



Red River and Devils Lake Basins - 2024 Spring Flood Outlook

NWS Grand Forks • North Central River Forecast Center • February 29, 2024

This outlook is for the US portion of the basin and based on conditions through Monday, February 26, 2024. Visit our website at weather.gov/fgf/currentfloodoutlook for associated exceedance graphics, probabilities, and related discussions. An additional spring flood outlook will be issued on March 14th.

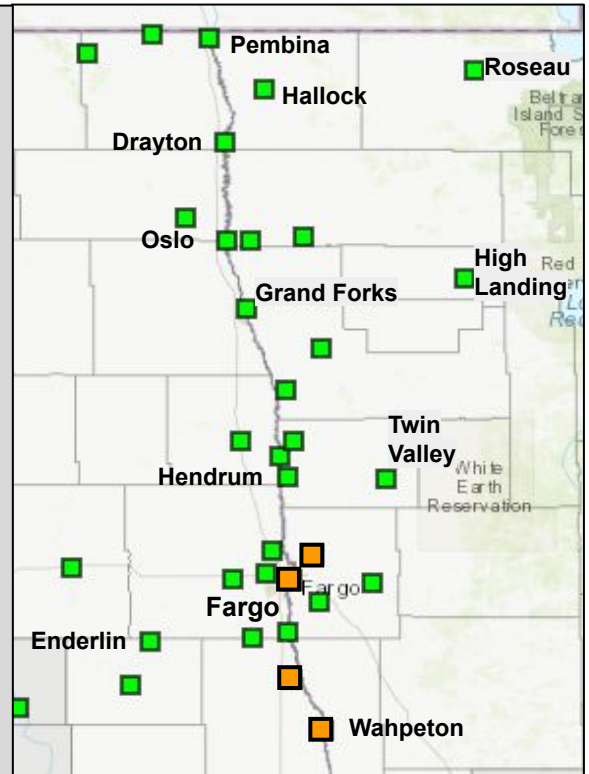
Key Message: The risk for significant (moderate or higher) flooding is very low with this outlook issuance, running below long-term historical averages across the Red River Basin (US portion).

Key Points:

- Isolated minor spring flooding with this outlook (50% exceedance probability) for a few locations. **Note: these probabilities do not account for effects from ice, such as ice jams.**
- Snowfall this winter has been well below normal, with precipitation near to above normal from rain and ice events. Soil moisture is near normal across the south transitioning to below normal near the international border.
- Majority of winter snowpack melted into the soils since the last outlook and is accounted for in this outlook (in addition to snowfall received earlier this week).
- Precipitation (especially rain) through early spring will be the most important flood risk factor. Heavy rainfall would lead to higher end flooding scenarios.

Flood Risk Indicated as > 50% of category:

- Major
- Moderate
- Minor
- < 50%



Valid March 4, 2024 - June 2, 2024

Snowmelt Flood Components:

- 1. Fall + Winter Precipitation: Near to above normal.** While winter snowfall has been well below normal, precipitation has been near to above normal for the majority of the basin due to rain and ice events (exception being the Devils Lake basin). Soil moisture is lower than normal across much of the basin with moderate to severe drought conditions across the north and abnormally dry conditions elsewhere.
- 2. Base Streamflow: Near to above normal.** At the end of December, USGS analyses indicated that the Red River mainstem and its tributaries were flowing near to slightly higher than normal.
- 3. Frost Depth: Shallower than normal.** January cold formed a deep frost layer across much of the basin; however, February warmth allowed for some thawing to begin, especially in the south. Lake/river observations indicate ice cover is thinner and less consistent than normal due to mild temperatures.
- 4. Snowpack and Associated Water Content: Much below normal.** Snowfall since Dec. 1st is running much below normal (10-50 percent of normal), lowest across the southern two-thirds of the basin. The majority of any lingering winter snowpack melted and infiltrated the soils throughout February. Additional snow fell earlier this week across central portions of the basin and the associated water content has been incorporated into this outlook.
- 5. Future Conditions:** Climate outlooks favor above normal temperatures into spring. This will continue to melt any remaining snowpack and introduce higher probabilities of rain instead of snow through early spring.

DEVILS LAKE AND STUMP LAKE

Valid February 26, 2024 - September 30, 2024

DEVILS LAKE	95%	90%	75%	50%	25%	10%	5%
Creel Bay	1449.4	1449.5	1449.5	1449.7	1450.1	1450.4	1450.8
Eastern Stump Lake	1449.4	1449.5	1449.5	1449.7	1450.1	1450.4	1450.8

Devils Lake and Stump Lake are currently at ~1449.1 ft (zero datum 1400.00 NGVD29).

RED RIVER AND TRIBUTARIES

Valid March 4, 2024 - June 2, 2024

RED RIVER MAINSTEM	95%	90%	75%	50%	25%	10%	5%
Wahpeton	7.8	8.6	10.3	11.4	12.8	14.1	14.8
Hickson	13.9	15.4	19.2	23.0	26.7	31.3	32.3
Fargo	16.4	17.0	19.6	21.8	26.3	30.5	33.6
Halstad	10.6	11.0	14.5	20.4	24.9	31.7	34.6
Grand Forks	18.6	18.8	20.5	25.7	32.0	40.4	42.9
Oslo	13.5	14.1	18.1	25.7	32.2	34.9	35.8
Drayton	16.0	16.3	19.5	25.2	31.8	38.9	40.3
Pembina	19.4	20.5	25.4	33.9	40.6	45.4	48.2

Note:
Probabilities for all river points do not account for ice effects such as ice jams, etc.
Higher stages than depicted may occur.

MINNESOTA TRIBUTARIES	95%	90%	75%	50%	25%	10%	5%
South Fork Buffalo River							
Sabin	8.8	9.3	11.1	12.9	13.8	14.8	15.3
Buffalo River							
Hawley	4.5	4.8	5.3	6.5	7.6	8.3	9.1
Dilworth	7.6	8.3	10.5	15.2	17.9	19.8	20.9
Wild Rice River							
Twin Valley	3.3	3.6	4.2	5.4	6.9	8.6	9.6
Hendrum	7.5	8.4	12.3	18.6	22.4	27.9	28.8
Marsh River							
Shelly	5.1	5.3	6.1	8.2	9.4	12.2	14.5
Sand Hill River							
Climax	6.0	6.2	7.7	10.1	11.8	19.0	21.1
Red Lake River							
High Landing	2.7	2.8	3.5	4.3	5.7	7.4	8.8
Crookston	6.2	6.4	7.7	11.1	13.7	18.0	19.7
Snake River							
Above Warren	62.0	62.1	62.7	63.3	64.2	65.9	66.8
Alvarado	97.8	98.0	99.7	101.1	105.0	107.5	108.7
Two Rivers River							
Hallock	797.1	797.5	799.4	801.7	804.2	807.4	808.0
Roseau River							
Roseau	7.4	7.7	8.3	9.5	11.6	13.5	15.2

Legend:
Below Flood Stage
Minor
Moderate
Major
Flood of Record

NORTH DAKOTA TRIBUTARIES	95%	90%	75%	50%	25%	10%	5%
Wild Rice River							
Abercrombie*	12.3	13.6	16.4	20.6	24.1	27.4	29.2
Sheyenne River							
Valley City	4.9	5.1	5.4	6.8	9.0	11.0	11.8
Lisbon	4.1	4.2	4.5	5.7	8.5	10.6	11.7
Kindred	5.6	5.6	6.7	8.4	11.0	12.5	16.7
West Fargo Diversion	8.7	8.7	9.1	10.9	12.9	13.0	16.6
Harwood	73.0	73.3	74.1	77.3	79.9	84.7	91.2
Maple River							
Enderlin	4.1	4.5	5.2	7.1	8.7	10.3	11.5
Mapleton	11.2	11.4	12.2	15.7	18.8	21.4	22.2
Goose River							
Hillsboro	2.8	2.9	3.4	4.3	5.9	7.7	10.2
Forest River							
Minto	1.9	1.9	2.1	2.8	3.4	5.3	5.8
Pembina River							
Walhalla	2.7	2.8	3.2	4.0	5.0	6.5	7.8
Neché	4.0	4.2	5.0	6.5	9.0	13.0	14.9

* Flood stages increased by 10.0 ft October 2023