Bottom Line up Front!

- The threat for significant snowmelt flooding has increased substantially across all sub-basins and for the main-stem Red River.

- We’re at the mercy of March! And the prospects for a delayed thaw and/or continued substantial snowfall, late February into March.

- Late January and February have added a substantial snowpack, so that widespread, above normal, runoff is now likely.

- A deep frost, due to extensive extreme cold, should limit snowmelt infiltration, though soils are dry enough to handle some melt runoff… if the thaw cycle allows.

- Climate outlooks now indicate a later snowmelt and runoff cycle which increases our risk for rapid and/or rainfall enhanced runoff.

Long Story Short: The risk for significant snowmelt flooding is substantial, running above long-term historical averages across the Red River and Devils Lake Basins (U.S. portions).

Key Snowmelt Flood Components:

1. Base Streamflow: Near normal north, slightly above normal south. USGS analyses indicate that the Red River and its ND and MN tributaries are thick ice covered and/or flowing within long-term normal ranges, between 25th and 75th percentiles north of Fargo. Some higher quartile flows, 76% to 95%, were noted south of Fargo.

2. Soil Moisture at Freeze-up: Above normal south, near normal central, below normal far north.

3. Frost Depth: Deeper than normal. Extreme cold late Dec-Feb cold has driven frost from 35 to 45 inches in most areas, with river-ice and lake-ice thicknesses near to above seasonal normal ranges.

4. Winter Snowpack/SWE: above normal. Since Dec 1st, snowfall has run from 90-160 percent of normal - least in east-central ND and most from northcentral MN into the central and southern RRV. The water content (SWE) ranges from 2.5 to 4.0 inches across most areas – including the Devils Lake Basin.

5. Total Precipitation, Oct 1st to Feb 20th is High. Total precipitation (rain and snow-water) measured across the Basin from Oct 1st through Feb 21st ranged from 1-3 inches above the long-term normal for most of the central and southern Red River Basin.

New! Along with our flood partners, we’ve developed a display graphic which relates the current flood outlook to our historical flood levels (for now, just along the mainstem Red River). Check it out at: https://www.weather.gov/fgf/PFOS
## Devils Lake & Stump Lake

**Long-Range Probabilistic Outlook**

Valid February 18, 2019 - September 30, 2019

<table>
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<tr>
<th>LOCATION</th>
<th>95%</th>
<th>90%</th>
<th>75%</th>
<th>50%</th>
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<th>10%</th>
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<td>1451.3</td>
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The current heights of Devils Lake and Stump Lake are ~1448.3 ft. MSL.

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**Notes**

1. **Devils Lake Basin Runoff Risk** has increased a fair bit. A somewhat above normal rise is now expected, from 1 to 2 ft. A \(\frac{1}{2}\) to 1 ft. rise on Devils Lake is considered about normal.  

   **Note:** Devils Lake is currently about 1.5 feet lower than this time last year.

2. **Red River Basin Runoff Risk** has increased substantially. All Red River main-stem points will see significantly higher flows, - partly due to higher streamflow and soil moisture/runoff from the south valley,  

   - coupled with much higher snowmelt runoff potential across the RRB... especially the south-central valley, the MN uplands, and Red Lake River Basin,  

   - exacerbated by deep frost and potentially delayed thaw cycle.

3. **Above normal snowpack and runoff potential is evident** in most all MN tributaries.  

   Central and North tribs now with much higher runoff risk than previously indicated.  

   Roseau River Basin is nearer normal for runoff risk.

4. **ND Wild Rice is much Higher Runoff Risk.**

   Mid and Upper Sheyenne is now near to slightly above normal snowpack.

   Lower Sheyenne through east-central ND tribs are at an elevated risk.  

   Northeast ND is mixed, with higher risk along the Forest and Park Rivers, still fairly low along the Pembina.

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## Red River and Tributaries

**Long-Range Probabilistic Outlook**

Valid February 25, 2019 – May 26, 2019

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**Minnesota Tributaries:**

South Fork Buffalo River.....

- SABIN 13.4 13.6 13.9 14.6 15.2 16.4 18.3

Buffalo River.....

- HAWLEY 7.0 7.4 7.7 8.4 9.5 10.3 10.7
- DILWORTH 17.0 17.5 18.6 20.3 21.8 22.7 24.3

Wild Rice River.....

- TWIN VALLEY 9.3 9.8 10.3 11.3 12.7 14.0 15.5
- HENDRUM 24.6 25.4 27.4 29.7 31.4 32.5 32.9

Marsh River.....

- SHELLY 11.8 12.3 13.2 15.4 17.7 20.6 21.9

Sand Hill River.....

- CLINAX 15.9 16.8 19.9 22.7 26.2 30.4 33.0

Red Lake River.....

- HIGH LANDING 8.8 9.4 10.2 11.3 12.6 13.2 13.2
- CROOKSTON 17.0 17.9 19.9 21.7 24.2 27.7 29.7

Snake River.....

- ABOVE WARREN 63.8 63.9 64.4 65.3 66.1 67.9 69.5
- ALVARADO 101.9 102.1 103.2 105.2 107.2 109.1 109.8

Two Rivers River.....

- HALLOCK 805.1 805.3 806.6 807.9 809.0 809.8 810.3

Roseau River.....

- ROSEAU 12.2 12.8 13.4 14.3 16.0 16.9 17.8

**North Dakota Tributaries:**

Wild Rice River.....

- ABERCROMBIE 12.7 13.9 16.6 18.7 20.7 23.4 24.0

Sheyenne River.....

- VALLEY CITY 11.4 11.9 12.4 12.8 14.5 16.9 19.6
- LISBON 11.3 12.0 12.6 13.2 14.6 17.8 23.0
- KINDRED 14.8 15.3 16.1 17.6 19.7 20.5 21.2
- WEST FARGO DVRSN 15.1 15.1 16.1 17.2 19.3 21.3 21.3
- HARWOOD 83.1 85.1 87.5 89.7 91.2 92.0 92.2

Maple River.....

- ENDERLIN 9.5 9.6 10.5 11.0 12.2 13.0 13.7
- MAPLETON 19.8 20.2 20.7 21.2 22.2 22.7 23.4

Goose River.....

- HILLSBORO 6.7 7.1 8.8 10.8 12.9 14.7 16.7

Forest River.....

- MINTO 6.0 6.7 7.4 8.0 8.8 9.8 10.0

Park River.....

- GRAFTON 9.8 9.9 10.3 11.0 13.9 15.7 17.0

Pembina River.....

- WALHALLA 5.1 5.3 6.3 7.0 8.5 11.5 11.9
- NECHE 8.7 9.4 10.9 12.6 16.7 20.3 20.6