

MONTHLY REPORT OF HYDROLOGIC CONDITIONS

WFO Caribou, Maine

REPORT FOR:
MONTH YEAR

February 2023

TO: Hydrologic Information Center, W/OS31
NOAA's National Weather Service
1325 East West Highway
Silver Spring, MD 20910-3283

SIGNATURE

**James Sinko - Meteorologist
Hydrology Program Manager**

DATE

March 15, 2023

When no flooding occurs, include miscellaneous river conditions below the small box, such as significant rises, record low stages, ice conditions, snow cover, droughts, and hydrologic products issued (NWS Instruction 10-924).

An X inside this box indicates that no flooding occurred within this hydrologic service area.

February 2023

February 2023 was slightly colder than average across far Northern Maine, and slightly above average across the remainder of the region compared to the 1991-2020 climate normals. The month was characterized by alternating spells of above and below average temperatures. This was a result of the monthly average of the North Atlantic Oscillation (NAO) pattern monthly mean of +0.92 standard deviation, while the Pacific North American (PNA) pattern at -0.64 standard deviation.

Temperatures across the area averaged from 1 to 3 degrees below average across the far north and from 1 to 2 degrees above average across the remainder of the area. The most significant temperature event of the month occurred on the 3rd into the 4th when wind chills lower than 40 below were observed across Northern and Eastern Maine. The lowest wind chill observed was at Frenchville at -61°F, and this was the lowest wind chill observed at Frenchville since weather records began at the airport in 1996. The lowest wind chill at Caribou of -52°F was the lowest since the 1980s, and in Bangor the lowest wind chills of -47°F was the lowest since 2005. At Caribou, there were 50 consecutive hours during the cold snap with actual air temperatures below zero.

<i>Town/City</i>	<i>Avg Monthly Temperature (°F)</i>	<i>Normal Monthly Temperature (°F)</i>	<i>Departure from Normal (°F)</i>
Frenchville	11.4	14.0	-2.6
Fort Kent	7.6	10.0	-2.4
Caribou	12.4	14.2	-1.8
Houlton	14.7	14.8	-0.1
Millinocket	17.7	17.6	+0.1
Greenville*	17.7	16.3	+1.4
Bangor	22.1	21.0	+1.1
Robbinston*	23.4	22.1	+1.3
Topsfield*	18.0	18.8	-0.8

**Topsfield Records date back to 2000, *Robbinston Records date back to 1994*

**Greenville data gap between 1975 and 1999*

Precipitation for the month ranged from 25 to 50 percent of average from southeast Aroostook County south to the coast, and from 50 to 90 percent of normal from the Central Highlands north to the North Woods and St. John Valley. Only 0.64" of liquid precipitation was observed at Houlton, making it the 3rd driest February since 1948. At Millinocket which has weather records that date back to 1903, it ranked at the 7th driest February on record. Finally, at Bangor the total of 1.17" of liquid precipitation ranked as the 6th driest since 1925. Snowfall was below average across the region, except from around Presque Isle/Caribou north where total snowfall was near to slightly above average. In Caribou, 28.1" of snow was observed for the month, which was 2.8" above average. At Bangor, 10.5" of snow was observed which was 7" below average. At the start of the month, the snow depth ranged from 2 to 3 feet across northern areas with locally around 4 feet across the highest terrain, and from 6 to 12 inches along the coast. By the end of the month, there was little change to the snow depth across the north; but amounts in Bangor and along the coast were generally 6 inches or less. The snow water equivalent across northern areas ranged from 6 to 10 inches by the end of the month, with locally higher amounts across the higher terrain.

Precipitation Totals for Select Locations with all units in inches

<i>Location</i>	<i>Total Precip</i>	<i>Normal Precip</i>	<i>Departure from Normal</i>	<i>% of Normal</i>	<i>Snowfall</i>	<i>Normal Snowfall</i>	<i>Departure from Normal</i>	<i>Greatest Snow Depth</i>	<i>Monthly Average Snow Depth</i>
Frenchville	0.67	0.87	-0.20	77.0%	NA	NA	NA	NA	NA
Fort Kent	2.17	2.34	-0.17	87.8%	23.0	21.0	+2.0	31	26.2
Caribou	2.17	2.42	-0.25	89.7%	28.1	25.3	+2.8	25	21.7
Houlton	0.64	1.95	-1.31	32.8%	NA	NA	NA	NA	NA
Millinocket*	1.06	2.13	-1.07	49.8%	10.5	NA	NA	18	14.3
Greenville*	1.79	2.41	-0.62	74.3%	NA	NA	NA	NA	NA
Bangor	1.17	2.38	-1.21	49.1%	10.5	17.5	-7.0	7	4.2
Robbinston*	1.85	4.17	-2.32	44.4%	14.3	21.9	-7.6	12	9.3
Topsfield*	1.65	3.62	-1.97	45.6%	13.7	27.4	-13.7	21	17.3

*Millinocket snowfall measured at CoOp site, not the ASOS site. Departure data is not available.

*Topsfield Records date back to 2000, *Robbinston Records date back to 1994

*Greenville data gap between 1975 and 1999

Streamflows much of the rivers were ice impacted across Eastern & Northern Maine but some rivers and streams remained open. Much of the rivers including those ice impacted are now back to normal levels as of the end of the month.

Ice: February featured continued thickening of ice across the Northern and Central river basins where thicknesses varied between 5 and 14 inches with the headwaters seeing 20 to 27 inches. Across much of the Central areas we saw mixed conditions. Ice was thick enough for wildlife activity and humans using snowmobiles to transport over ice. However, significant chunks and open ice in several areas of the Piscataquis and Penobscot Rivers along with the Mattawamkeag. Evidence of the December 2022 and January 2023 breakup and warm spell prevented major thickness. However, significant ice was noted by the end of the month on the Piscataquis in Howland near I-95 down to the confluence with the Penobscot.

Groundwater: Frozen surface down to approx 5-7 inches across the area. However, across the north by the end of the month the deep snowpack insulated the snowpack. We saw thawing of 1-3 inches from the bottom upward with no surface thawing. Across the Central Highlands, Bangor area and far Downeast we continued to see Above Normal groundwater levels in the 75-90th percentile. Hancock County along with the North Woods into Northeastern Aroostook county saw continued grounds that are 90-98th percentile levels which is Much Above Normal. In regards to **Drought** monitoring, the entire month of February featured No Drought conditions.

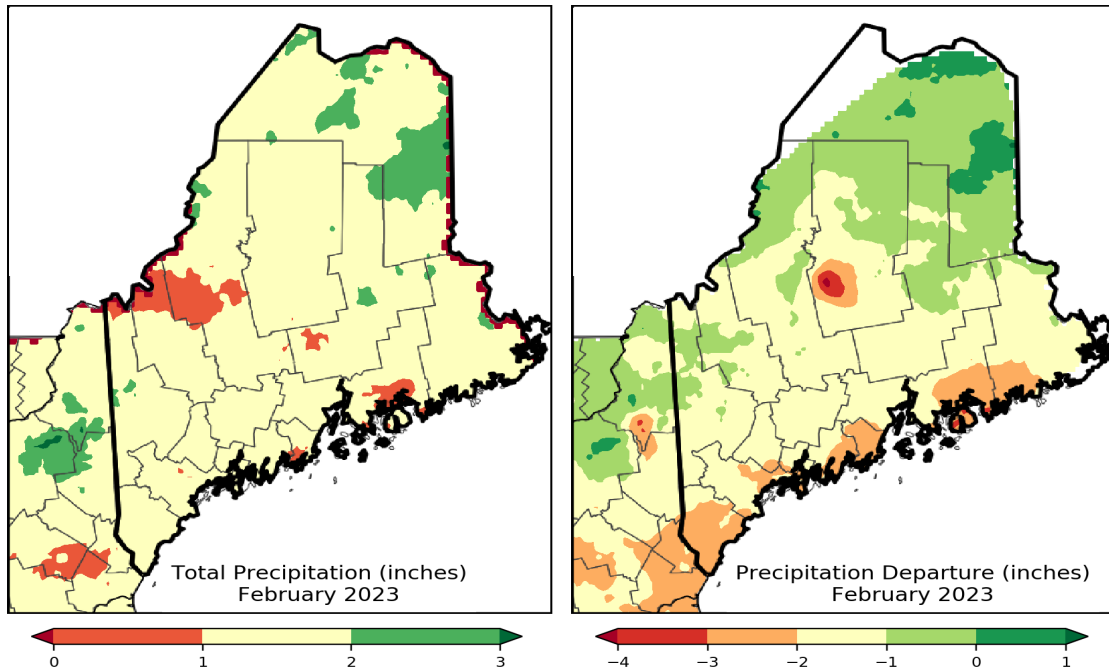


Figure 1: Monthly Precipitation Totals for February 2023

Figure 2: Monthly Precipitation Departures from Normal for February

Source: [Northeast Regional Climate Center](#)

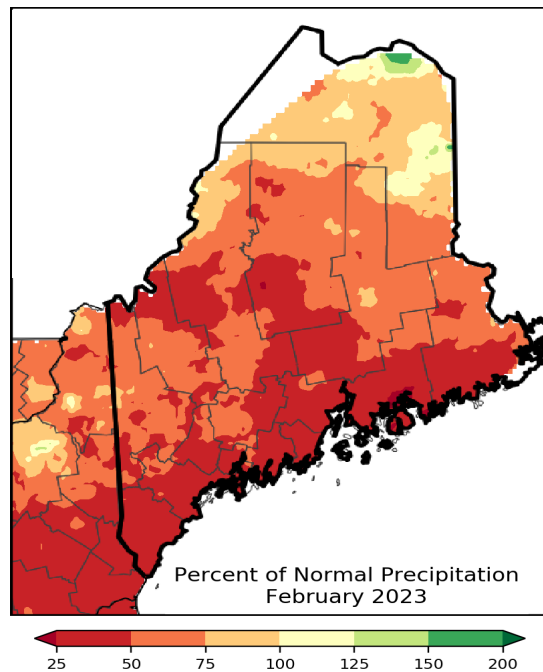


Figure 3: Percent of Normal Precipitation February 2023

Source: [Northeast Regional Climate Center](#)

February Streamflows for Rivers

River	Monthly Mean Flow (cfs)	% Normal (mean)	Percentile Class	Drainage (mi ²)	Years of Record
Big Black River near Depot Mtn	NA	NA	Ice Affected	171	38
St. John River at Nine Mile Bridge	NA	N/A	Ice Affected	1341	71
Allagash River near Allagash	NA	NA	Ice Affected	1478	90
St. John River at Dickey	NA	NA	Ice Affected	2680	75
St. John River at Fort Kent	1668.10	72.26%	Normal	5929	95
Fish River near Fort Kent	NA	NA	Ice Affected	873	92
Aroostook River near Masardis	NA	NA	Ice Affected	892	64
Aroostook River at Washburn	NA	NA	Ice Affected	1654	91
St. Croix River at Vanceboro	437.31	52.17%	Below Normal	413	94
St. Croix River at Baring	1438.63	57.49%	Below Normal	1374	63
Grand Lake Stream at Grand Lake Stream	274.77	66.27%	Normal	228.3	94
Narraguagus River at Cherryfield	502.68	138.10%	Normal	227	73
East Branch Penobscot River at Grindstone	NA	NA	Ice Affected	837	100
Mattawamkeag near Mattawamkeag	1150.46	130.26%	Normal	1418	87
Piscataquis River near Dover-Foxcroft	302.21	156.82%	Normal	298	119
Sebec River at Sebec	391.04	94.61%	Normal	326	67
Piscataquis River at Medford	NA	NA	Ice Affected	1162	90
Penobscot River at West Enfield	NA	NA	Ice Affected	6422	119

February Average Groundwater Levels

Station	Percentile Class	Years of Record
Hadley Lakes	Much Above Normal	37
Kenduskeag	Above Normal	44
Calais	Above Normal	23
Millinocket	Above Normal	29
Clayton Lake	Much Above Normal	44
Fort Kent	Much Above Normal	45

Flow or Water Level	Percentile Range	Explanation
Low	0 th	The monthly mean streamflow or median water level during this month is the lowest ever recorded during the period of record for this site.
Much below normal	0 th to 10 th	The monthly mean streamflow or median water level during this month is less than the 10 th percentile when compared to all of the months during the period of record for this site.
Below normal	10 th to 25 th	The monthly mean streamflow or median water level during this month is between the 10 th and 25 th percentiles when compared to all of the months during the period of record for this site.
Normal	25 th to 75 th	The monthly mean streamflow or median water level during this month is between the 25 th and 75 th percentiles when compared to all of the months during the period of record for this site.
Above normal	75 th to 90 th	The monthly mean streamflow or median water level during this month is between the 75 th and 90 th percentiles when compared to all of the months during the period of record for this site.
Much above normal	90 th to 100 th	The monthly mean streamflow or median water level during this month is greater than the 90 th percentile when compared to all of the months during the period of record for this site.
High	100 th	The monthly mean streamflow or median water level during this month is the highest ever recorded during the period of record for this site.