Red River and Devils Lake Basins - 2024 Spring Flood Outlook

NWS Grand Forks • North Central River Forecast Center • February 15, 2024

This outlook is for the US portion of the basin and based on conditions through Monday, February 12, 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 29th and March 14th.

Key Message: The risk for significant (moderate or higher) 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. Note, these probabilities do not account for effects from ice, such as ice jams.

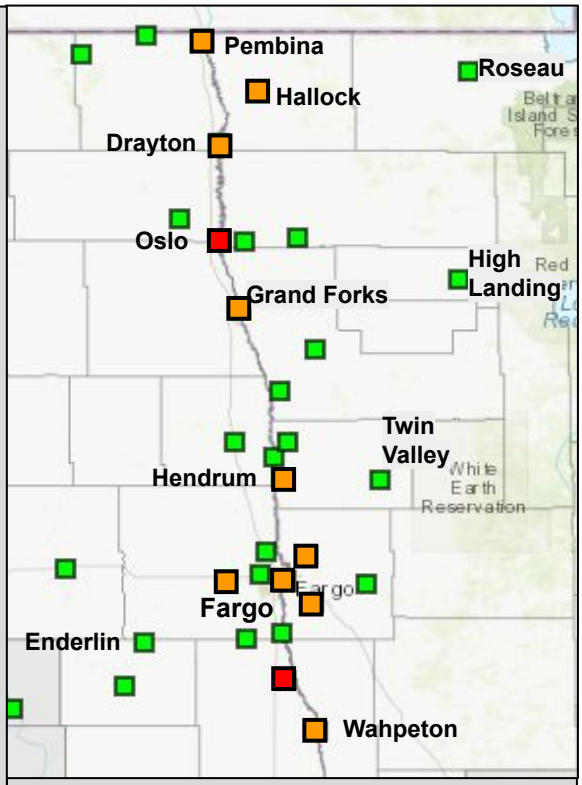
- Snowfall this winter has been well below normal, with precipitation slightly below normal from rain and ice events. Soil moisture is around normal across the south transitioning to well below normal near the international border.

- Above normal temperatures continuing into spring will melt any lingering snowpack and lead to increased chances for any precipitation to fall as rain rather than snow.

- Precipitation (especially rain) through early spring will be the most important flood risk factor. Heavy rainfall may lead to higher end flooding scenarios.

Flood Risk Indicated as > 50% of category:

- Major
- Moderate
- Minor
- < 50%



Valid February 19, 2024 - May 19, 2024

Snowmelt Flood Components:

1. Fall + Winter Precipitation and Soil Moisture: Much below normal to slightly below normal. Overall both fall (Sep-Nov 2022) and winter (December 2023-current) precipitation have been below normal for much of the basin. Soil moisture remains much lower than normal across the northern third of the basin with moderate to severe drought conditions while near average 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 but variable. January cold formed a deeper frost layer across much of the basin; however, early 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. Little to no snow cover (and associated water content) in place with the exception of near the international border.

5. Future Conditions: Climate outlooks indicate above normal temperatures into spring. This will allow for early melting of any remaining snowpack and introduce the possibility of rain instead of snow through early spring.

DEVILS LAKE AND STUMP LAKE

Valid February 12, 2024 - September 30, 2024

DEVILS LAKE	95%	90%	75%	50%	25%	10%	5%
Creel Bay	1449.6	1449.6	1449.7	1449.9	1450.2	1450.6	1451.0
Eastern Stump Lake	1449.6	1449.6	1449.7	1449.9	1450.2	1450.6	1451.0

Devils Lake and Stump Lake are currently at ~1449.1 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	8.5	9.7	10.6	11.6	13.0	14.4	14.9
Hickson	15.7	17.0	20.4	23.7	28.8	32.1	32.9
Fargo	18.2	19.2	21.1	24.7	30.1	33.3	35.0
Halstad	14.5	15.6	18.2	24.7	29.1	34.8	37.0
Grand Forks	20.5	21.1	23.0	33.3	37.8	42.1	45.2
Oslo	18.4	19.6	22.8	33.0	34.4	35.4	36.8
Drayton	19.8	20.5	23.7	32.1	38.1	40.1	41.3
Pembina	26.0	26.7	32.6	39.1	45.8	48.0	49.8

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	10.1	10.8	12.1	13.2	14.2	15.3	15.5
Buffalo River							
Hawley	5.7	5.8	6.4	7.4	8.2	9.2	9.8
Dilworth	10.3	11.3	13.0	16.6	18.4	21.0	21.8
Wild Rice River							
Twin Valley	4.2	4.5	5.1	6.5	7.5	9.7	10.7
Hendrum	12.6	13.9	16.5	21.7	25.3	29.2	30.0
Marsh River							
Shelly	6.2	6.3	7.7	9.4	11.7	16.1	19.4
Sand Hill River							
Climax	7.6	7.7	9.0	11.8	16.0	20.8	24.1
Red Lake River							
High Landing	4.0	4.1	4.5	5.7	6.7	8.7	9.3
Crookston	8.7	9.0	10.5	12.9	15.6	18.3	21.3
Snake River							
Above Warren	62.7	62.9	63.2	63.8	64.7	66.0	67.2
Alvarado	99.4	99.8	100.6	102.7	105.9	107.5	109.1
Two Rivers River							
Hallock	797.2	798.3	800.1	802.1	804.5	807.5	807.9
Roseau River							
Roseau	7.9	8.2	9.1	10.4	11.9	14.5	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*	16.2	16.4	19.8	22.9	27.2	29.4	31.9
Sheyenne River							
Valley City	5.2	5.6	6.4	7.5	8.9	11.5	12.2
Lisbon	4.3	4.8	5.8	6.9	8.6	11.1	12.9
Kindred	6.5	6.8	7.9	9.5	11.7	14.8	19.1
West Fargo Diversion	9.1	9.6	10.8	10.9	13.0	15.1	18.6
Harwood	74.6	75.6	77.1	79.9	84.4	89.8	91.6
Maple River							
Enderlin	5.2	6.0	6.9	8.2	9.7	11.2	12.8
Mapleton	12.7	13.1	15.9	19.1	20.8	21.9	22.6
Goose River							
Hillsboro	3.5	3.6	4.3	5.5	7.5	10.5	12.2
Forest River							
Minto	2.2	2.3	2.5	3.0	4.2	5.9	6.9
Pembina River							
Walhalla	2.8	3.0	3.5	4.1	5.1	6.7	7.9
Neche	4.3	4.8	5.5	6.9	9.2	13.1	15.5

* Flood stages increased by 10.0 ft October 2023