



Red River and Devils Lake Basins - 2024 Spring Flood Outlook

NWS Grand Forks • North Central River Forecast Center • January 25, 2024

This outlook is for the US portion of the basin and based on conditions through Monday, January 22, 2024. Visit our website at weather.gov/fgf/currentfloodoutlook for associated exceedance graphics, probabilities, and related discussions. Additional spring flood outlooks will be issued on February 15th, February 29th, and March 14th.

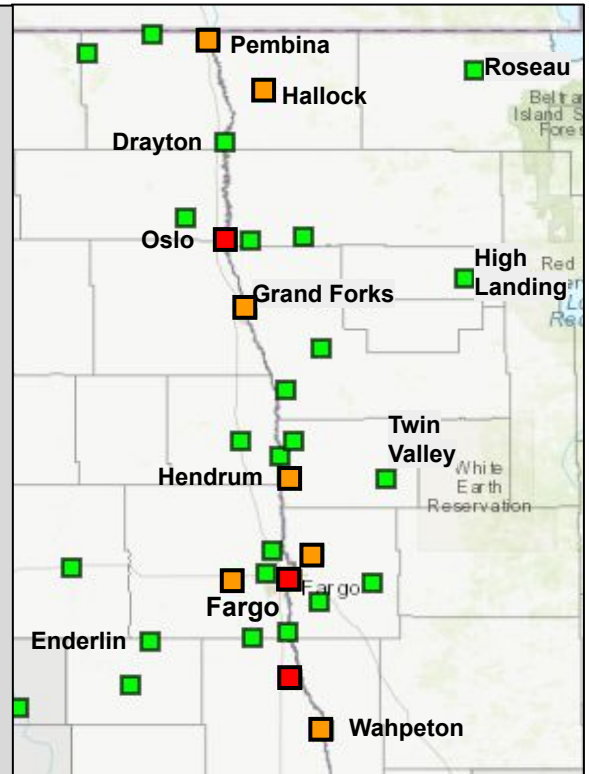
Key Message: The risk for significant (moderate or higher) spring flooding is low with this outlook issuance, running below long-term historical averages across the the Red River Basin (US portion).

Key Points:

- Minor to isolated moderate spring flooding in this outlook (50% exceedance probability) for some locations.
- Although snowfall this winter has been well below normal, rain/freezing rain in late December has contributed to the amount of water waiting to run off into the river system. While soil moisture remains below normal in the north to near normal in the south, streamflows at the end of December were above normal.
- Above normal temperatures expected into spring will allow for some early melting of the snowpack but could introduce the possibility of rain instead of snow in late winter/early spring.
- Late winter and early spring precipitation, along with the timing/thaw cycle of remaining snowpack will be the most important spring flood risk factors.

Flood Risk Indicated as > 50% of category:

- Major
- Moderate
- Minor
- < 50%



Snowmelt Flood Components:

- 1. Fall + December Precipitation and Soil Moisture: Below normal to near normal.** Fall precipitation (Sep-Nov 2022) was below normal for much of the basin while December brought much above normal precipitation, especially to the southern half of the basin. Soil moisture remains much lower than normal across the northern third of the basin with moderate to severe drought conditions while slightly lower to near average elsewhere.
- 2. Base Streamflow: Above normal.** At the end of December, USGS analyses indicated that the Red River mainstem and its tributaries were flowing higher than normal.
- 3. Frost Depth: Near normal but variable.** The recent January cold has allowed for a deeper frost layer to form across much of the basin. The northern half of the area currently has frost depths of 20-30 inches with locations farther south slightly lower. Lake/river observations indicate ice cover is thinner and less consistent than normal due to relatively mild temperatures.
- 4. Snowpack and Associated Water Content: Much below normal.** Snowfall since Dec. 1st is running 25-50 percent of normal (i.e., much below normal), lowest across the southern two-thirds of the basin. Associated water content is minimal, highest near the international border (up to 1 inch). *However, rain/freezing rain from late December still remains in the soils and on the landscape for runoff into the river system.*
- 5. Future Conditions:** Climate outlooks indicate continued above normal temperatures from now into spring. This could allow for some early melting of the snowpack and also introduce the possibility of rain instead of snow in late winter/early spring.

DEVILS LAKE AND STUMP LAKE

Valid January 22, 2024 - September 30, 2024

DEVILS LAKE	95%	90%	75%	50%	25%	10%	5%
Creel Bay	1449.7	1449.7	1449.8	1450.1	1450.5	1450.9	1451.4
Eastern Stump Lake	1449.7	1449.7	1449.8	1450.1	1450.5	1450.9	1451.4

Devils Lake and Stump Lake are currently at ~1449.2 ft (zero datum 1400.00 NGVD29).

RED RIVER AND TRIBUTARIES

Valid January 29, 2024 - April 28, 2024

RED RIVER MAINSTEM	95%	90%	75%	50%	25%	10%	5%
Wahpeton	9.3	9.9	10.6	11.7	12.7	14.8	15.5
Hickson	17.3	18.3	20.3	24.0	27.3	33.1	34.2
Fargo	18.8	19.9	21.1	25.1	28.9	35.0	36.5
Halstad	13.9	16.1	18.6	23.6	28.9	36.0	38.7
Grand Forks	19.6	21.7	23.9	31.1	36.5	42.5	44.6
Oslo	16.1	19.6	23.8	31.7	34.0	35.6	36.5
Drayton	17.9	20.8	23.3	30.8	36.6	40.5	41.2
Pembina	23.9	27.4	32.7	39.0	45.3	48.9	50.0

Note:
Probabilities for all river points do not take into account effects due to ice, jamming, etc. Higher stages than depicted may occur.

MINNESOTA TRIBUTARIES	95%	90%	75%	50%	25%	10%	5%
South Fork Buffalo River							
Sabin	9.8	10.2	11.4	12.6	13.4	14.8	16.2
Buffalo River							
Hawley	5.6	5.9	6.5	7.5	8.4	9.4	10.1
Dilworth	10.2	10.6	12.3	15.4	17.8	20.8	23.1
Wild Rice River							
Twin Valley	4.2	4.3	4.6	6.3	7.5	8.4	10.4
Hendrum	10.5	13.8	16.9	20.8	24.4	28.2	30.9
Marsh River							
Shelly	5.9	6.1	7.2	8.8	11.5	15.7	23.1
Sand Hill River							
Climax	6.8	7.6	8.0	11.6	14.9	22.2	24.8
Red Lake River							
High Landing	2.9	3.2	3.7	4.5	6.0	7.8	8.3
Crookston	7.5	7.8	9.1	12.0	14.6	17.8	20.6
Snake River							
Above Warren	62.6	62.7	63.2	63.9	64.8	65.4	66.4
Alvarado	99.3	99.9	100.7	102.8	105.5	107.4	108.5
Two Rivers River							
Hallock	797.3	798.5	799.7	802.1	805.3	807.0	807.7
Roseau River							
Roseau	7.3	7.8	8.6	10.1	11.7	13.7	15.7

Legend:
Below Flood Stage
Minor
Moderate
Major
Flood of Record

NORTH DAKOTA TRIBUTARIES	95%	90%	75%	50%	25%	10%	5%
Wild Rice River							
Abercrombie*	18.1	19.0	21.5	24.7	27.6	32.4	34.4
Sheyenne River							
Valley City	6.2	6.4	6.8	8.1	10.0	11.5	13.1
Lisbon	5.4	5.7	6.3	8.0	9.9	11.5	12.9
Kindred	7.4	7.9	8.9	10.8	12.5	15.8	18.0
West Fargo Diversion	10.6	10.8	10.9	12.7	13.0	15.2	17.1
Harwood	74.9	75.6	77.3	80.2	83.8	90.1	91.6
Maple River							
Enderlin	5.6	6.2	7.1	8.4	10.0	11.5	12.7
Mapleton	12.6	13.0	15.0	18.6	20.6	22.1	22.8
Goose River							
Hillsboro	3.6	4.0	4.7	5.8	8.2	12.5	13.4
Forest River							
Minto	2.2	2.3	2.8	3.4	4.8	6.7	8.1
Pembina River							
Walhalla	3.0	3.3	3.6	4.2	5.5	7.7	8.6
Neché	4.8	5.0	5.8	7.4	10.1	15.8	17.9

* Flood stages increased by 10.0 ft October 2023