



Red River and Devils Lake Basin - 2022 Spring Flood Outlook

Discussion Points 1/27/2022

prepared by

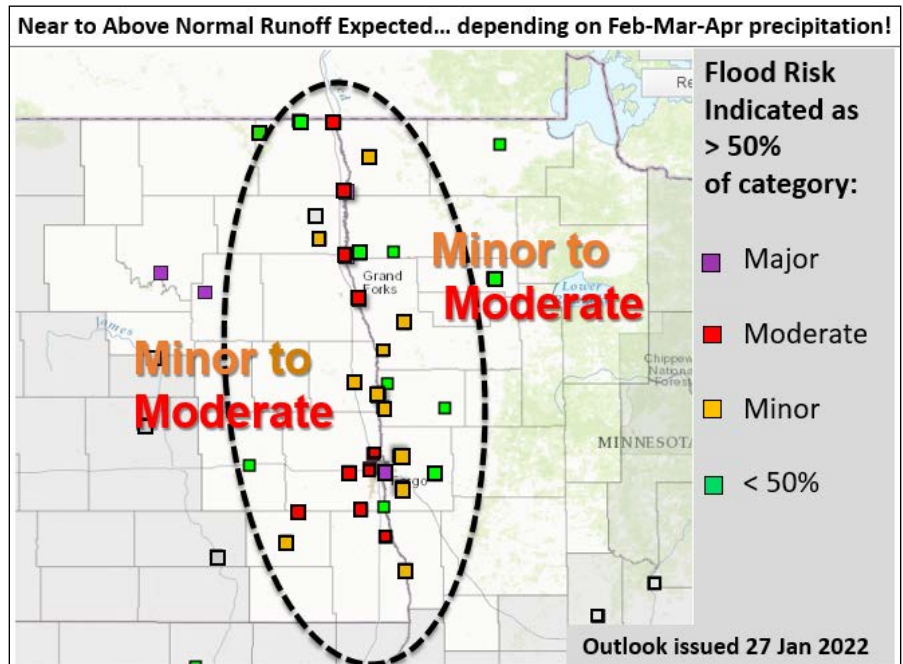
NWS - Weather Forecast Office, Grand Forks ND
NWS - North Central River Forecast Center, Chanhassen MN



This outlook is for the U.S. portion of the basin and is based on conditions through Tuesday, 1/25/2022. All graphics, probabilities, and related discussions are available at [weather.gov/fgf](https://www.weather.gov/fgf). The next update will be issued by 2/10/2022.

Bottom Line up Front!

- Its mid-winter... and there's a moderate to somewhat high threat for *significant* snowmelt flooding:
 - Lingering 2021 drought conditions mean that surface storage has room for snowmelt infiltration - if thaw is gentle.
 - Snowfall/SWE through late January is near to above long term mid-winter normal amounts.
 - Frost depths are running near to somewhat deeper than long term normal, due to cold January conditions.
- A turnaround from record driest year in 2021. *But*, not near as wet as the recent wet years of 2019 to early 2020. Soil moisture is back to within an inch plus-or-minus of normal soil moisture.
- Climate outlooks currently indicate an increased risk for near normal temperatures and precipitation through the late winter and early spring periods, which helps to keep our overall risk in check.



Long Story Short: The risk for significant snowmelt flooding is moderately high, running near to slightly above long-term historical averages across the Red River and Devils Lake Basins (U.S. portions).

Key Snowmelt Flood Components:

- 1. Base Streamflow: Near normal for this time of year.** USGS analyses indicate that the Red River and most of its ND and MN tributaries are moderate ice covered and/or flowing at 25% -75% of normal ranges. Somewhat higher in the far southern basin and somewhat lower near the CanAm border [link: <https://waterdata.usgs.gov/nwis/rt>].
- 2. Soil Moisture at Freeze-up: Near normal. From slightly above in the far south to slightly below in the far north basins.** [Link: https://www.cpc.ncep.noaa.gov/products/Soilmst_Monitoring/US/Soilmst/Soilmst.shtml]
- 3. Frost Depth: Near to somewhat Deeper than normal.** A quite cold mid-winter period has allowed for deep frost penetration in most areas. Frost depths range from 12 to 30 inches in most locations, with some lesser frost depths in upland areas of northwest MN, where snowpack was slightly higher. Lake/River ice thicknesses are somewhat less-than normal and are quite variable. [Link: https://www.weather.gov/ncrfc/LMI_FrostDepthMap]
- 4. Winter Snowpack/SWE: Near to Above normal.** Since Dec 1st, snowfall runs from 90-130 percent of normal, SWE ranges from 1.5 to 3.5 inches. Fairly well distributed across the area, though quite splotchy due to relocation of snow during blowing snow and blizzard episodes. [Link: <https://www.nohrsc.noaa.gov/nsa/>]
- 5.** Along with our flood partners, we've developed a display graphic which relates the current flood outlook to our historical flood levels, now available for all our forecast locations! **Check it out at:** <https://www.weather.gov/fgf/PFOS>

DEVILS LAKE & STUMP LAKE... Long-Range Probabilistic Outlook
Valid January 24, 2022 - September 30, 2022

LOCATION	95%	90%	75%	50%	25%	10%	05%
CREEL BAY	1449.8	1449.9	1450.2	1450.5	1451.0	1451.8	1452.3
EAST STUMP LAKE	1449.8	1449.9	1450.2	1450.5	1451.0	1451.8	1452.3

The current heights of Devils Lake and Stump Lake are ~1447.28 ft. MSL.

Color code: Below Minor Moderate Major Flood of Record

RED RIVER AND TRIBUTARIES... Long-Range Probabilistic Outlook
Valid January 31, 2022 - May 01, 2022

LOCATION	95%	90%	75%	50%	25%	10%	05%
WAHPETON	11.2	11.7	11.9	12.6	14.3	16.0	16.4
HICKSON	22.6	24.8	26.8	28.3	32.6	34.9	36.0
FARGO	21.9	25.1	27.0	30.1	33.6	36.5	39.0
HALSTAD	22.4	24.0	27.8	31.2	35.5	38.6	39.3
GRAND FORKS	31.2	35.4	39.3	42.9	45.2	47.6	50.3
OSLO	31.5	33.7	34.5	35.7	36.7	37.8	38.8
DRAYTON	30.5	34.0	38.2	40.5	41.8	42.5	43.4
PEMBINA	36.9	41.6	45.8	48.8	51.0	52.2	52.7

Minnesota Tributaries:

South Fork Buffalo River.....							
SABIN	13.1	13.9	14.2	14.8	15.5	16.4	17.9
Buffalo River.....							
HAWLEY	5.5	5.9	6.8	7.5	9.0	9.6	10.7
DILWORTH	14.4	16.6	17.4	19.3	21.2	22.6	24.2
Wild Rice River.....							
TWIN VALLEY	5.3	5.4	5.8	7.1	8.3	9.3	10.7
HENDRUM	18.7	20.4	23.3	26.9	29.6	31.5	32.3
Marsh River.....							
SHELLY	8.3	9.0	10.3	11.4	14.4	16.6	18.5
Sand Hill River.....							
CLIMAX	11.9	14.5	17.0	21.5	25.5	29.4	31.6
Red Lake River.....							
HIGH LANDING	4.8	5.6	6.7	8.2	9.8	11.5	11.8
CROOKSTON	12.5	13.9	15.1	18.8	21.1	23.8	29.0
Snake River.....							
ABOVE WARREN	63.4	63.5	63.8	64.4	65.4	66.2	67.0
ALVARADO	100.7	100.9	101.5	103.6	106.0	108.1	108.5
Two Rivers River.....							
HALLOCK	800.8	801.6	802.4	804.9	807.3	808.6	809.1
Roseau River.....							
ROSEAU	10.0	10.1	11.1	12.4	14.3	16.5	17.2

North Dakota Tributaries:

Wild Rice River.....							
ABERCROMBIE	7.6	11.6	13.8	16.4	19.9	23.6	25.2
Sheyenne River.....							
VALLEY CITY	11.6	12.1	13.0	14.1	18.6	20.6	22.4
LISBON	11.7	12.5	13.9	15.4	19.0	22.1	23.4
KINDRED	14.7	16.0	17.9	20.0	21.1	21.2	21.2
WEST FARGO DVRSN	15.1	15.9	17.2	19.4	21.3	21.3	21.3
HARWOOD	82.0	82.9	87.1	90.7	91.4	92.1	92.1
Maple River.....							
ENDERLIN	10.3	11.5	12.1	12.7	13.5	14.4	15.4
MAPLETON	17.9	19.2	20.3	21.6	22.3	23.4	23.7
Goose River.....							
HILLSBORO	7.6	9.0	12.0	13.8	14.7	15.6	16.3
Forest River.....							
MINTO	4.4	5.0	5.3	6.3	7.1	7.5	7.6
Park River.....							
GRAFTON*	--	--	--	--	--	--	--
Pembina River.....							
WALHALLA	4.6	5.2	6.0	7.3	9.4	11.6	12.8
NECHE	8.7	9.5	10.6	13.3	17.9	20.1	21.2

Notes

1. Devils Lake Basin Runoff Risk is moderately high. An additional rise of 2 to 2.5 feet is expected (75% to 25% risk range). A ½ to 1 ft. rise on Devils Lake is considered about normal.

Note: Devils Lake is currently about 1.25 feet lower than this time last year.

2. Red River Basin Flood Risk is moderately high. All Red River main-stem points may see near to somewhat above normal spring runoff/flows.

- near to above normal soil moistures in the south, near normal frost depths.

- coupled with moderate to high winter snowpack and SWE to date.

3. Near normal snowpack and runoff potential is evident in most all MN tributaries.

Near to slightly below normal soil moisture and near normal snowpack throughout west-central and northwest MN.

4. ND tributaries have a slightly higher runoff potential across southeast ND that decreases as one moves north into northeast ND.

Mid and Upper Sheyenne basin soils are near normal moisture, while snowpack is somewhat above normal.

Lower Sheyenne through east-central ND tribs have near normal soil moisture and near to above normal snowpack.

Northeast ND has slightly drier soils with near normal snowpack.

Note: new Grafton Bypass!