



# Red River and Devils Lake Basins - 2023 Spring Flood Outlook

NWS Grand Forks • North Central River Forecast Center • January 26, 2023

This outlook is for the US portion of the basin and based on conditions through Monday, January 23, 2023. Visit our website at [weather.gov/fgf/currentfloodoutlook](http://weather.gov/fgf/currentfloodoutlook) for associated exceedance graphics, probabilities, and related discussions. Additional spring flood outlooks will be issued on February 9th, February 23rd, and March 9th.

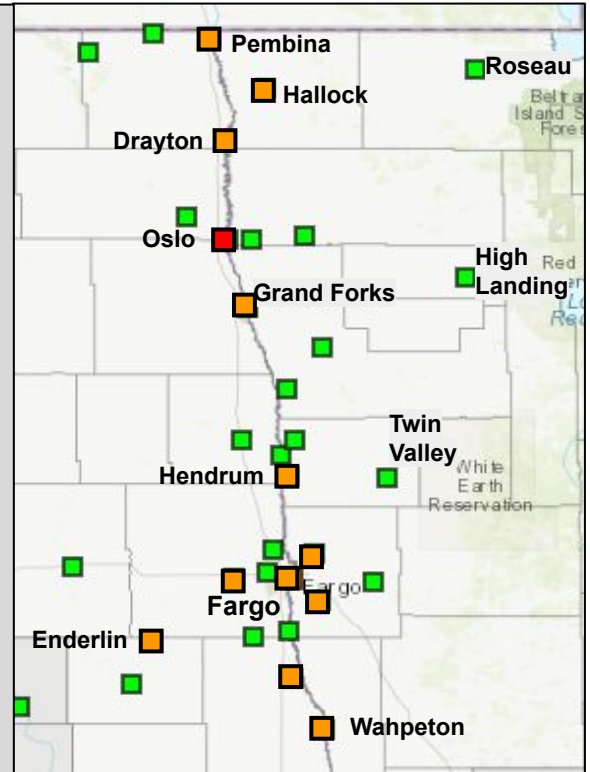
**Key Message: The risk for significant (moderate or higher) spring flooding is relatively low with this outlook issuance, running slightly below long-term historical averages across the the Red River Basin (US portion).**

### Key Points:

- Minor to moderate spring flooding is depicted in this outlook (50% exceedance probability).
- Below normal soil moisture and near normal streamflows entering into freeze-up.
- Although the month of January has been dry, early season storms contributed to above normal winter snowfall/precipitation thus far.
- Climate outlooks indicate a transition to a colder and wetter pattern into spring. Over the next two weeks, much colder conditions and light precipitation is expected.
- 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 January 30, 2023 - April 30, 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 severe drought conditions persisting across the lower Sheyenne and abnormally dry to moderate drought conditions elsewhere.
- 2. Base Streamflow: Near normal.** USGS analyses indicate that the Red River mainstem and most of its tributaries are flowing at normal ranges with the exception of the Red Lake River (MN) and Goose River (ND) running slightly higher than normal.
- 3. Frost Depth: Below to near normal but variable.** Early season snow cover has led to a relatively shallow frost layer for this time of year across much of the basin. However, depths are quite variable: deepest across northeastern ND (20-30 inches) while shallower elsewhere (10-20 inches). Lake/river observations indicate ice cover is thinner and less consistent than normal, likely due to the early snow cover.
- 4. Snowpack and Associated Water Content: Above normal.** Snowfall since Dec. 1<sup>st</sup> is running 125-300 percent of normal (i.e., much above normal), highest across the Devils Lake and Sheyenne basins. Associated water content ranges from 1.0 to 5.0 inches (greater than 90<sup>th</sup> percentile for this time of year across the Devils Lake and Sheyenne basins).
- 5. Future Conditions:** Climate outlooks indicate a transition to overall below normal temperatures for the remainder of the winter and into spring. Following a very quiet January, a more active weather pattern is likely through February with sporadic chances for snowfall, leaning towards near normal precipitation. Above normal precipitation is favored thereafter.

**DEVILS LAKE AND STUMP LAKE**

Valid January 23, 2023 - September 30, 2023

DEVILS LAKE	95%	90%	75%	50%	25%	10%	5%
Creel Bay	1449.9	1450.0	1450.1	1450.3	1450.8	1451.2	1451.7
Eastern Stump Lake	1449.9	1450.0	1450.1	1450.3	1450.8	1451.2	1451.7

Devils Lake and Stump Lake are currently at ~1449.3 ft (zero datum 1400.00 NGVD29).

**RED RIVER AND TRIBUTARIES**

Valid January 30, 2023 - April 30, 2023

RED RIVER MAINSTEM	95%	90%	75%	50%	25%	10%	5%
Wahpeton	10.2	10.7	11.2	11.9	13.4	14.8	15.6
Hickson	18.3	19.8	21.4	24.5	29.6	33.5	35.4
Fargo	19.1	20.6	21.5	24.5	28.9	34.0	36.2
Halstad	15.7	18.1	20.6	23.5	28.6	33.9	37.6
Grand Forks	22.3	25.2	27.6	35.0	40.0	42.7	47.5
Oslo	19.4	24.6	27.8	33.6	34.8	35.6	37.7
Drayton	22.2	26.1	29.4	34.6	39.4	40.2	42.1
Pembina	29.0	32.7	37.3	42.2	47.5	49.7	51.0

MINNESOTA TRIBUTARIES	95%	90%	75%	50%	25%	10%	5%
South Fork Buffalo River							
Sabin	12.0	12.5	13.1	13.7	14.3	15.1	16.7
Buffalo River							
Hawley	4.6	4.7	5.4	6.3	7.8	8.8	9.8
Dilworth	11.0	12.0	13.5	16.3	18.2	20.6	22.1
Wild Rice River							
Twin Valley	4.7	5.1	5.7	6.7	7.8	8.9	10.2
Hendrum	15.0	16.3	18.6	21.7	25.4	28.2	31.2
Marsh River							
Shelly	7.6	8.1	9.1	10.4	12.5	15.2	16.2
Sand Hill River							
Climax	9.8	10.9	11.5	14.2	17.8	23.3	27.9
Red Lake River							
High Landing	5.2	5.6	6.4	8.0	9.4	10.4	12.1
Crookston	9.6	10.1	11.6	14.5	17.4	20.2	22.7
Snake River							
Above Warren	62.3	62.5	62.8	63.4	64.3	65.3	66.2
Alvarado	98.0	98.6	99.0	101.0	103.1	105.1	107.1
Two Rivers River							
Hallock	799.2	800.1	801.4	804.2	806.6	808.3	808.6
Roseau River							
Roseau	7.8	8.2	9.3	10.3	12.7	15.3	16.7

**Legend:**  
 Below Flood Stage  
 Minor  
 Moderate  
 Major  
 \*Flood of Record\*

NORTH DAKOTA TRIBUTARIES	95%	90%	75%	50%	25%	10%	5%
Wild Rice River							
Abercrombie	4.6	6.1	7.6	11.4	15.0	19.4	22.0
Sheyenne River							
Valley City	7.6	7.9	8.9	10.9	12.1	13.6	14.1
Lisbon	7.3	7.8	9.0	11.2	12.6	13.9	15.4
Kindred	9.9	10.6	12.2	14.4	16.7	19.4	19.8
West Fargo Diversion	10.9	11.6	13.0	14.4	16.2	19.1	19.3
Harwood	77.1	77.6	78.7	83.1	87.9	91.1	91.5
Maple River							
Enderlin	7.6	8.0	8.9	10.2	11.4	12.2	13.5
Mapleton	14.1	15.0	16.6	18.9	21.2	22.3	22.6
Goose River							
Hillsboro	3.9	4.4	6.0	8.4	11.5	13.6	14.5
Forest River							
Minto	3.1	3.3	3.9	4.5	5.5	6.4	6.6
Pembina River							
Walhalla	4.8	5.3	5.9	6.9	8.8	10.8	12.6
Neche	7.1	8.0	9.4	12.1	17.2	19.9	21.1