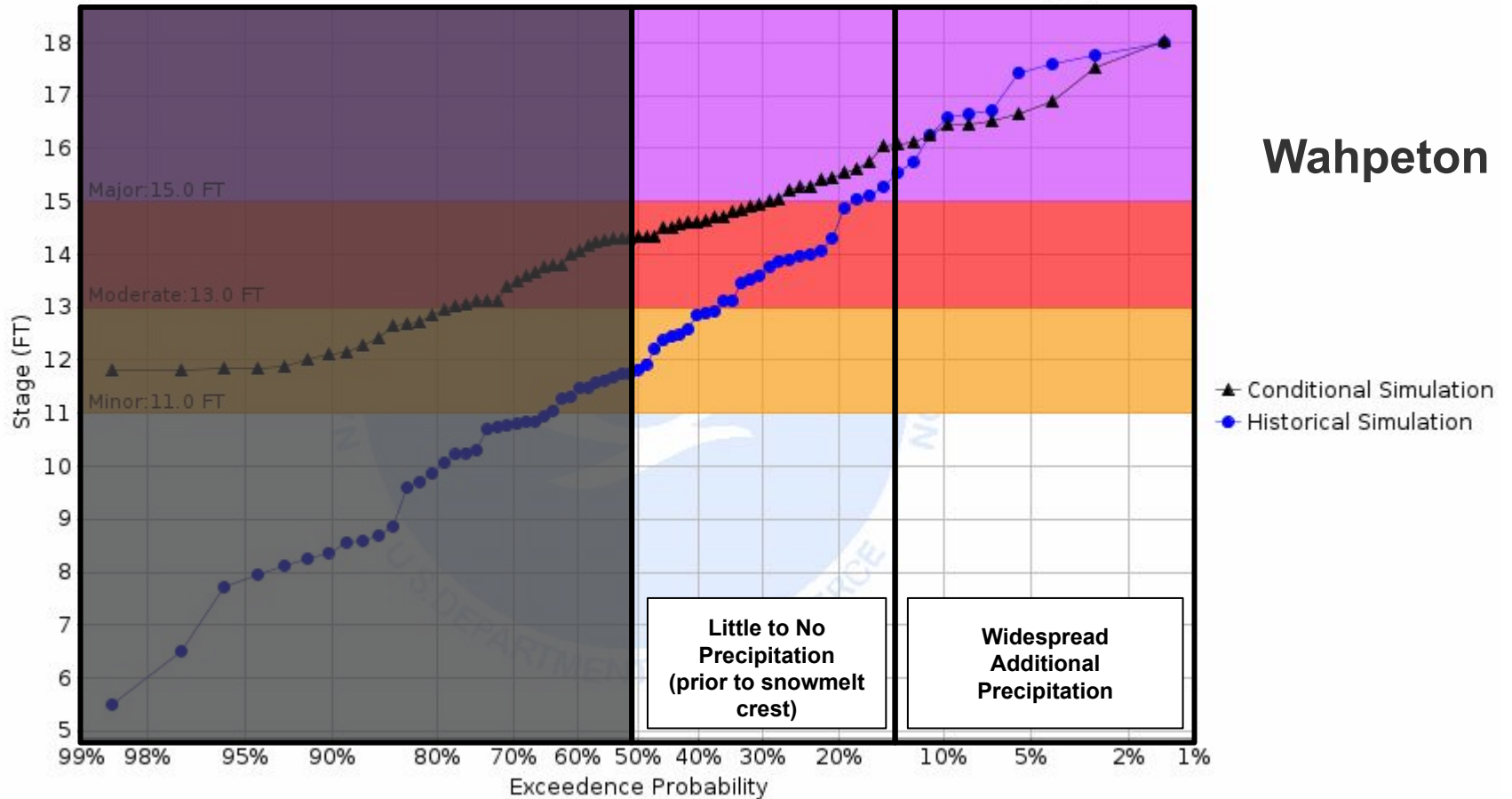
Temperature Outlook



Chance of Exceeding River Stage at Red River of the North at Wahpeton (WHNN8)

Forecast for the period 03/27/2023 - 06/25/2023

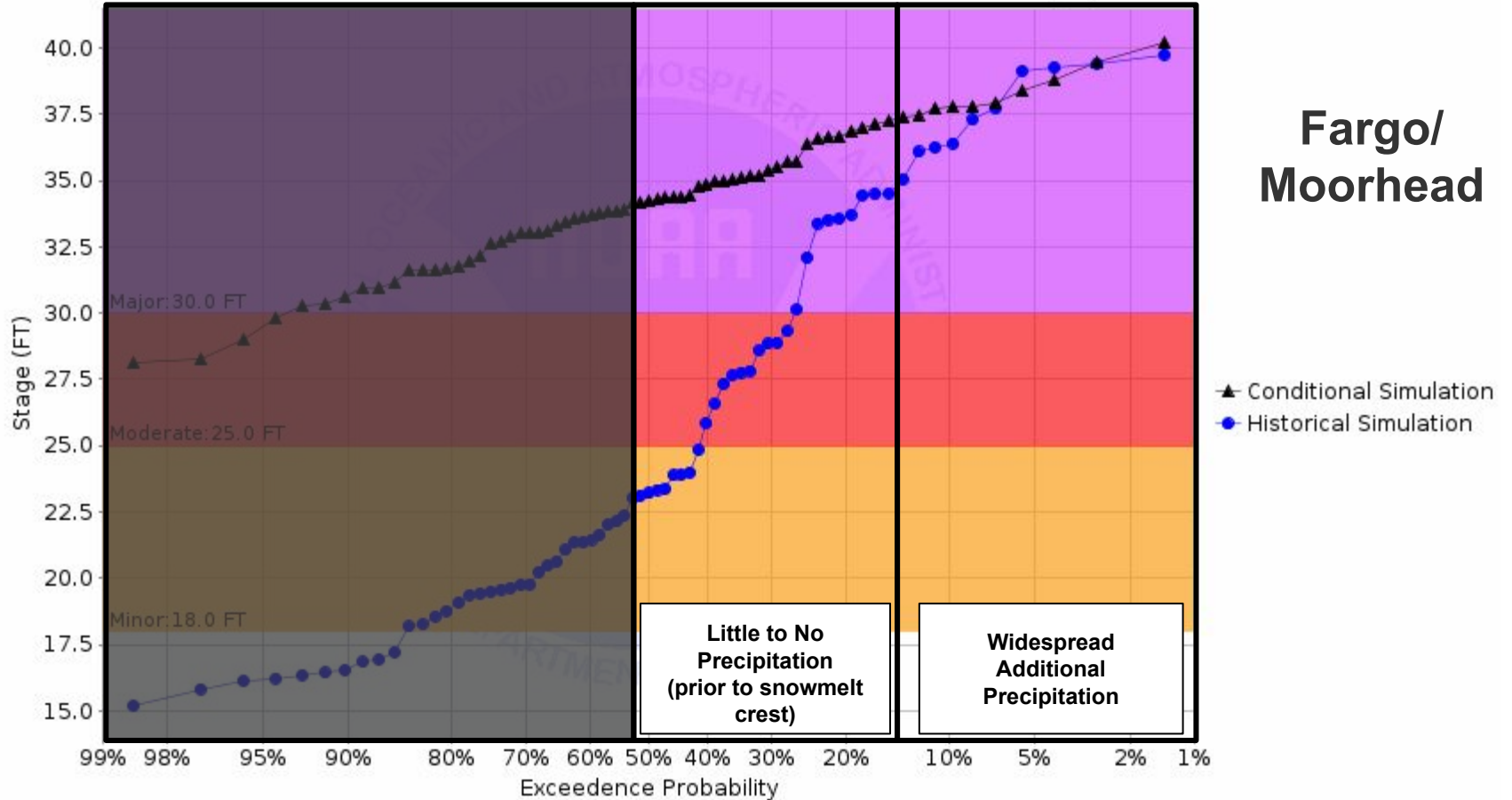
This is a conditional simulation based on the conditions as of 03/20/2023

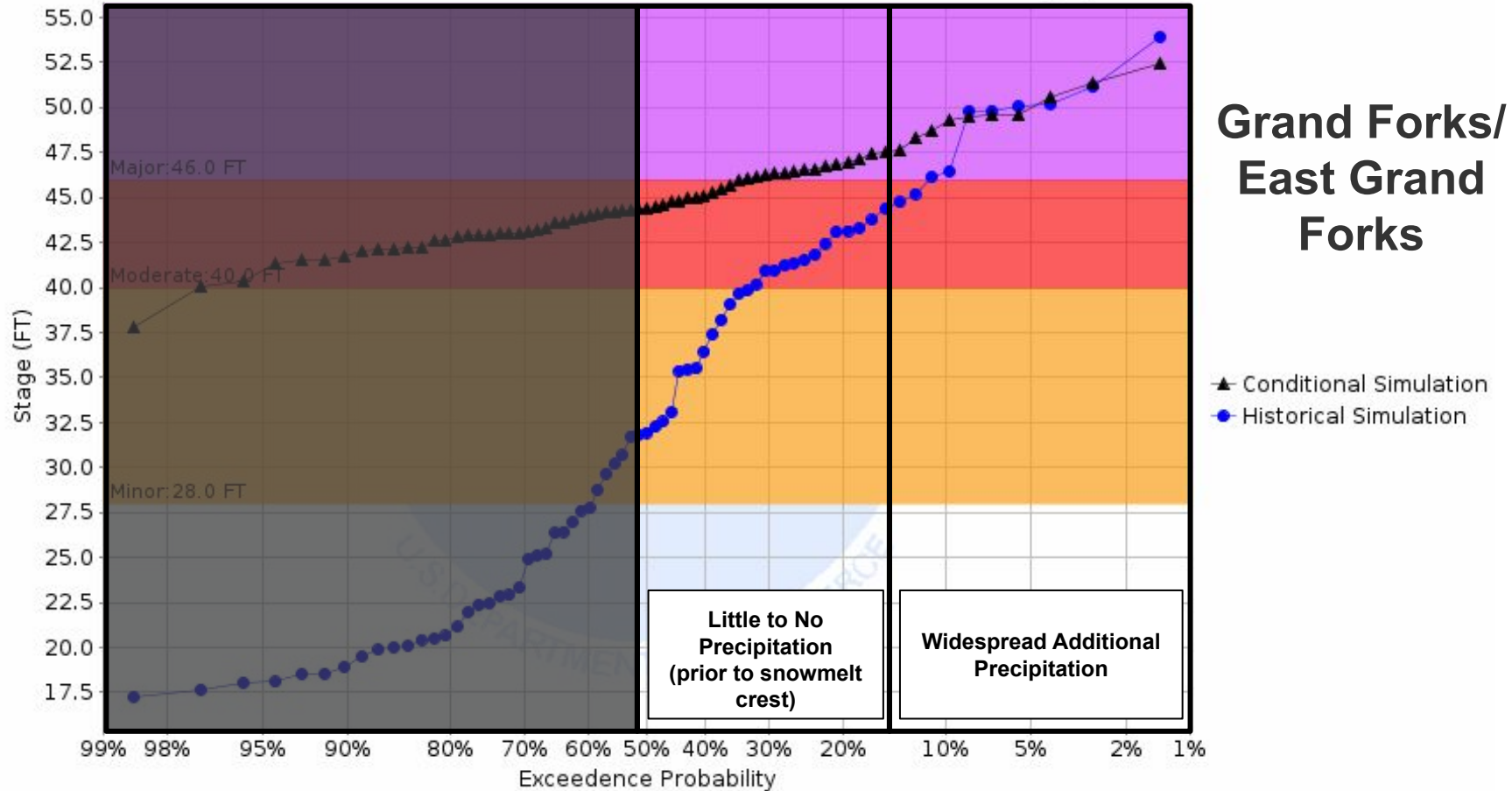


Chance of Exceeding River Stage at Red River of the North at Fargo WTP (FGON8)

Forecast for the period 03/27/2023 - 06/25/2023

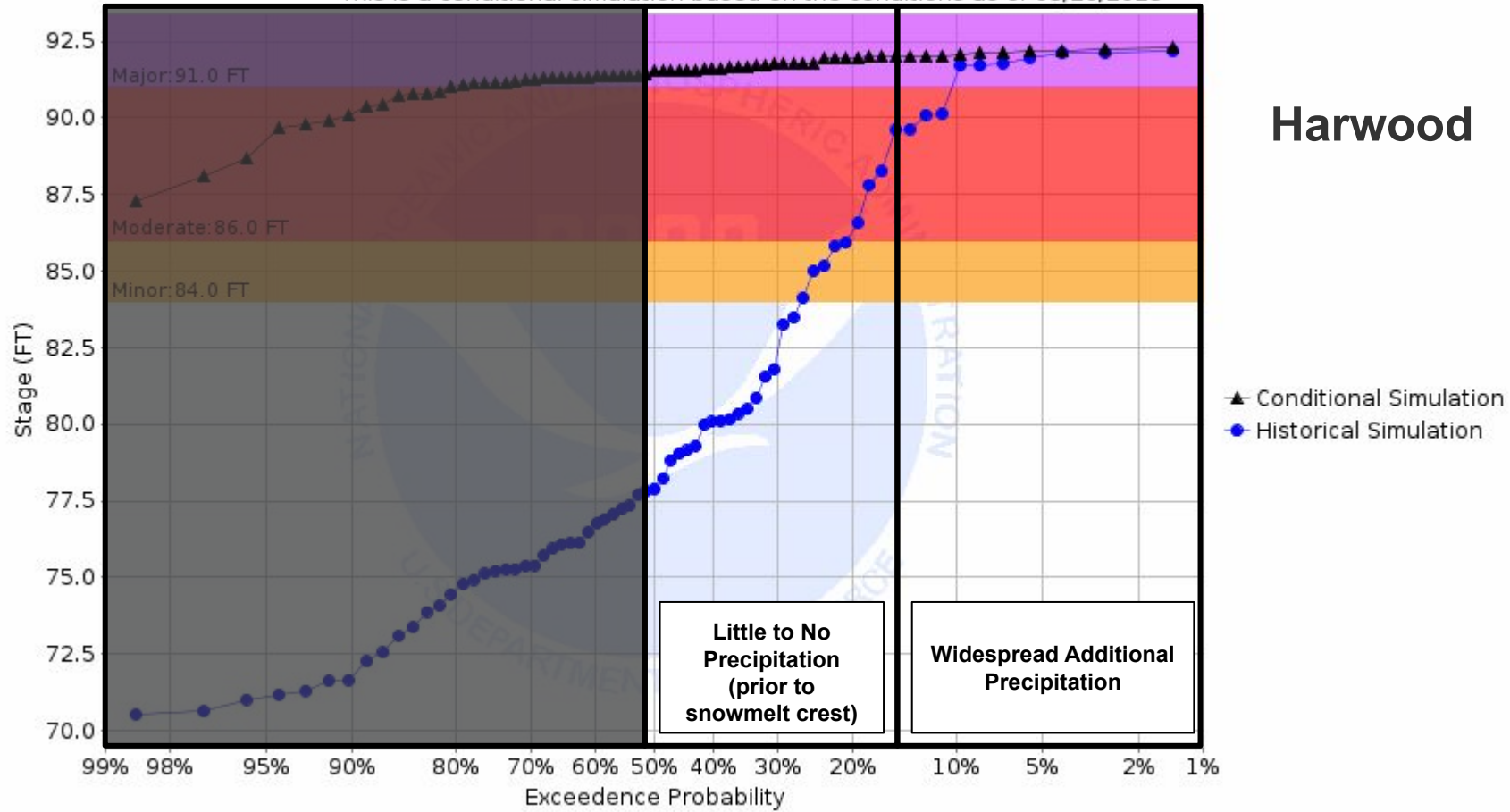
This is a conditional simulation based on the conditions as of 03/20/2023





Chance of Exceeding River Stage at Sheyenne River at Harwood (HWDN8)
 Forecast for the period 03/27/2023 - 06/25/2023
 This is a conditional simulation based on the conditions as of 03/20/2023

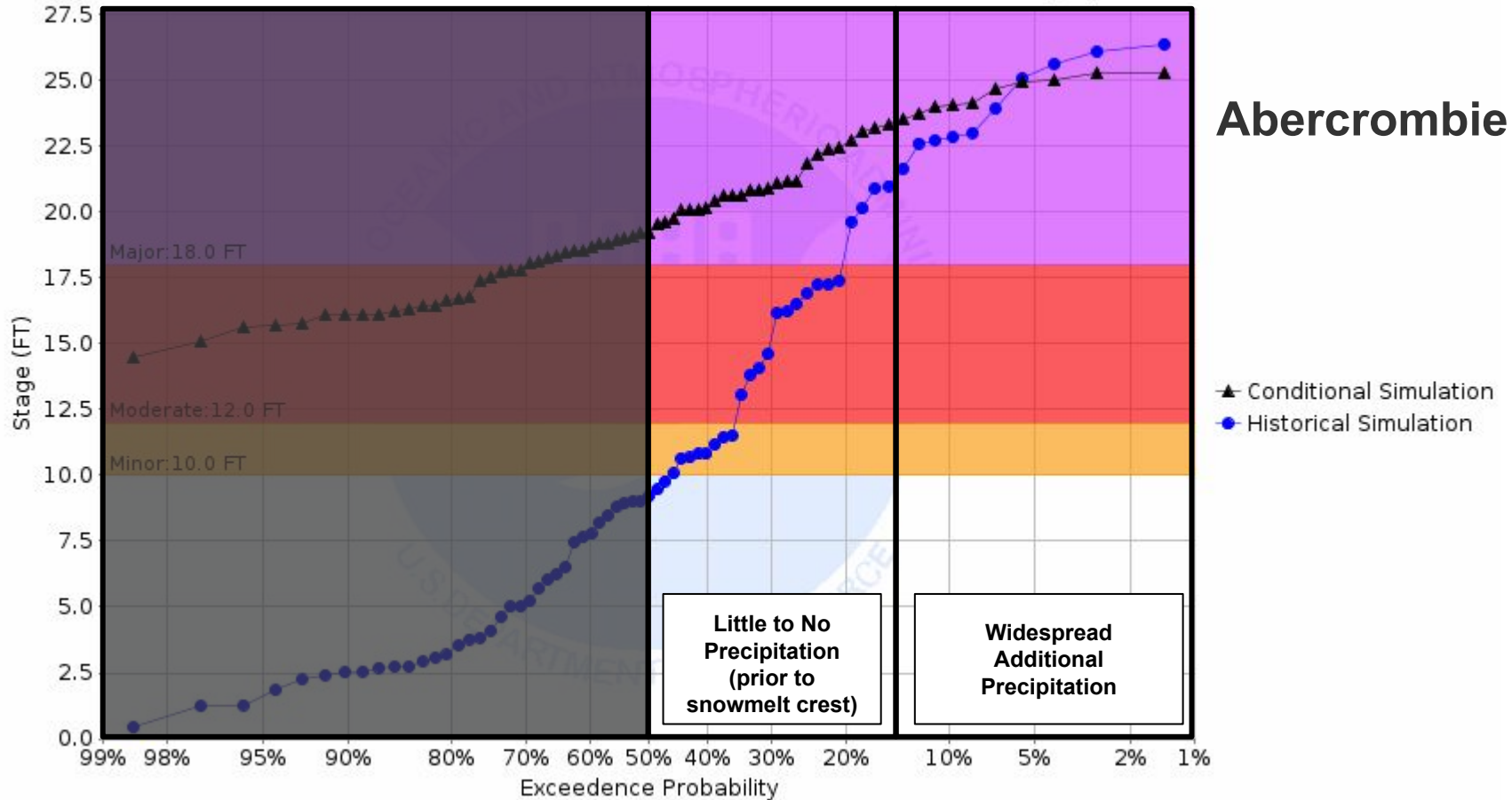
Harwood



Chance of Exceeding River Stage at Wild Rice River at Abercrombie 2WNW (ABRN8)

Forecast for the period 03/27/2023 - 06/25/2023

This is a conditional simulation based on the conditions as of 03/20/2023



Valid March 27, 2023 - June 25, 2023

RED RIVER MAINSTEM

	95%	90%	75%	50%	25%	10%	5%
Wahpeton	11.9	12.1	13.1	14.3	15.3	16.4	16.8
Hickson	27.5	28.1	30.4	32.6	34.0	35.4	36.3
Fargo	29.5	30.7	32.7	34.2	36.4	37.8	38.6
Halstad	32.5	33.7	35.7	38.2	39.5	39.9	40.2
Grand Forks	41.0	41.8	42.9	44.4	46.5	49.2	50.0
Oslo	35.0	35.3	35.7	36.3	37.3	38.4	38.7
Drayton	38.6	39.5	40.1	40.8	41.8	42.9	43.5
Pembina	45.6	46.8	47.7	49.6	50.9	52.3	52.8

NORTH DAKOTA TRIBUTARIES

	95%	90%	75%	50%	25%	10%	5%
Wild Rice River							
Abercrombie	15.7	16.1	17.5	19.2	21.8	24.0	25.0
Sheyenne River							
Valley City	11.6	12.0	12.6	13.3	14.3	18.0	19.5
Lisbon	12.0	12.6	13.2	13.9	15.2	18.5	20.1
Kindred	16.8	17.2	18.3	19.6	20.5	21.2	21.2
West Fargo Diversion	16.5	17.2	17.6	19.3	21.3	21.3	21.3
Harwood	89.3	90.1	91.1	91.5	91.8	92.1	92.2
Maple River							
Enderlin	11.4	11.6	12.3	12.9	13.2	13.8	14.2
Mapleton	21.0	21.6	22.0	22.4	22.8	23.2	23.7
Goose River							
Hillsboro	9.8	11.6	13.0	13.9	14.4	15.1	15.6
Forest River							
Minto	4.3	4.6	5.2	5.7	6.5	7.1	7.2
Pembina River							
Walhalla	5.4	5.7	6.2	6.9	8.3	10.4	11.3
Neche	9.1	9.8	11.3	12.7	16.7	19.6	20.5

Legend:
 Below Flood Stage
 Minor
 Moderate
 Major
 Flood of Record

50% 25%

 Little to No
 Precipitation
 (prior to
 snowmelt crest)

10% 5%

 Widespread
 Additional
 Precipitation





Valid March 27, 2023 - June 25, 2023

MINNESOTA TRIBUTARIES

	95%	90%	75%	50%	25%	10%	5%
South Fork Buffalo River							
Sabin	14.0	14.4	14.8	15.3	15.8	16.4	16.8
Buffalo River							
Hawley	8.2	8.7	9.1	9.8	10.3	10.8	11.2
Dilworth	19.3	19.8	20.6	21.6	22.5	23.3	23.9
Wild Rice River							
Twin Valley	6.8	7.2	7.8	8.9	9.6	11.0	11.9
Hendrum	26.7	28.1	29.1	30.5	31.7	32.5	33.1
Marsh River							
Shelly	10.9	12.4	13.5	15.1	17.3	19.5	20.2
Sand Hill River							
Climax	19.9	20.7	22.7	24.9	28.3	30.7	32.1
Red Lake River							
High Landing	7.0	7.3	8.3	9.3	9.5	11.4	11.8
Crookston	13.8	14.2	15.7	17.9	20.1	22.4	23.5
Snake River							
Above Warren	63.4	63.7	64.1	64.9	65.7	67.3	68.1
Alvarado	100.1	100.8	102.0	103.5	105.6	108.1	108.6
Two Rivers River							
Hallock	800.3	800.6	802.0	804.1	807.1	808.3	809.0
Roseau River							
Roseau	8.0	8.5	9.3	10.6	13.2	15.6	17.0

Legend:
 Below Flood Stage
 Minor
 Moderate
 Major
 Flood of Record

50% 25%

 Little to No
 Precipitation
 (prior to
 snowmelt crest)

10% 5%

 Widespread
 Additional
 Precipitation

