



Red River and Devils Lake Basin - 2018 Spring Flood Outlook

Discussion Points Updated 3/22/2018

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This outlook is for the U.S. portion of the basin and is based on conditions through Wednesday, 3/21/18. All graphics, probabilities, and related discussions are available at weather.gov/fgf. The next update will be issued by 4/26/18.

Bottom Line up Front! (Another Slight Uptick in Flood Risk)

- The threat for *significant (moderate-major)* snowmelt flooding still remains **low** across the main-stem Red River, its Tributaries, and the Devils Lake Basin. Current conditions and expectations into late April now indicate *minor-low moderate* flooding as the predominant risk.

- **Abnormally Dry** conditions have steadily diminished across most areas since late October, and should continue to improve. Residual soil moisture and streamflow remain low. However, winter season snow and snow-water content is now near normal in most areas.

- The early spring period should start with temperatures somewhat below normal and trend to near-normal by late April, along with somewhat above normal moisture... as per latest NWS/CPC updates.

- The entire basin may see significant moisture late this week (Fig. 1)

Long Story Short: The risk for significant snowmelt flooding is still low. Flood risk is now near the long-term average across most of the Red River Basin, though it is somewhat lower than average across the Devils Lake Basin and in far northeast ND.

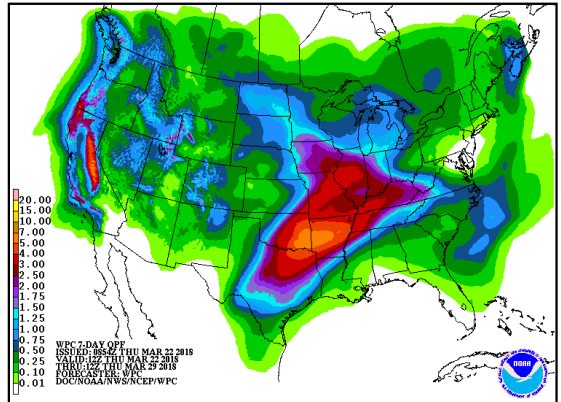


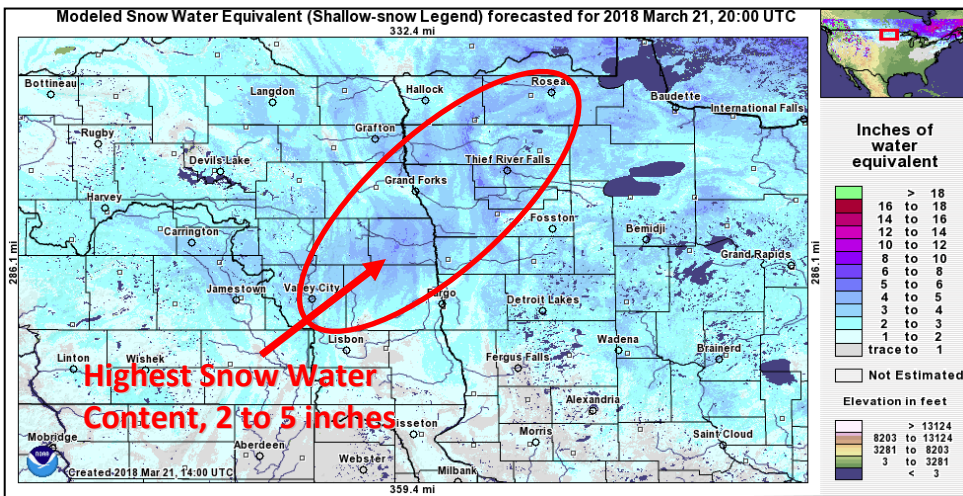
Fig. 1, A winter transitional storm system is expected to develop on the MT/WY border on Friday, and track from the western Dakotas into and across the Central Plains. We can expect:
Fri-Sun – Turning cooler with mixed rain/snow.
Mon-Wed – Mild but unsettled, a classic melt cycle of daytime thaw, nighttime freeze.
Total new moisture over the next 2 weeks should be above normal (normal: 0.25 to 0.50 inches).

Key Snowmelt Flood Components:

1. Base Streamflow: (no changes) still near normal. USGS analyses indicate that the Red River and its ND and MN tributaries continue to be ice covered and/or flowing within long-term normal ranges, between 25th and 75th percentiles.

2. Soil Moisture at Freeze-up: (no changes) still 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 below normal, northwest of Grand Forks, and near normal for sub-basins south of Grand Forks.

3. Frost Depth: deeper than normal. Ranging from 40 to 50 inches deep across the area, with a depth of 45 inches measured on Mar 19th at the NWS in Grand Forks. Fargo and Langdon had frost depths running closer to 49 inches.



4. Winter Snowpack/SWE: near to slightly above normal. Since Dec 1st, snowfall is running from 60-120% of normal, and remains least in the far southern RRV and far northeast ND.

Current snowpack and snow water equivalent (SWE) are highest from east-central ND into far northwest MN, with a 6 to 22 inch snowpack holding from 2-5 inches of water.

The Devils Lake Basin and far northeast ND river basins had water amounts from 1.5 to 3 inches. SWE tapers to an inch south of Fargo.

DEVILS LAKE & STUMP LAKE... Long-Range Probabilistic Outlook
Valid March 25, 2018 - September 30, 2018

LOCATION	95%	90%	75%	50%	25%	10%	05%
CREEL BAY	1450.0	1450.1	1450.1	1450.3	1450.5	1450.7	1451.5
EAST STUMP LAKE	1450.0	1450.1	1450.1	1450.3	1450.5	1450.7	1451.5

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 March 25, 2018 - June 23, 2018

LOCATION	95%	90%	75%	50%	25%	10%	05%
WAHPETON	8.6	8.9	10.3	11.6	13.4	14.4	15.2
HICKSON	17.7	18.1	19.3	23.9	29.0	32.3	34.0
FARGO	17.7	18.4	19.8	24.5	27.8	33.1	34.8
HALSTAD	16.2	17.6	18.8	22.7	27.8	32.8	36.3
GRAND FORKS	27.1	30.0	32.8	36.2	42.2	44.6	47.1
OSLO	27.6	30.6	32.6	33.9	35.5	36.5	37.6
DRAYTON	28.3	30.2	32.9	36.7	40.2	41.0	42.4
PEMBINA	37.9	39.7	41.4	45.7	47.8	50.1	51.8

Minnesota Tributaries:

South Fork Buffalo River.....							
SABIN	12.1	12.3	12.8	13.4	14.4	15.1	15.7
Buffalo River.....							
HAWLEY	4.8	5.2	6.1	7.2	8.3	9.2	9.4
DILWORTH	11.7	12.4	14.2	16.8	19.4	20.3	21.6
Wild Rice River.....							
TWIN VALLEY	4.4	4.6	5.0	6.1	7.3	9.5	10.0
HENDRUM	16.6	17.5	18.5	21.2	26.3	29.1	29.8
Marsh River.....							
SHELLY	9.0	9.8	10.5	12.2	14.3	18.6	19.6
Sand Hill River.....							
CLIMAX	11.1	11.4	11.7	12.0	18.1	20.8	25.0
Red Lake River.....							
HIGH LANDING	6.3	6.6	7.3	8.4	10.0	11.9	12.6
CROOKSTON	13.0	14.1	15.3	17.1	20.5	23.6	24.6
Snake River.....							
ABOVE WARREN	63.6	64.0	64.5	65.0	65.8	67.4	68.2
ALVARADO	100.6	101.7	102.7	104.1	106.1	108.3	109.1
Two Rivers River.....							
HALLOCK	805.0	805.4	806.2	807.4	808.8	809.6	810.1
Roseau River.....							
ROSEAU	10.7	10.9	11.5	12.7	15.1	16.3	16.6

North Dakota Tributaries:

Wild Rice River.....							
ABERCROMBIE	6.7	7.5	10.0	13.0	17.1	19.4	20.8
Sheyenne River.....							
VALLEY CITY	7.7	8.2	10.1	12.1	12.6	13.8	16.0
LISBON	7.5	8.2	10.2	12.1	13.0	17.0	20.1
KINDRED	9.2	10.6	11.9	14.5	16.1	20.1	20.7
WEST FARGO DVRSN	14.2	14.4	15.5	17.0	18.9	22.4	23.1
HARWOOD	877.0	878.2	878.9	880.4	883.8	889.9	891.9
Maple River.....							
ENDERLIN	8.4	8.7	9.0	9.5	10.5	11.9	12.7
MAPLETON	900.4	900.8	901.9	903.1	905.8	907.7	909.2
Goose River.....							
HILLSBORO	5.7	6.5	8.6	9.7	12.1	14.0	14.5
Forest River.....							
MINTO	4.5	5.4	6.2	7.2	8.1	8.7	9.6
Park River.....							
GRAFTON	9.1	9.2	9.4	9.7	10.3	12.9	13.8
Pembina River.....							
WALHALLA	3.3	3.5	3.8	4.7	6.7	8.5	9.1
NECHE	5.4	5.7	6.4	7.8	11.3	15.5	17.5

Notes

1. Devils Lake Basin: A similar risk to that issued in February, with snow accumulations across the sub-basin still running below normal for the season.

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

2. Red River Main-stem: A moderate uptick at all points, due to above normal central and south basin snow in March.

Risk at Fargo and points south is now closer to long term average.

Risk at Halstad and points north is now *somewhat above* long term average.

3. Minnesota Tributaries: A slight uptick in most areas after near normal snowfall over past 2-4 weeks.

Highest snowpack areas are still in Red Lake River Basin and points north and east of Crookston MN.

Most tributary points north of Climax have a flood potential that is near to slightly above the long term normal risk.

4. North Dakota Tributaries: A slight uptick in runoff. Upper Sheyenne Basin is still a bit low for overall snowpack. Mid to Lower Sheyenne (blo Warwick) snowpack is now near normal.

Highest snowpack runs through east-central ND basins, from West Fargo up through Larimore ND.

Near normal runoff is now possible in the Wild Rice Basin of far southeast ND.

Snowpack remains a bit low in far northeast ND.