



# Red River and Devils Lake Basin - 2018 Spring Flood Outlook

Discussion Points 1/23/2018

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This outlook is for the U.S. portion of the basin and is based on conditions through Monday, 1/22/2018. All graphics, probabilities, and related discussions are available at [weather.gov/fgf](http://weather.gov/fgf). The next update will be issued on 2/15/2018.

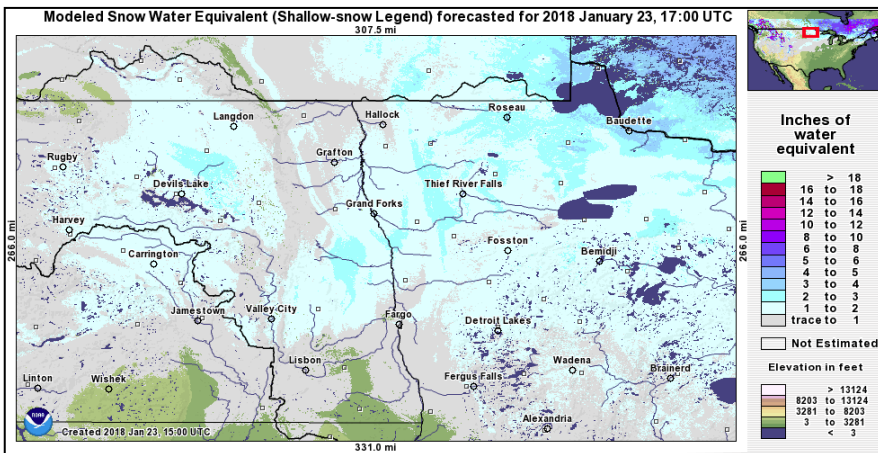
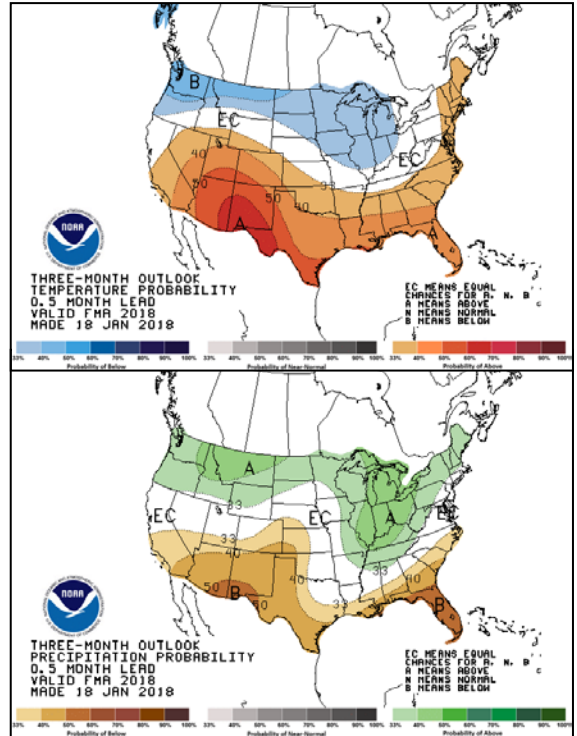
## Bottom Line up Front!

- The threat for *significant, impactful, snowmelt flooding* is very low across all sub-basins and for the main-stem Red River.
- Current conditions and short-range climate forecasts indicate that minor flooding is the predominant risk.
- Dry conditions have persisted across the basin since last February.
- Soil moisture, base streamflow, and current snowpack in virtually all sub-basin areas are near to below normal.
- The second half of winter should be somewhat cooler and snowier than average. The NWS/CPC expects that Feb-Mar-Apr will have temperatures near-below average and precipitation near-above average.

**Long Story Short: The risk for significant snowmelt flooding is quite low, lower than long-term historical averages, across all of the Red River and Devils Lake Basin (U.S. portions).**

## Key Snowmelt Flood Components:

- 1. Base Streamflow: At or below normal.** USGS analyses indicate that the Red River and its ND and MN tributaries are ice covered and/or flowing within long-term normal ranges, between 10<sup>th</sup> and 90<sup>th</sup> percentiles. Higher flows are generally tied to recent reservoir draw down/release schedules.
- 2. Soil Moisture at Freeze-up: Near to well below normal.** Total precipitation (rain and snow-water) measured across the Basin from April 1<sup>st</sup> through Dec 1<sup>st</sup> ranged from 2 to 7 inches below the long-term normal for various sub-basins. Soil moisture at freeze-up ranged from below normal (10<sup>th</sup> to 30<sup>th</sup> percentiles) north and west of Grand Forks to near normal (30<sup>th</sup> to 70<sup>th</sup> percentiles) for sub-basins south of Grand Forks.
- 3. Frost Depth: Near normal.** Dec-Jan cold snaps have driven frost from 12 to 24 inches deep in most areas. After a slow start to freeze-up, river-ice and lake-ice thicknesses are approaching seasonal normal ranges.



- 4. Winter Snowpack/SWE: Near to below normal.** Since Dec 1<sup>st</sup>, snowfall has run from 25-125 percent of normal - least in the far south and in northeast ND. Current winter Snowpack and Snow Water Equivalent (SWE) are also highest across the central Red Basin and the Red Lake River Basin, lowest in the south and north.

Highest SWE ranges from around 1.5 to 2.5 inches from Mayville, through Grand Forks to the Lake of the Woods. Else, SWE tapers to less than an inch from Fargo southward and from Manvel north by northwest. Devils Lake Basin SWE ranges from 1 to 2 inches.

**DEVILS LAKE & STUMP LAKE...** Long-Range Probabilistic Outlook  
Valid January 28, 2018 - September 30, 2018

LOCATION	95%	90%	75%	50%	25%	10%	05%
CREEL BAY	1450.1	1450.1	1450.3	1450.4	1450.6	1451.0	1451.4
EAST STUMP LAKE	1450.1	1450.2	1450.3	1450.4	1450.6	1451.0	1451.4

The current heights of Devils Lake and Stump Lake are ~1449.7 ft. MSL.

Color code: Below Minor Moderate Major Flood of Record

**RED RIVER AND TRIBUTARIES...** Long-Range Probabilistic Outlook  
Valid January 28, 2018 - April 28, 2018

LOCATION	95%	90%	75%	50%	25%	10%	05%
WAHPETON	5.8	6.6	8.1	9.3	11.4	12.8	13.6
HICKSON	11.8	13.1	14.8	17.3	23.2	28.0	31.3
FARGO	15.3	16.0	16.7	18.5	22.5	28.0	31.2
HALSTAD	9.0	10.0	12.5	16.4	20.5	27.9	30.2
GRAND FORKS	19.0	19.4	21.4	26.8	33.4	39.5	42.1
OSLO	14.8	15.7	20.1	27.2	33.1	34.6	35.5
DRAYTON	16.9	18.0	22.2	26.7	34.5	38.7	39.9
PEMBINA	24.0	25.6	30.2	36.8	43.6	46.7	47.2

Minnesota Tributaries:

South Fork Buffalo River.....							
SABIN	10.4	11.1	11.9	12.8	13.6	14.3	15.5
Buffalo River.....							
HAWLEY	4.3	4.5	5.1	5.8	7.1	8.3	8.9
DILWORTH	8.4	9.8	11.2	13.8	16.6	18.9	21.2
Wild Rice River.....							
TWIN VALLEY	3.7	3.9	4.3	5.3	6.2	6.9	8.5
HENDRUM	7.8	10.5	13.7	17.0	20.4	24.8	26.2
Marsh River.....							
SHELLY	6.0	6.8	8.0	9.0	10.4	13.1	19.1
Sand Hill River.....							
CLIMAX	7.5	7.8	9.0	11.0	11.8	15.7	17.4
Red Lake River.....							
HIGH LANDING	4.0	4.2	4.8	6.8	8.7	9.7	11.2
CROOKSTON	8.5	8.9	9.8	12.7	16.0	18.1	20.8
Snake River.....							
ABOVE WARREN	62.4	62.7	63.2	63.8	64.5	65.4	66.4
ALVARADO	98.5	99.1	99.9	100.9	103.1	105.1	106.6
Two Rivers River.....							
HALLOCK	802.7	803.5	804.8	806.1	807.5	808.8	809.5
Roseau River.....							
ROSEAU	10.3	10.9	11.6	12.6	14.4	15.9	16.6

North Dakota Tributaries:

Wild Rice River.....							
ABERCROMBIE	1.5	2.1	3.1	5.8	10.8	16.8	17.9
Shyenne River.....							
VALLEY CITY	5.4	5.7	6.1	7.6	9.1	11.3	13.0
LISBON	4.2	4.8	5.1	7.2	9.2	12.1	14.7
KINDRED	4.5	5.5	6.3	8.8	11.1	14.8	18.3
WEST FARGO DVRSN	10.8	11.9	12.3	13.7	14.5	17.8	20.4
HARWOOD	871.7	872.6	874.2	877.0	878.8	883.2	888.8
Maple River.....							
ENDERLIN	4.6	4.9	5.8	7.0	8.2	9.5	10.7
MAPLETON	896.8	897.4	898.7	900.5	903.0	905.8	907.6
Goose River.....							
HILLSBORO	3.3	3.4	4.1	5.2	7.1	10.1	12.6
Forest River.....							
MINTO	2.1	2.4	2.8	4.2	5.7	7.6	8.9
Park River.....							
GRAFTON	8.0	8.2	8.6	9.0	9.6	11.1	13.1
Pembina River.....							
WALHALLA	3.0	3.0	3.5	4.4	5.9	7.7	7.8
NECHE	4.9	5.1	5.9	7.3	10.3	14.2	16.5

Notes

1. A one-half foot to one foot rise on Devils Lake is considered near climatological normals.

2. Central and northern Red River main-stem points will likely see slightly higher flows from higher snowmelt in the central valley and in northwest MN tributaries.

3. Some higher snowpack areas.

4. Mid and Upper Shyenne is quite dry with low snowpack.

5. Some higher snowpack areas.