

**MONTHLY REPORT OF HYDROLOGIC CONDITIONS**

**WFO Caribou, Maine**

REPORT FOR:  
MONTH YEAR

**July 2022**

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

**August 20, 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).*

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

**July 2022**

July was warmer than average across Eastern & Northern Maine. Temperatures were 1° to 2° above average across the region, which was in contrast to June 2022. There were no 90 degree days in Caribou or Houlton in July. There were two 90 degree days in Millinocket, and three in Bangor where there were consecutive 90 days on July 22-24.

<i>Town/City</i>	<i>Avg Monthly Temperature (°F)</i>	<i>Normal Monthly Temperature (°F)</i>	<i>Departure from Normal (°F)</i>
<b>Frenchville</b>	67.0	66.1	+0.9
<b>Fort Kent</b>	65.6	64.8	+0.8
<b>Caribou</b>	67.7	66.7	+1.0
<b>Houlton</b>	67.4	66.1	+1.3
<b>Millinocket</b>	69.9	68.2	+1.7
<b>Greenville</b>	68.3	66.3	+2.0
<b>Bangor</b>	71.5	69.5	+2.0
<b>Robbinston</b>	69.5	66.5	+3.0

The North Atlantic Oscillation (NAO) monthly mean was -0.09 standard deviation which continues to be generally NAO Neutral. The Pacific North American Pattern (PNA) monthly mean was around +2.54 standard deviation. This has been the largest positive PNA monthly mean value since September 2019 which was +2.00. This continued within a long duration strong La Nina regime resulted in rainfall varying widely across the area. Rainfall was above average at Houlton and Millinocket, and just slightly below the 30-year average in Caribou. Rainfall was below average in Bangor. Rainfall ranged from 90 to 150 percent of normal across much of the area from Central Penobscot County North, except across

Northern Somerset and Western Piscataquis county where rainfall was 25 to 70 percent of normal. In southern Penobscot and Coastal and Central Sections of Hancock county as well as southeast Washington county rainfall ranged from 70 to 90 percent of normal. The largest rainfall departure was observed in Houlton where 6.02 inches of rain was observed which was 2.39 inches above normal, and ranked at the 8th wettest July on record.

Streamflows across the north averaged to be normal for July with the exception of the St. John River at Fort Kent. The St. John River at Fort Kent was Much Below Normal for the month of July with the % of normal (mean) at just 47.3%. This despite the tributaries and upstream conditions being around normal. The Aroostook River was running generally 80-85% of normal (mean) for the month of July. As expected with the little rainfall, nearly all of the Piscataquis & Penobscot River basins were below normal for the month as levels continued to fall. The exception was the Mattawamkeag River which was normal for the month thanks to several rounds of rain across the headwaters. The St. Croix river was the worst river for the month with the Vanceboro gage running below the 10th percentile which is much below normal. The St. Croix River at Baring was near Record Low at only 27.1% of normal (mean) for the month with an average discharge of 475.2 cfs.

Groundwater wells continued to worsen all month across the Downeast back into the Greater Bangor area into the Moosehead region. Across much of the north with largely convective rainfall greater than 100% of normal in several areas, groundwater readings remained around normal despite temperatures running above normal. Total evaporation at Caribou for the month was 5.02 inches, but this likely was an underestimate for Downeast areas which had warmer temperatures and drier soils. There were rainfall surpluses across much of the north and deficits across interior Downeast areas.

In regards to Drought monitoring, we saw an increase in Moderate Drought (D1) to include additional portions of Piscataquis county. Due to increased rainfall from convection we saw a small decrease to remove Southern Aroostook county from D0 conditions. We did begin to receive reports of wells in southern Hancock county turning “muddy” likely indicating shallow wells going nearly dry. Overall, not much changed with just minor expansion with conditions remaining dry across much of the southern half of the county warning area.

Read below for specific details & maps of Precipitation, Streamflows, Groundwater Levels, Non-Routine Hydrologic Products issued by WFO Caribou and Drought conditions.

**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	5.33	3.88	+1.45				
Fort Kent	6.49	4.52	+1.97	0.0	0.0	0	0
Caribou	4.08	4.23	-0.15	0.0	0.0	0	0
Houlton	6.02	3.63	+2.39				
*Millinocket	5.23	4.16	+1.07	0.0			0
Bangor	2.44	3.16	-0.72	0.0	0.0	0	0
Robbinston	2.98	3.18	-0.20	0.0	0.0	0	0

*\*Millinocket snowfall measured at wastewater treatment plant, not the ASOS site. No departure data is available.*

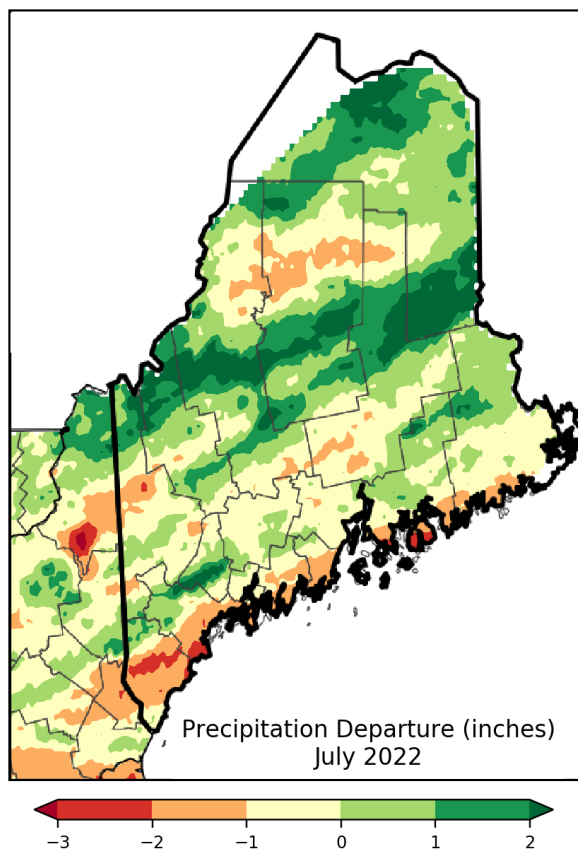
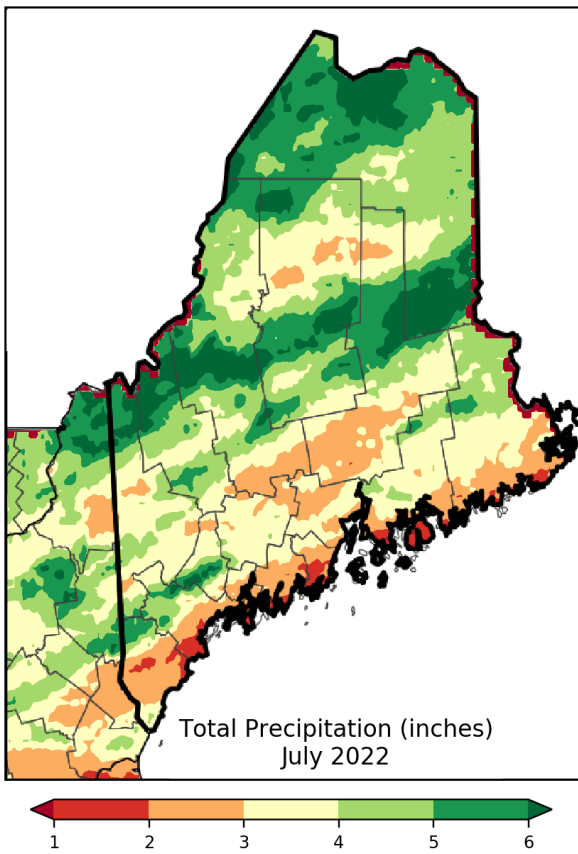


Figure 1: Monthly Precipitation Totals for July 2022

Figure 2: Monthly Precipitation Departures from Normal for July

Source: [Northeast Regional Climate Center](#)

### July Streamflows for Rivers

River	Monthly Mean Flow (cfs)	% Normal (mean)	Percentile Class	Drainage (mi <sup>2</sup> )	Years of Record
Big Black River near Depot Mtn	171	87.2%	Normal	171	38
St. John River at Ninemile Bridge	1095.1	75.4%	Normal	1341	71
Allagash River near Allagash	1278.19	91.9%	Normal	1478	92
St. John River at Fort Kent	2999.99	47.3%	Much Below Normal	5929	95
Fish River near Fort Kent	653.83	67.5%	Normal	873	92
Aroostook River near Masardis	579.87	82%	Normal	892	64
Aroostook River at Washburn	1148.26	83.9%	Normal	1654	91
St. Croix River at Vanceboro	308.25	38.26%	Much Below Normal	413	93
St. Croix River at Baring	475.20	27.1%	Low	1374	62
Grand Lake Stream at Grand Lake Stream	98.27	23.5%	Low	228.3	93
Narraguagus River at Cherryfield	89.34	45.6%	Below Normal	227	74
East Branch Penobscot River at Grindstone	777.45	59.2%	Below Normal	837	119
Mattawamkeag near Mattawamkeag	582.35	53.1%	Normal	1418	87
Piscataquis River near Dover-Foxcroft	125.20	50.4%	Normal	298	119
Sebec River at Sebec	128.82	40.5%	Below Normal	326	67
Piscataquis River at Medford	506.16	46.7%	Below Normal	1162	91
Penobscot River at West Enfield	5342.26	68.6%	Below Normal	6422	119

### Groundwater Levels

Station	Percentile Class	Years of Record
Hadley Lakes	Below Normal	36
Kenduskeag	Much Below Normal	44
Calais	Normal	22
Millinocket	Normal	28
Clayton Lake	Normal	43
Fort Kent	Above Normal	44

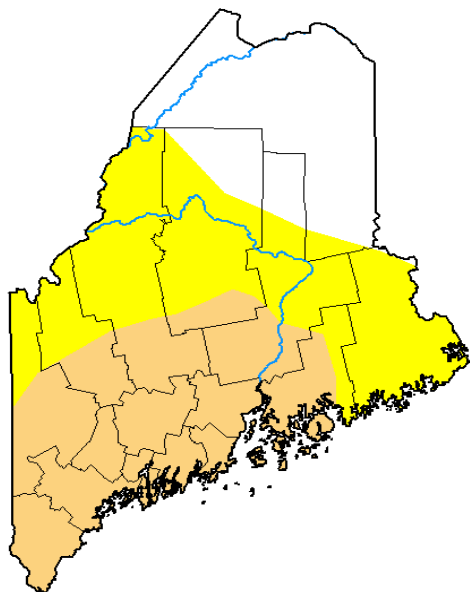
Flow or Water Level	Percentile Range	Explanation
Low	0 <sup>th</sup>	The monthly mean streamflow or median water level during this month is the lowest ever recorded during the period of record for this site.
Much below normal	0 <sup>th</sup> to 10 <sup>th</sup>	The monthly mean streamflow or median water level during this month is less than the 10 <sup>th</sup> percentile when compared to all of the months during the period of record for this site.
Below normal	10 <sup>th</sup> to 25 <sup>th</sup>	The monthly mean streamflow or median water level during this month is between the 10 <sup>th</sup> and 25 <sup>th</sup> percentiles when compared to all of the months during the period of record for this site.
Normal	25 <sup>th</sup> to 75 <sup>th</sup>	The monthly mean streamflow or median water level during this month is between the 25 <sup>th</sup> and 75 <sup>th</sup> percentiles when compared to all of the months during the period of record for this site.
Above normal	75 <sup>th</sup> to 90 <sup>th</sup>	The monthly mean streamflow or median water level during this month is between the 75 <sup>th</sup> and 90 <sup>th</sup> percentiles when compared to all of the months during the period of record for this site.
Much above normal	90 <sup>th</sup> to 100 <sup>th</sup>	The monthly mean streamflow or median water level during this month is greater than the 90 <sup>th</sup> percentile when compared to all of the months during the period of record for this site.
High	100 <sup>th</sup>	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 July 2022 WFO Caribou, ME

Product	How Many Issued	Reason for Issuance
Flood Advisory	10	Convection
Flash Flood Warning	2	Convection

## Drought Conditions for July 2022

### U.S. Drought Monitor Maine



**July 5, 2022**

(Released Thursday, Jul. 7, 2022)

Valid 8 a.m. EDT

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
<b>Current</b>	25.63	74.37	35.69	0.00	0.00	0.00
<b>Last Week</b> 06-28-2022	40.34	59.66	17.77	0.00	0.00	0.00
<b>3 Months Ago</b> 04-05-2022	69.40	30.60	7.46	4.22	0.00	0.00
<b>Start of Calendar Year</b> 01-04-2022	72.42	27.58	11.82	5.32	0.00	0.00
<b>Start of Water Year</b> 09-28-2021	66.54	33.46	15.50	4.85	0.00	0.00
<b>One Year Ago</b> 07-06-2021	0.00	100.00	70.44	20.85	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>

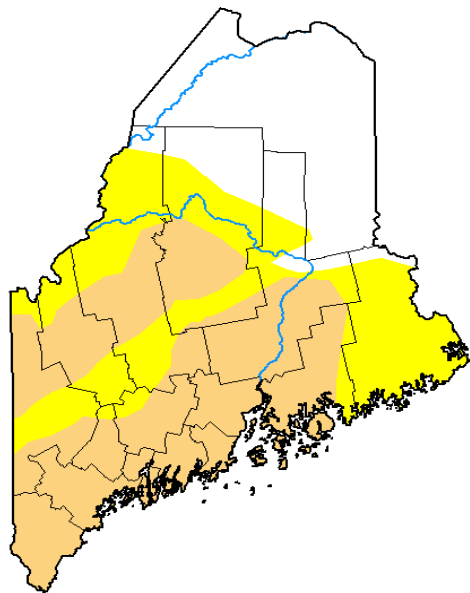
Author:

Brad Pugh  
CPC/NOAA



[droughtmonitor.unl.edu](https://droughtmonitor.unl.edu)

### U.S. Drought Monitor Maine



**July 26, 2022**

(Released Thursday, Jul. 28, 2022)

Valid 8 a.m. EDT

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
<b>Current</b>	28.48	71.52	42.19	0.00	0.00	0.00
<b>Last Week</b> 07-19-2022	25.63	74.37	50.28	0.00	0.00	0.00
<b>3 Months Ago</b> 04-26-2022	78.57	21.43	5.94	0.00	0.00	0.00
<b>Start of Calendar Year</b> 01-04-2022	72.42	27.58	11.82	5.32	0.00	0.00
<b>Start of Water Year</b> 09-28-2021	66.54	33.46	15.50	4.85	0.00	0.00
<b>One Year Ago</b> 07-27-2021	28.33	71.67	32.72	8.42	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>

Author:

Curtis Riganti  
National Drought Mitigation Center



[droughtmonitor.unl.edu](https://droughtmonitor.unl.edu)

**Drought Classification (Cumulative Percent Area %)**

Week	None	D0-D4	D1-D4	D2-D4	D3-D4	D4	DSCI
7/5/2022	25.63	74.37	35.69	0.00	0.00	0.00	110
7/26/2022	28.48	71.52	42.19	0.00	0.00	0.00	114
Change	2.85	-2.85	6.50	0.00	0.00	0.00	4

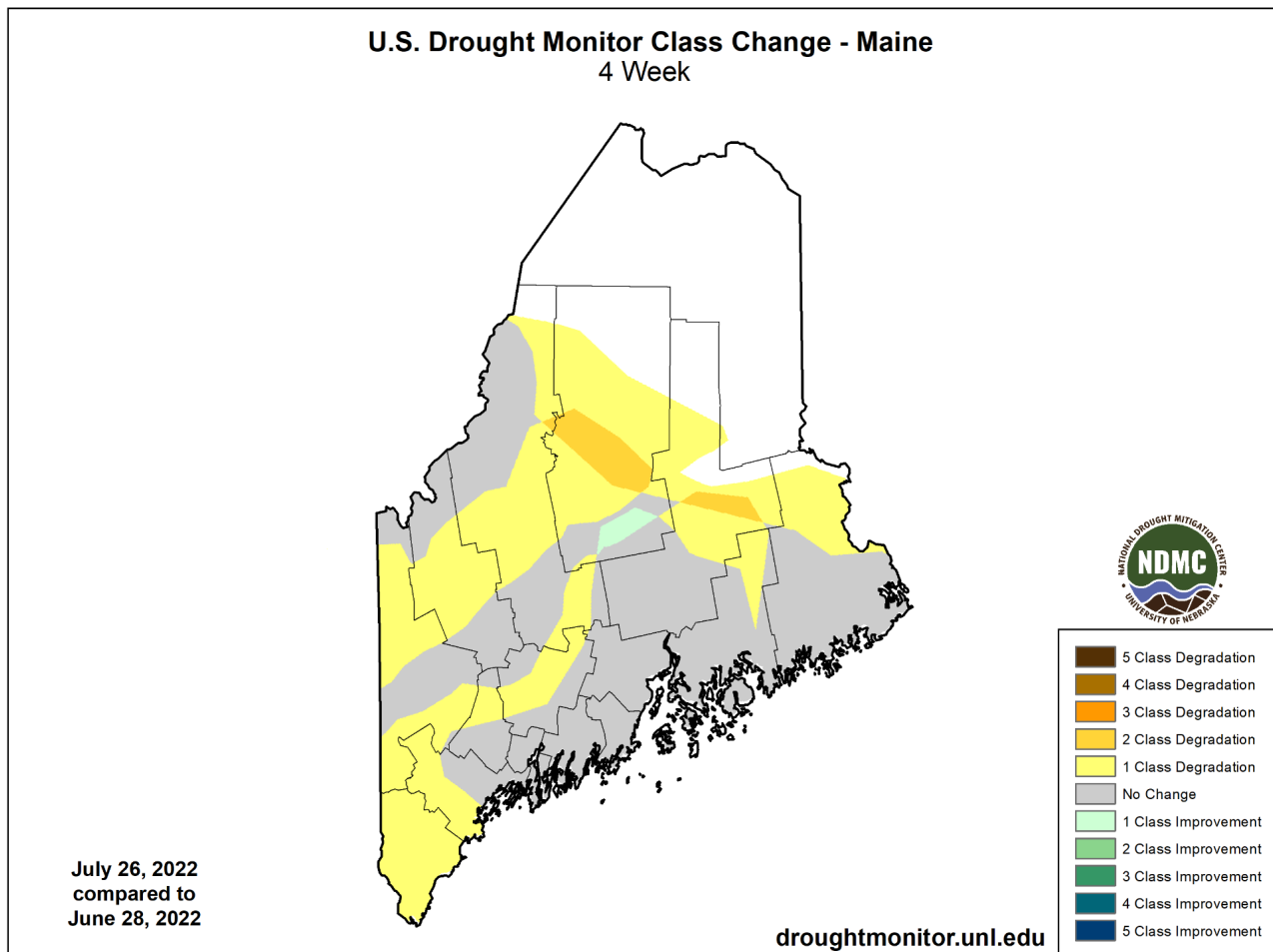


Figure 3-5: U.S. Drought Monitor Drought Classification & Statistics for July  
Source: [U.S. Drought Monitor](https://droughtmonitor.unl.edu)