NWS Form E-5 (04-2006) (PRES. BY NWS Instruction 10-924)	U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION NATIONAL WEATHER SERVICE	HYDROLOGIC SERVICE AREA (HSA) **WFO Caribou, Maine**
MONTHLY REPORT OF HYDROLOGIC CONDITIONS		REPORT FOR: MONTH **January** YEAR **2021**
TO: Hydrologic Information Center, W/OS31 NOAA's National Weather Service 1325 East West Highway Silver Spring, MD 20910-3283		SIGNATURE **James Sinko, HPM** DATE **February 13, 2022**

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).

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

January 2022

The month finished 4 to 6 degrees below average across the region. It was the coldest January across Northern & Eastern Maine since 2009. There were a total of 22 nights with a low below zero at Caribou, which was the most since 2009. The low of 30 below zero at Caribou on the morning of the 27th was the lowest temperature observed since January 2009. There were 14 consecutive nights with a low below zero at Caribou, which was the most since February 2015. It was also the most sub-zero nights in January since 1974. In Bangor, there were a total of 12 nights with a low below zero, which was the most in any month since February 2015, and the most in January since 2009. In Houlton there were 22 nights below zero, which was the most in any month since February 2015, it was the most sub-zero nights in January since 2009 when there were 23. In Millinocket, there were 17 nights below zero, which was also the most since February 2015 and again the most sub-zero nights in January since 2009. The coldest morning was the 27th when the low temperature for the month of 39 degrees below zero was observed in Masardis. The contiguous U.S. cold spot was observed for 5 mornings this month in Northern Maine.

Caribou's average monthly temperature was 6.7°, which was 5° below normal which ties the 20th coldest month on record. Houlton's average monthly temperature was 8.5°, which was 4.4° below normal and resulted in the 15th coldest month on record. Millinocket average monthly temperature was 10.9°, which was 4.6° below average. Bangor's average monthly temperature was 14.5°, which was 4.0° below normal for the month. Lastly, Frenchville's average monthly temperature was 5.2° which was 6.1° below normal for the month and resulted in the 5th coldest month on record.

The North Atlantic Oscillation (NAO) monthly mean was +1 standard deviation with Pacific North American Pattern (PNA) monthly mean also around +1 standard deviation. Despite this pattern we had multiple occasions of NAO Negative and PNA Positive. This within the La Nina regime resulted in

liquid precipitation for the month of January ranging from 50-90% of average across the region as some areas across Washington county were 100-130% of average. Snowfall was above normal across the entire area. In Caribou, a total of 31.1 inches was observed, which was 6.1 inches above average. In Bangor, 28.1 inches was observed, which was 9.5 inches above average. The heaviest snowfall of the month occurred on the 29th when Blizzard Warnings were issued. There were reports of upwards to 22 inches across portions of Penobscot county. Widespread reports of 10-20 inches from the Downeast coast to Southern & Central Aroostook county. Caribou measured a two day total of 12.2 inches which was the largest event this month. Caribou finished the month with 31.1 inches which was 6.1 inches above average. Bangor's two day total for the same storm was 18 inches, but it's important to note this event had significant blowing & drifting so the total was an estimate. The monthly total for Bangor was 28.1 inches which was 9.5 inches above average.

Streamflows across the region were below to well below normal levels as the ground frost depth had increased to nearly a foot across the north. As the snowpack increased to between 10-18 inches along the coast and from 14-32 inches across Aroostook County. As the snowpack increased there was no rainfall or melting events resulting in no runoff into the headwaters. River ice continued to thicken with several cold days and nights. Thick sheet ice filled both the Aroostook River & St. John River's in the early part of the month with some minor openings. These openings completely filled in by the end of the month with spots seeing ice thickness increase to 3-6 feet. The ice jams from December 6th on the St. John River and Aroostook River's that froze in place are hard to find now due to thick snowpack on the ice. The ice along the Piscataquis, Penobscot and Mattawamkeag river's thickened by the end of the month especially in the northern & central areas. The Penobscot river ice thickened to 1-2 feet in the Bangor/Brewer area prompting ice breaking operations from the United States Coast Guard. By the end of the month there was significant ice growth on Downeast rivers including the St. Croix & Narraguagus.

Wells across eastern and northern Maine reported normal levels with Clayton Lake the only exception running much below normal. Generally, similar to November and December but noticed worsening in Clayton Lake this month in terms of mean water level below land-sfc.

In regards to Drought monitoring, we continued to hold the status quo from the beginning of the month to the end of the month given the winter conditions and frozen grounds. Much of Eastern & Northeastern Maine remained out of drought conditions. Moosehead Lakes region into the North Woods and headwaters of the St. John River remained at Abnormally Dry (D0) / Moderate Drought (D1), there remains a very small Severe (D2) area in Northern Somerset county along the Quebec border. This has been classified as a long-term impacts drought which is typically greater than 6 months impacting both hydrology and ecology.

Precipitation Totals for Select Locations with all units in inches

Location	Total Precip	Normal Precipitation	Departure from Normal	Snowfall	Normal Snowfall	Departure from Normal Snowfall	Greatest Snow Depth
Frenchville	0.33**	1.51	-1.18	NA	NA	NA	NA
Caribou	2.40	2.95	-0.55	31.1	25.0	+6.1	14
Houlton	0.83**	2.65	-1.82	NA	NA	NA	NA
*Millinocket	1.37**	2.70	-1.33	22.8	NA	NA	18
Bangor	2.99	3.17	-0.18	28.1	18.6	+9.5	14

*Millinocket snowfall measured at wastewater treatment plant, not the ASOS site. No departure data is available.
**Frenchville, Millinocket & Houlton total precipitation values are likely more than what is listed due to significant blowing and drifting snow events. Blowing and drifting snow made it difficult for the ASOS/AWOS to measure.

January Streamflows for Selected Rivers

River	Normal Flow (cfs)	Monthly Mean Flow (cfs)	Monthly Mean (in)	Percentile Class	Drainage (mi^2)	Years of Record
St. John River at Ninemile Bridge	NA	NA	NA	NA	1341	70
St. John River at Fort Kent	2220 – 4430	2630	0.51	Normal	5929	95
Aroostook River at Washburn	NA	NA	NA	NA	1654	90
Narraguagus River at Cherryfield	337 – 690	235	1.19	Much Below Normal	227	73
E Br Penobscot River at Grindstone	NA	NA	NA	NA	837	118
Mattawamkeag nr Mattawamkeag	885 – 2070	877	0.71	Below Normal	1418	87
Piscataquis River nr Dover-Foxcroft	185 – 427	137	0.53	Below Normal	298	119

Groundwater Levels

Station	Normal Range (ft)	Mean Water Level Below Land-sfc Datum (ft)	Departure from Month-end Median (ft)	Percentile Class	Years of Record
Amherst	NA	NA	NA	NA	30
Crooked Road	NA	NA	NA	NA	15
Hadley Lakes	5.13 – 4.35	4.82	0.19	Normal	36
Kenduskeag	22.40 – 20.30	21.34	0.64	Normal	43
Calais	2.47 – 0.80	1.62	0.43	Normal	22
Millinocket	10.40 – 8.86	9.99	0.54	Normal	28
Clayton Lake	14.90 – 13.90	15.56	1.06	Low	43
Fort Kent	11.70 – 8.46	10.82	0.97	Normal	44

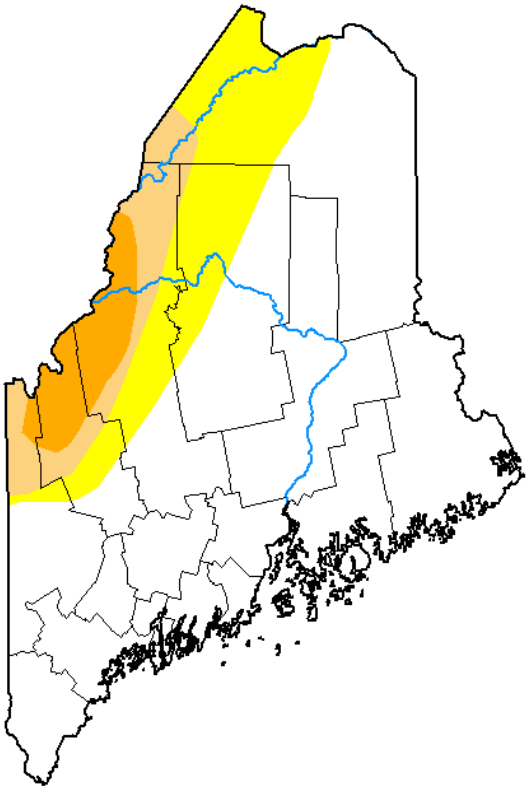
Flow or Water Level	Percentile Range	Explanation
Record Low	0^{th}	The monthly mean streamflow or median water level during this month is the lowest ever recorded during the period of record for this site.
Very Low	0^{th} to 10^{th}	The monthly mean streamflow or median water level during this month is less than the 10^{th} percentile when compared to all of the months during the period of record for this site.
Low	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.
High	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.
Very High	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.
Record 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.

Non-Routine Hydrologic Products
January 2022
WFO Caribou, ME

WMO Identifier	Date	Issuance	Name of Product

Drought Conditions for January 2022

U.S. Drought Monitor
Maine



January 4, 2022
(Released Thursday, Jan. 6, 2022)
Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	72.42	27.58	11.82	5.32	0.00	0.00
Last Week *12-28-2021*	72.42	27.58	11.82	5.32	0.00	0.00
3 Months Ago *10-05-2021*	66.54	33.46	15.50	4.85	0.00	0.00
Start of Calendar Year *01-04-2022*	72.42	27.58	11.82	5.32	0.00	0.00
Start of Water Year *09-28-2021*	66.54	33.46	15.50	4.85	0.00	0.00
One Year Ago *01-05-2021*	91.54	8.46	0.00	0.00	0.00	0.00

Intensity:

- None
- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. For more information on the Drought Monitor, go to https://droughtmonitor.unl.edu/About.aspx

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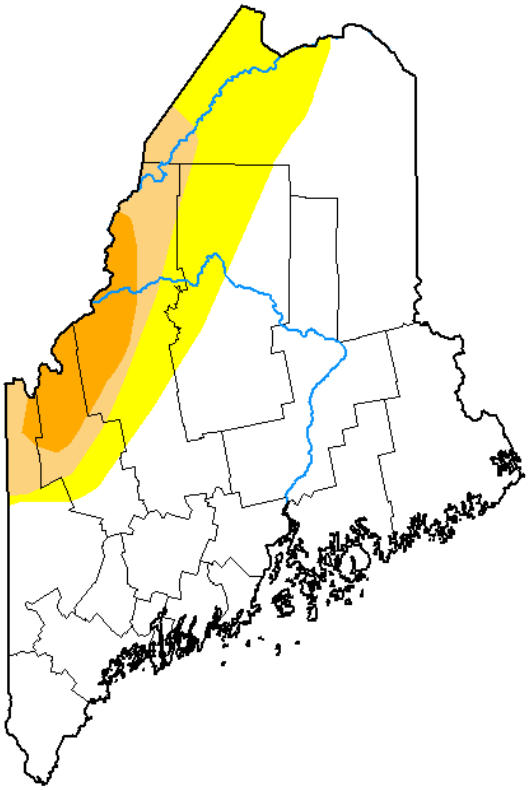
droughtmonitor.unl.edu

U.S. Drought Monitor

Maine



January 25, 2022

(Released Thursday, Jan. 27, 2022)

Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	72.42	27.58	11.82	5.32	0.00	0.00
Last Week *01-18-2022*	72.42	27.58	11.82	5.32	0.00	0.00
3 Months Ago *10-26-2021*	64.76	35.24	15.50	6.56	0.00	0.00
Start of Calendar Year *01-04-2022*	72.42	27.58	11.82	5.32	0.00	0.00
Start of Water Year *09-28-2021*	66.54	33.46	15.50	4.85	0.00	0.00
One Year Ago *01-26-2021*	91.68	8.32	0.00	0.00	0.00	0.00

Intensity:

- None
- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. For more information on the Drought Monitor, go to https://droughtmonitor.unl.edu/About.aspx

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