



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

Discussion Points 1/24/2019

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This outlook is for the U.S. portion of the basin and is based on conditions through Tuesday, 1/22/2019. All graphics, probabilities, and related discussions are available at [weather.gov/fgf](http://weather.gov/fgf). The next update will be issued on 2/21/2019.

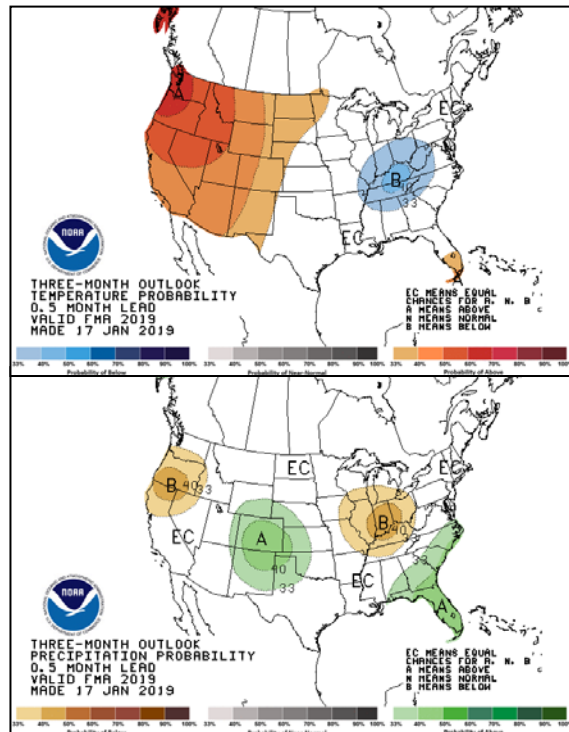
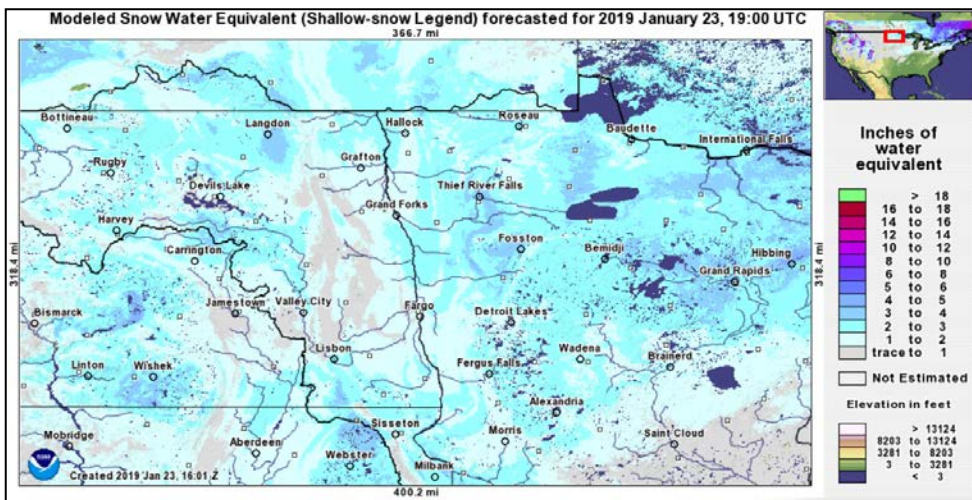
## Bottom Line up Front!

- The threat for *significant, impactful, snowmelt flooding* is low across all sub-basins and for the main-stem Red River.
- Current conditions and short-range climate forecasts indicate that minor to low-end moderate flooding is the predominant risk.
- Dry conditions have persisted across the far north for past 2 years.
- Soil moisture, base streamflow, and current snowpack is somewhat below normal in the north basin and near to somewhat above normal in the south basin.
- The second half of winter should be near to slightly milder than normal, with near normal moisture, as per the most recent NWS/CPC guidance shown at the right.

**Long Story Short: The risk for significant snowmelt flooding is low, running near long-term historical averages across much of the Red River and Devils Lake Basin (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 ice covered and/or flowing within long-term normal ranges, between 25<sup>th</sup> and 75<sup>th</sup> 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.** Total precipitation (rain and snow-water) measured across the Basin from April 1<sup>st</sup> through Jan 22<sup>nd</sup> ranged from 1-4 inches below the long-term normal for areas along and north of Halstad, and from 1-3 inches above normal for points south. Soil moisture at freeze-up ranged from below normal (10<sup>th</sup> to 30<sup>th</sup> percentiles) north and west of Oslo to near normal (30<sup>th</sup> to 70<sup>th</sup> percentiles) for sub-basins south of Oslo, and somewhat wetter (near 80<sup>th</sup> percentile) south of Fargo.
- 3. Frost Depth: Near normal.** Dec-Jan cold snaps have driven frost from 24 to 39 inches deep in most areas, with river-ice and lake-ice thicknesses approaching seasonal normal ranges.



- 4. Winter Snowpack/SWE: Near to below normal.** Since Dec 1<sup>st</sup>, snowfall has run from 75-125 percent of normal - least in east-central ND and most from northcentral MN into the southern RRV.

Snowpack and Snow Water Equivalent (SWE) remain highest in these areas, with SWE values generally ranging from 1 to 3 inches across most areas – including the Devils Lake Basin.

**DEVILS LAKE & STUMP LAKE...** Long-Range Probabilistic Outlook  
Valid January 28, 2019 - September 30, 2019

LOCATION	95%	90%	75%	50%	25%	10%	05%
CREEL BAY	1448.5	1448.6	1448.8	1449.1	1449.6	1450.2	1450.5
EAST STUMP LAKE	1448.5	1448.6	1448.8	1449.1	1449.6	1450.2	1450.5

The current heights of Devils Lake and Stump Lake are ~1448.2 ft. MSL.

Color code: Below Minor Moderate Major Flood of Record

**RED RIVER AND TRIBUTARIES...** Long-Range Probabilistic Outlook  
Valid January 28, 2019 - April 28, 2019

LOCATION	95%	90%	75%	50%	25%	10%	05%
WAHPETON	9.7	9.9	10.9	11.7	12.6	14.8	15.8
HICKSON	18.7	19.6	22.4	25.9	29.0	33.9	35.0
FARGO	18.6	20.2	22.5	26.0	29.5	34.6	36.2
HALSTAD	15.6	19.2	21.8	25.8	29.7	35.4	37.8
GRAND FORKS	24.3	26.9	32.2	37.8	41.7	44.3	46.2
OSLO	24.2	27.3	32.2	34.2	35.3	36.3	37.2
DRAYTON	23.9	26.9	31.5	36.7	40.0	41.4	41.8
PEMBINA	31.2	34.6	39.0	44.2	47.7	50.2	50.6

**Minnesota Tributaries:**

South Fork Buffalo River.....							
SABIN	11.6	11.8	12.8	13.3	14.0	14.6	16.6
Buffalo River.....							
HAWLEY	5.5	5.7	6.4	7.1	8.4	9.1	9.6
DILWORTH	12.2	12.8	14.6	17.2	18.9	20.2	23.0
Wild Rice River.....							
TWIN VALLEY	5.6	5.8	6.4	7.8	9.0	9.9	11.8
HENDRUM	15.2	17.8	20.2	23.1	26.5	29.2	31.0
Marsh River.....							
SHELLY	6.9	7.7	8.8	10.0	12.8	16.7	20.8
Sand Hill River.....							
CLIMAX	10.5	11.3	11.9	15.4	18.7	22.9	26.6
Red Lake River.....							
HIGH LANDING	5.1	5.8	6.7	8.5	10.0	11.3	12.6
CROOKSTON	11.4	12.1	13.4	16.4	19.1	21.8	23.6
Snake River.....							
ABOVE WARREN	62.2	62.3	63.0	63.3	64.3	64.9	66.1
ALVARADO	98.4	99.1	99.9	100.6	102.7	104.6	106.1
Two Rivers River.....							
HALLOCK	798.8	799.6	800.7	803.4	806.0	807.2	808.1
Roseau River.....							
ROSEAU	8.9	9.5	10.1	11.2	12.5	14.0	15.4

**North Dakota Tributaries:**

Wild Rice River.....							
ABERCROMBIE	6.0	7.2	9.8	12.2	16.2	19.8	22.6
Sheyenne River.....							
VALLEY CITY	7.7	7.9	9.0	10.1	11.3	12.6	13.2
LISBON	7.1	7.8	9.1	10.2	11.6	13.1	17.7
KINDRED	8.8	9.7	11.5	12.7	14.2	18.0	20.6
WEST FARGO DVRSN	10.9	11.7	13.0	13.0	15.0	18.0	20.7
HARWOOD	76.6	77.7	79.8	83.3	87.8	90.4	91.9
Maple River.....							
ENDERLIN	6.6	6.9	8.1	8.8	10.2	11.6	12.5
MAPLETON	14.7	16.0	18.3	19.7	21.1	22.1	22.7
Goose River.....							
HILLSBORO	3.7	4.1	5.0	5.7	7.9	11.4	14.2
Forest River.....							
MINTO	2.4	2.7	4.0	6.0	7.3	8.8	9.5
Park River.....							
GRAFTON	8.4	8.6	8.9	9.3	10.1	11.6	13.8
Pembina River.....							
WALHALLA	3.8	4.0	4.5	5.3	6.9	8.6	9.2
NECHE	6.2	6.6	7.6	9.0	12.6	16.8	17.8

Notes

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

Note: Devils Lake is currently about 1.6 feet lower than this time last year.

2. Southern and Central Red River main-stem points will likely see slightly higher flows from higher base stream-flows and soil moisture from the south valley, coupled with overall higher snowmelt runoff from the south valley and MN uplands.

3. Some slightly higher snowpack and runoff areas in south tribs.

Near normal runoff expected, central.

North tribs with slightly lower than normal runoff risk due to lower base flows and drier soils.

4. Mid and Upper Sheyenne is somewhat dry but with near normal snowpack, for a near to somewhat lower than normal runoff risk.

5. Northeast ND with generally drier soils and lower snowpack, thus lower than normal runoff risk.