



Red River and Devils Lake Basins - 2023 Spring Flood Outlook

NWS Grand Forks • North Central River Forecast Center • February 23, 2023

This outlook is for the US portion of the basin and based on conditions through Monday, February 20, 2023. Visit our website at [weather.gov/fgf/currentfloodoutlook](https://www.weather.gov/fgf/currentfloodoutlook) for associated exceedance graphics, probabilities, and related discussions. The next spring flood outlook will be issued on March 9th.

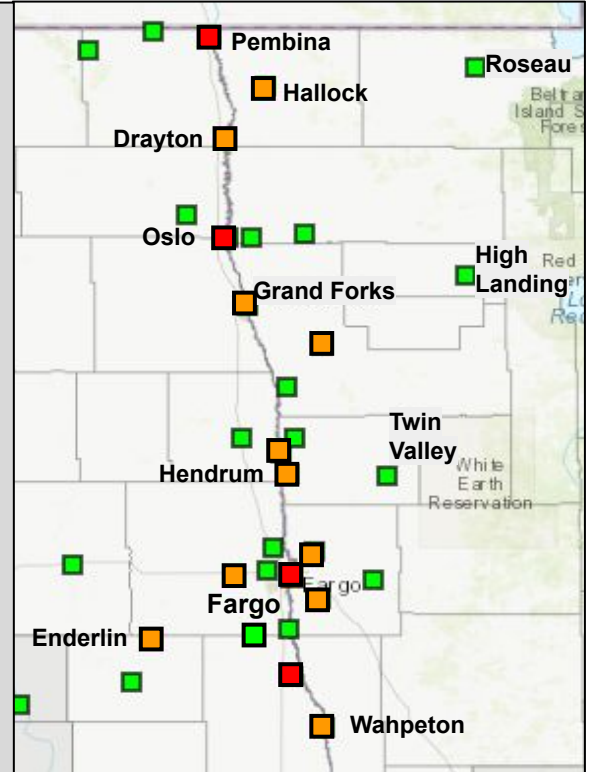
Key Message: The risk for significant (moderate or higher) spring flooding has increased slightly with this outlook issuance but still generally remains below or near long-term historical averages across the the Red River Basin (US portion).

Key Points:

- Minor to isolated moderate spring flooding is depicted in this outlook (50% exceedance probability).
- Below normal soil moisture and near normal streamflows entering into freeze-up.
- Normal to above normal snowfall and precipitation has been recorded thus far this winter season across the basin.
- Cool and potentially active pattern to continue for the end of February and into March.
- Late winter snowfall, spring precipitation, and snowmelt timing/thaw cycle will be the most important factors when assessing the spring flood risk.

Flood Risk Indicated as > 50% of category:

- Major
- Moderate
- Minor
- < 50%



Valid February 27, 2023 - May 28, 2023

Snowmelt Flood Components:

- 1. Fall Precipitation and Soil Moisture at Freeze-up: Below normal.** Fall precipitation (Sep-Nov 2022) was below normal across the basin. Conditions were driest across the lower Sheyenne basin and southern Red River Valley (3-4 inches below normal); elsewhere was 1-2 inches below normal. Soil moisture heading into freeze-up was lower than normal with moderate drought conditions persisting across southern central portions of the basin and abnormally dry conditions across the north.
- 2. Base Streamflow: Near normal.** USGS analyses indicate that the Red River mainstem and its tributaries were flowing at normal ranges heading into freeze-up.
- 3. Frost Depth: Near normal but variable.** Depths are near normal and deepening as the winter season continues across northeastern ND (25-35 inches). However, they are generally shallower and more variable across southeastern ND and much of the MN portion of the basin (15-25 inches). Lake/river observations indicate ice cover is generally thinner and less consistent than normal, likely due to early snow cover.
- 4. Snowpack and Associated Water Content: Normal to Above normal.** After a wet and snowy beginning to winter, Jan and Feb have seen less than normal snowfall/precipitation across the basin. Snowfall is running near normal to around 15 inches above normal for this time of year, highest across the Devils Lake and Sheyenne basins. Associated water content ranges from 2.0 to 5.0 inches (greater than 90th percentile for this time of year across the Devils Lake and Sheyenne basins).
- 5. Future Conditions:** Overall below normal temperatures are expected into the first half of March with a lean towards above normal precipitation. Climate outlooks indicate a slight lean to below normal temperatures this spring with no strong signal either way for above, below, or near normal precipitation.

DEVILS LAKE AND STUMP LAKE

Valid February 20, 2023 - September 30, 2023

DEVILS LAKE	95%	90%	75%	50%	25%	10%	5%
Creel Bay	1449.9	1449.9	1450.1	1450.3	1450.7	1451.1	1451.6
Eastern Stump Lake	1449.9	1449.9	1450.1	1450.3	1450.7	1451.1	1451.6

Devils Lake and Stump Lake are currently at ~1449.4 ft (zero datum 1400.00 NGVD29).

RED RIVER AND TRIBUTARIES

Valid February 27, 2023 - May 28, 2023

RED RIVER MAINSTEM	95%	90%	75%	50%	25%	10%	5%
Wahpeton	11.1	11.3	11.7	12.0	13.7	15.0	15.8
Hickson	21.7	23.0	24.7	26.5	31.1	34.1	34.7
Fargo	21.9	23.3	24.1	27.2	31.5	34.3	36.7
Halstad	21.7	22.2	24.2	28.1	33.3	36.3	39.1
Grand Forks	31.0	32.1	34.5	38.5	42.2	44.4	47.5
Oslo	31.3	32.1	33.4	34.4	35.4	36.3	37.7
Drayton	29.9	30.8	32.1	36.3	40.0	40.8	42.1
Pembina	37.2	38.1	40.5	44.8	48.2	50.2	51.5

MINNESOTA TRIBUTARIES

MINNESOTA TRIBUTARIES	95%	90%	75%	50%	25%	10%	5%
South Fork Buffalo River							
Sabin	13.0	13.2	13.6	14.2	15.0	15.8	16.2
Buffalo River							
Hawley	5.4	5.7	6.3	7.4	8.9	9.5	10.1
Dilworth	14.1	14.3	16.3	17.7	20.1	21.7	22.3
Wild Rice River							
Twin Valley	5.4	5.8	6.5	7.6	8.6	9.8	10.8
Hendrum	19.4	20.0	21.8	24.8	28.0	29.4	31.6
Marsh River							
Shelly	9.4	9.9	10.8	11.6	13.0	16.3	17.3
Sand Hill River							
Climax	11.9	11.9	12.6	16.0	20.4	23.9	27.8
Red Lake River							
High Landing	5.9	6.4	7.1	8.3	9.4	10.5	11.7
Crookston	11.2	11.8	13.5	15.8	18.4	20.9	22.5
Snake River							
Above Warren	62.4	62.5	63.0	63.7	64.6	66.3	67.1
Alvarado	98.4	98.6	99.6	101.2	103.5	106.0	108.1
Two Rivers River							
Hallock	799.1	799.3	800.6	803.4	805.7	808.1	808.8
Roseau River							
Roseau	7.6	7.9	8.5	10.1	12.6	14.5	15.5

NORTH DAKOTA TRIBUTARIES

NORTH DAKOTA TRIBUTARIES	95%	90%	75%	50%	25%	10%	5%
Wild Rice River							
Abercrombie	8.5	9.5	10.8	13.3	17.3	19.0	21.9
Sheyenne River							
Valley City	8.0	8.5	9.6	11.6	12.6	13.6	14.4
Lisbon	8.1	8.3	10.0	11.6	13.5	14.8	17.3
Kindred	11.2	12.0	13.1	15.5	17.5	19.8	20.8
West Fargo Diversion	12.5	13.0	13.0	15.1	17.2	19.8	21.3
Harwood	78.8	79.3	80.7	83.4	89.5	91.2	91.8
Maple River							
Enderlin	8.8	9.2	10.4	11.0	11.8	12.7	13.6
Mapleton	15.8	16.8	18.6	19.8	21.6	22.3	22.8
Goose River							
Hillsboro	5.6	6.0	7.8	9.6	12.2	14.0	14.6
Forest River							
Minto	3.4	3.6	4.1	4.8	5.8	6.4	6.9
Pembina River							
Walhalla	4.6	5.0	5.6	6.3	8.1	11.1	12.0
Neche	7.1	8.2	9.6	11.4	15.3	20.3	20.9

Legend:
 Below Flood Stage
 Minor
 Moderate
 Major
 Flood of Record