



Red River and Devils Lake Basin - 2018 Spring Flood Outlook

Discussion Points 2/15/2018
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This outlook is for the U.S. portion of the basin and is based on conditions through Monday, 2/12/2018. All graphics, probabilities, and related discussions are available at weather.gov/fgf. The next update will be issued on 3/1/2018.

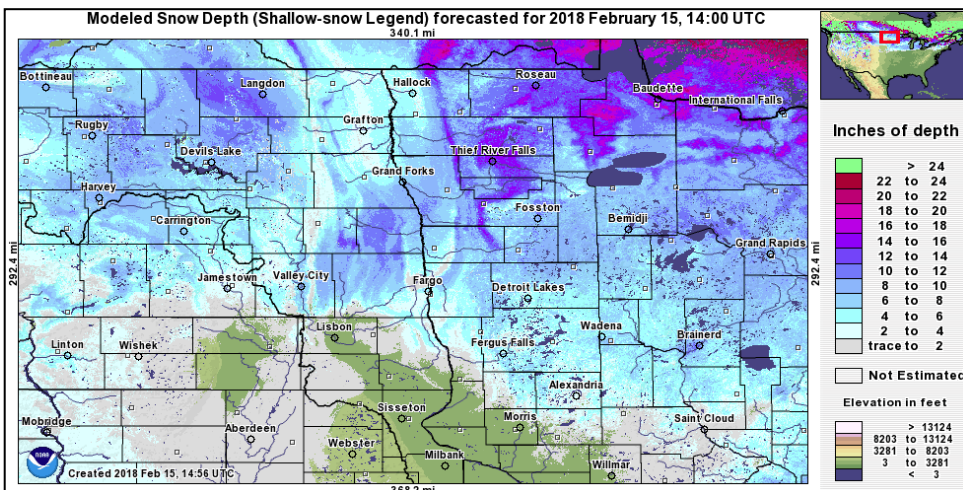
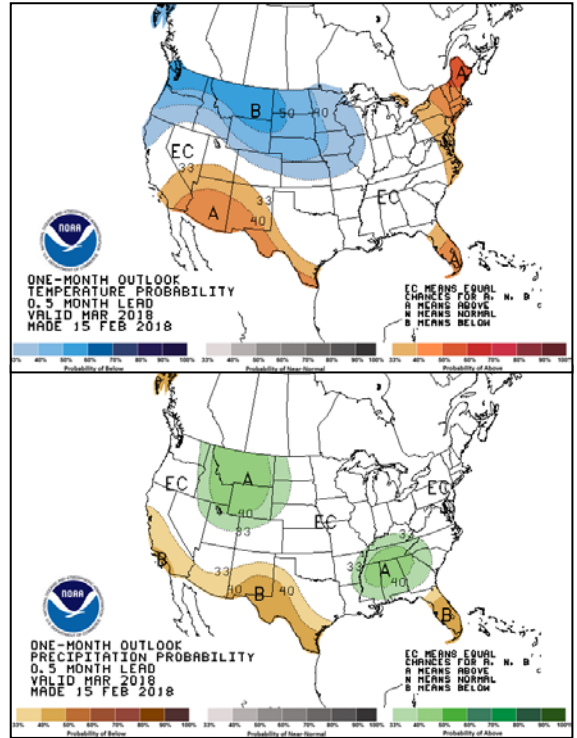
Bottom Line up Front!

- The threat for **significant (moderate-major) snowmelt flooding** remains **very low** across the main-stem Red River, its Tributaries, and the Devils Lake Basin. Current conditions and short-range climate forecasts continue to indicate **minor** flooding as the predominant risk.
- **Abnormally Dry** conditions have persisted across the basin since last February and could continue into the springtime. Soil moisture, streamflow, and snowpack in all sub-basins are near to below normal.
- The remaining winter and early spring should remain cooler than normal and trending to near normal moisture. Recent NWS/CPC updates have the late February and March with temperatures continuing somewhat below average and precipitation trending to near average.

Long Story Short: The risk for significant snowmelt flooding is still quite low. It's near long term averages in far northwest MN, and somewhat lower than long-term historical averages, across the remainder of the Red River and Devils Lake Basin.

Key Snowmelt Flood Components:

- 1. Base Streamflow: Near 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 25th and 75th percentiles.
- 2. Soil Moisture at Freeze-up: Near to well below normal.** Precipitation (rain and snow-water) measured across the Basin from April 1st through Dec 1st ranged from 2 to 7 inches below the long-term normal. Soil moisture at freeze-up was mainly below normal north and west of Grand Forks and near normal for sub-basins south of Grand Forks.
- 3. Frost Depth: Deeper than normal.** Persistent cold with shallow snow-cover through mid-Feb have driven frost levels more than 31 inches deep. A depth of 37 inches was measured Feb12th at the NWS in Grand Forks. Fargo and Langdon had frost depths greater than 39 inches.



- 4. Winter Snowpack/SWE: Near to well below normal.** Since Dec 1st, snowfall has run from 25-90 percent of normal, and is least in the far southern RRV and in northeast ND.

Current Snowpack and Snow Water Equivalent (SWE) are highest across far northwest MN, with a 5 to 15 inch snowpack holding from 1-3 inches of water. The central Red River Valley and the Devils Lake Basin had water amounts of from 1 to 2 inches. SWE tapers to less than an inch upstream (south) of Fargo and downstream (northwest) of Grand Forks.

DEVILS LAKE & STUMP LAKE... Long-Range Probabilistic Outlook
Valid February 11, 2018 - September 30, 2018

LOCATION	95%	90%	75%	50%	25%	10%	05%
CREEL BAY	1450.1	1450.1	1450.2	1450.3	1450.5	1450.9	1451.3
EAST STUMP LAKE	1450.1	1450.1	1450.2	1450.3	1450.5	1450.9	1451.3

The current heights of Devils Lake and Stump Lake are ~1449.6 ft. MSL.

Color code: Below Minor Moderate Major Flood of Record

RED RIVER AND TRIBUTARIES... Long-Range Probabilistic Outlook
Valid February 18, 2018 - May 19, 2018

LOCATION	95%	90%	75%	50%	25%	10%	05%
WAHPETON	5.5	6.6	8.0	9.6	11.5	13.4	13.9
HICKSON	11.5	13.0	14.6	17.5	23.7	28.4	31.6
FARGO	15.2	16.0	16.6	18.2	23.1	28.4	31.9
HALSTAD	9.6	10.8	12.8	16.3	21.4	28.0	32.5
GRAND FORKS	18.8	19.9	22.1	26.8	32.8	39.7	44.8
OSLO	14.2	16.9	21.2	27.3	32.7	34.7	36.6
DRAYTON	17.2	18.8	22.1	27.1	32.8	38.5	41.1
PEMBINA	24.8	26.2	30.4	36.4	42.8	46.2	49.8

Minnesota Tributaries:

South Fork Buffalo River.....							
SABIN	10.6	11.1	12.4	12.9	13.8	14.7	15.8
Buffalo River.....							
HAWLEY	4.4	4.7	5.2	6.0	7.2	8.6	9.3
DILWORTH	9.6	10.4	12.4	13.8	17.6	19.3	21.2
Wild Rice River.....							
TWIN VALLEY	3.8	3.9	4.4	5.4	6.2	8.2	9.1
HENDRUM	9.6	10.2	13.5	17.8	21.0	26.8	28.2
Marsh River.....							
SHELLY	6.3	6.8	7.9	9.0	10.5	14.8	17.7
Sand Hill River.....							
CLIMAX	7.6	7.9	9.1	10.9	11.8	15.9	21.9
Red Lake River.....							
HIGH LANDING	4.0	4.3	4.8	6.4	7.9	9.9	12.2
CROOKSTON	8.2	8.7	10.1	12.7	15.4	17.6	21.4
Snake River.....							
ABOVE WARREN	62.6	62.7	63.1	63.8	64.8	66.1	67.5
ALVARADO	98.8	99.0	99.6	100.9	103.5	105.1	108.8
Two Rivers River.....							
HALLOCK	802.8	803.4	804.7	805.8	807.4	808.6	809.3
Roseau River.....							
ROSEAU	10.8	10.9	11.5	12.6	14.3	15.8	16.5

North Dakota Tributaries:

Wild Rice River.....							
ABERCROMBIE	1.2	2.0	3.0	6.3	10.8	16.8	18.0
Sheyenne River.....							
VALLEY CITY	5.7	5.9	6.6	8.0	9.3	11.8	13.0
LISBON	4.8	5.0	6.0	7.7	9.7	13.5	16.8
KINDRED	5.6	5.8	7.0	9.3	11.8	16.7	19.9
WEST FARGO DVRSN	11.9	12.1	12.4	14.2	15.6	20.1	22.1
HARWOOD	872.3	873.0	874.4	877.3	879.2	884.8	890.1
Maple River.....							
ENDERLIN	4.6	5.0	6.0	7.0	8.3	10.0	12.5
MAPLETON	896.9	897.5	898.9	900.9	903.0	905.7	908.1
Goose River.....							
HILLSBORO	3.4	3.8	4.2	5.3	7.2	9.7	12.5
Forest River.....							
MINTO	2.4	2.5	2.9	4.2	5.6	7.6	8.2
Park River.....							
GRAFTON	8.2	8.3	8.6	9.0	9.6	10.7	12.9
Pembina River.....							
WALHALLA	2.9	3.1	3.7	4.4	5.6	7.8	8.6
NECHE	4.8	5.2	6.2	7.3	9.9	15.0	16.8

Notes

1. Devils Lake Basin: A slight decrease in runoff risk from January Outlook due to reduced snow accumulations since Jan.

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

2. Red River Main-stem: A slight uptick on high end, due mainly to longer window into May.

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. Minnesota Tributaries: A generally low snowpack from west-central MN into Clay and Norman Cos.

There are some higher snowpack areas, Red Lake River Basin and points northward.

Hallock, Roseau, and Warren MN are only points with higher than average risk (at 50% probability).

4. North Dakota Tributaries: Mid-Upper Sheyenne Basin is quite dry with low snowpack.

Some higher snowpack areas exist in east-central areas from West Fargo up through Hatton ND.

Else, snowpack is quite low in northeast ND.