



## Red River and Devils Lake Basin - 2019 Spring Flood Outlook

Discussion Points 3/15/2019 (updated from 3/7/2019 outlook)

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This outlook is for the U.S. portion of the basin and is based on conditions through Thursday, 3/14/19. All graphics, probabilities, and related discussions are available at [weather.gov/fgf](http://weather.gov/fgf). Further risk updates not expected this spring.

### Bottom Line up Front!

#### - First half of March has been Merciless!

Two recent wet and snowy storms have markedly increased overall basin moisture loading, especially in the far south and southeastern sub-basins.

#### - Top 10 runoff year is now expected.

Significant overland runoff and rural flooding is now considered likely, in most all areas. Less so in northeast ND.

#### - Moderate to Major riverine flooding is nearly guaranteed... especially along or near the main-stem Red River.

- **Some Good News:** The next two weeks could bring pleasant thaw weather. The next two weeks could see temperatures slowly trending to near normal and a more favorable melt-cycle, with precipitation near to slightly below normal.

- **Less Favorable News:** No guarantee that the end of March and beginning of April will cooperate. Experimental Week 3-4 Outlook, issued 8 March 2019, indicated another cold snap to start April. Storminess factor is uncertain.

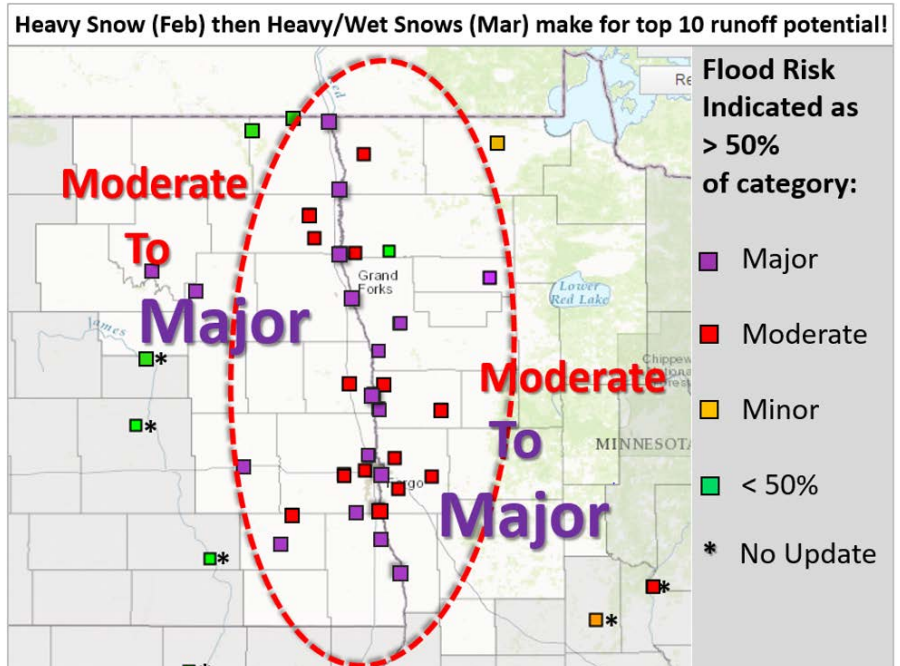
### Long Story Short: Significant snowmelt flooding is likely, and runs from above to much above long-term historical averages across the Red River and Devils Lake Basins (U.S. portions).

#### Key Snowmelt Flood Components:

- 1. Base Streamflow:** Still frozen, with near normal flow north, slightly above normal flow south. Note that base streamflows remain much below the record flood years of 1997, 2009, 2010, and 2011.
- 2. Soil Moisture at Freeze-up:** Above normal south, near normal central, below normal far north. Soil moisture is also much below that which preceded the record flood years of 1997, 2009, 2010, and 2011.
- 3. Frost Depth:** Deeper than normal everywhere. Frost is quite deep, from 36 to 48 inches, with river-ice and lake-ice thicknesses above seasonal normal ranges. Ice Jams should be more of a risk on tributaries, less on the mainstem Red.
- 4. Winter Snowpack/SWE:** above/much above normal. Since Dec 1<sup>st</sup>, snowfall has run from 100-200 percent of normal - least in northeast ND and most from northcentral MN into the central and southern RRV. The water content (SWE) ranges from 1.5 to 3.5 inches above normal in the central and southern Red River Basin.
- 5. Total Precipitation, Oct 1<sup>st</sup> to Mar 15<sup>th</sup> is Very High.** Total precipitation (rain and snow-water) from Oct 1<sup>st</sup> through Mar 15<sup>th</sup> ranged from 2-4 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>

**New!** There is an updated CRED web-based app, for citizen flood-related reporting. **Check it out at:** <https://cred.wq.io>



**DEVILS LAKE & STUMP LAKE...**  
 [not updated]

Long-Range Probabilistic Outlook  
 Valid March 4, 2019 - September 30, 2019

LOCATION	95%	90%	75%	50%	25%	10%	05%
CREEL BAY	1449.1	1449.2	1449.5	1449.8	1450.3	1450.7	1451.4
EAST STUMP LAKE	1449.1	1449.2	1449.5	1449.8	1450.3	1450.7	1451.4

The current heights of Devils Lake and Stump Lake are ~1448.3 ft. MSL.

Color code: Below Minor Moderate Major Flood of Record

**RED RIVER AND TRIBUTARIES...**

Long-Range Probabilistic Outlook  
 Valid March 18, 2019 - June 16, 2019

LOCATION	95%	90%	75%	50%	25%	10%	05%
WAHPETON	13.9	14.1	14.8	15.7	17.0	18.2	19.0
HICKSON	32.1	32.8	33.9	35.1	36.1	37.6	38.6
FARGO	33.8	34.9	36.5	37.9	38.9	40.3	41.4
HALSTAD	38.0	38.5	39.0	39.5	40.0	40.6	41.2
GRAND FORKS	45.8	47.5	49.0	50.6	52.7	54.6	56.7
OSLO	37.2	37.5	37.8	37.9	38.0	38.1	38.1
DRAYTON	41.8	42.4	43.0	43.7	44.6	45.3	46.0
PEMBINA	51.0	51.7	52.2	53.0	53.7	54.5	54.7

Minnesota Tributaries:

South Fork Buffalo River.....							
SABIN	14.6	15.0	15.8	17.2	18.6	20.3	21.7
Buffalo River.....							
HAWLEY	9.5	9.8	10.0	10.4	11.2	11.9	13.0
DILWORTH	21.2	21.8	22.7	23.9	25.1	26.7	28.1
Wild Rice River.....							
TWIN VALLEY	10.9	12.0	12.8	13.9	15.6	17.1	18.0
HENDRUM	31.6	32.0	32.6	33.3	34.0	35.0	35.6
Marsh River.....							
SHELLY	17.0	18.0	20.3	22.0	23.9	24.7	25.7
Sand Hill River.....							
CLIMAX	26.6	27.9	29.4	31.2	34.4	37.0	39.1
Red Lake River.....							
HIGH LANDING	12.4	12.7	13.1	13.3	13.5	13.6	13.7
CROOKSTON	21.6	22.5	24.3	26.9	28.5	30.4	32.9
Snake River.....							
ABOVE WARREN	65.0	65.2	65.7	66.8	68.3	72.0	73.1
ALVARADO	104.5	105.0	106.1	108.0	109.1	110.3	110.8
Two Rivers River.....							
HALLOCK	807.4	807.7	808.4	809.5	809.9	811.5	812.0
Roseau River.....							
ROSEAU	14.1	14.8	15.6	16.4	17.7	18.8	19.4

North Dakota Tributaries:

Wild Rice River.....							
ABERCROMBIE	20.0	21.9	23.4	24.5	25.6	26.9	27.5
Sheyenne River.....							
VALLEY CITY	13.2	15.2	16.6	18.0	19.8	21.7	22.7
LISBON	15.6	16.4	18.3	20.5	22.4	25.0	28.2
KINDRED	20.2	20.5	21.1	21.2	21.2	21.2	21.2
WEST FARGO DVRSN	21.2	21.2	21.3	21.3	21.3	21.3	21.3
HARWOOD	91.8	91.9	92.1	92.1	92.2	92.3	92.4
Maple River.....							
ENDERLIN	11.8	12.1	12.8	13.3	13.6	14.4	15.0
MAPLETON	22.0	22.2	22.5	22.8	23.2	24.0	24.1
Goose River.....							
HILLSBORO	9.3	9.8	12.1	13.3	14.6	16.5	17.9
Forest River.....							
MINTO	7.3	7.5	8.0	8.5	9.6	9.9	10.2
Park River.....							
GRAFTON	10.5	11.0	12.1	14.1	16.1	17.9	19.4
Pembina River.....							
WALHALLA	5.9	6.1	6.8	7.5	8.7	11.8	12.9
NECHE	10.3	10.6	11.7	13.6	16.6	20.5	21.2

Notes

1. **Devils Lake Basin Runoff Risk has not changed much since February.** A somewhat above normal rise is expected, from 1 to 2 ft. No update since 7 Mar 2019.

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

2. **Red River Basin Runoff Risk has jumped markedly.** All Red River main-stem points will see significantly higher flows,

- due to significant snow/SWE loads from 9 Mar and 14 Mar storms, over damp and deep frozen antecedent conditions, especially in the far southern Red River Basin, south of Fargo;

- coupled with much increased runoff potential from the MN tributaries, and Red Lake River Basin,

3. Snowpack/SWE and runoff potential has increased in most all MN tributaries.

Central and South tribbs have seen the highest increase in snow and SWE this past week, including the Red Lake River.

Roseau River Basin now has a slight increase to just above normal for runoff risk.

4. **ND Wild Rice has a quite High Runoff Risk**, with much above normal snowpack.

Mid to Lower Sheyenne has gained appreciably in snow and SWE. High Red River levels lead to sig. backwater at Harwood.

Some snow/SWE increases on Maple and Rush Rivers as well.

Slight increase on Park River, else northeast ND saw least overall gains in SWE.