

**MONTHLY REPORT OF HYDROLOGIC CONDITIONS**

**WFO Caribou, Maine**

REPORT FOR:  
MONTH YEAR

**August 2022**

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

SIGNATURE

**James Sinko**  
**Hydrology Program Manager**

DATE

**September 14, 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.

**August 2022**

The North Atlantic Oscillation (NAO) monthly mean was +1.47 standard deviation which was a significant change compared to July 2022. The Pacific North American Pattern (PNA) monthly mean was around +0.79 standard deviation. This within the long duration strong La Nina regime resulted in August 2022 for Northern and Eastern Maine being above normal for temperatures. Temperatures averaged from 1 degree above normal across the far North to 3 degrees above normal over interior Downeast areas. At Bangor, the monthly average of 71.0 degrees was the 11th warmest there since records began in 1925, but not even close to the warmest August of record of 75.1 set in 1937. The majority of the days were above normal across the region with exceptions being the 8th-14th and 26th-28th which featured below average temperatures, mostly across the north. The warmest day was the 7th where high temperatures of lower 90s reached above as far north as Presque Isle. Far Northern areas, however, only experienced monthly maximum temperatures in the mid to upper 80s.

<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>	65.5	64.6	+0.9
<b>Fort Kent</b>	64.8	62.9	+1.9
<b>Caribou</b>	66.3	64.9	+1.4
<b>Houlton</b>	66.5	64.4	+2.1
<b>Millinocket</b>	68.5	66.5	+2.0
<b>Greenville</b>	67.3	64.8	+2.5
<b>Bangor</b>	71.0	68.2	+2.8
<b>Robbinston</b>	68.4	66.3	+2.1

Rainfall this month ranged from 75 to 150 percent on average, with the greatest totals over central and localized northern areas with totals being very dependent on where thunderstorm activity occurred with

individual cold frontal passages. The monthly total of 5.57 inches at Houlton was the 12th wettest since records began there in 1948, but not even close to the wettest August on record of 9.75 inches set in 1963. Based on the total monthly evaporation of 2.93 inches recorded at Caribou, total monthly rainfall exceeded this figure at most locations, with the caveat that total monthly evaporation was somewhat higher over southern portions of the region where monthly mean temperatures were a little warmer.

Streamflows across the St. John Basin including the Aroostook River were at normal or above normal flows for the month of August. This is likely due to the rainfalls at the headwaters in the North Woods of Maine. Above normal rainfall allowed the Mattawamkeag and Penobscot to be running above normal in the 76-90th percentile range. Increased rainfall in August allowed the Piscataquis River basin to return to normal levels. The Sebec River due to less lake release averaged below normal in the 10-24th percentile range. The Narraguagus River in Cherryfield was running around normal in the 25-75th percentile range. Further Downeast in the St. Croix basin with lake & reservoir levels running low and due to much of the rain in convection form has resulted in continued very low water levels. The St. Croix River in Vanceboro was much below normal for August and at Baring was historically low along with the Grand Lake Stream. St. Croix River and Grand Lake Stream are in Severe to Extreme Hydrologic Drought conditions.

Groundwater wells improved at Fort Kent to above normal levels and normal levels were reported at Calais, Hadley Lakes, Millinocket and Clayton Lake. At the Kenduskeag gage for August the levels fell into the 10th-25th percentile so below normal conditions.

In regards to Drought monitoring, above normal rainfall allowed for gradual improvement of drought conditions by the end of the month. The Moderate Drought (D1) that existed over portions of Hancock, Southern Penobscot and extreme Southern Piscataquis was completely lowered to Abnormally Dry (D0) conditions by the end of the month. Abnormally Dry (D0) conditions around Moosehead Lake also improved to completely no drought conditions by mid month.

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	3.43	3.77	-0.34				
Fort Kent	3.70	3.73	-0.03	0.0	0.0	0	0
Caribou	3.75	3.61	+0.14	0.0	0.0	0	0
Houlton	5.57	3.52	+2.05				
*Millinocket	5.85	3.80	+2.05	0.0			0
Greenville	7.91	3.96	+3.95				
Bangor	4.32	3.06	+1.26	0.0	0.0	0	0
Robbinston	4.75	3.45	+1.30	0.0	0.0	0	0

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

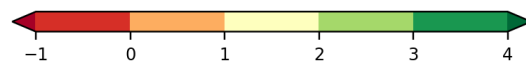
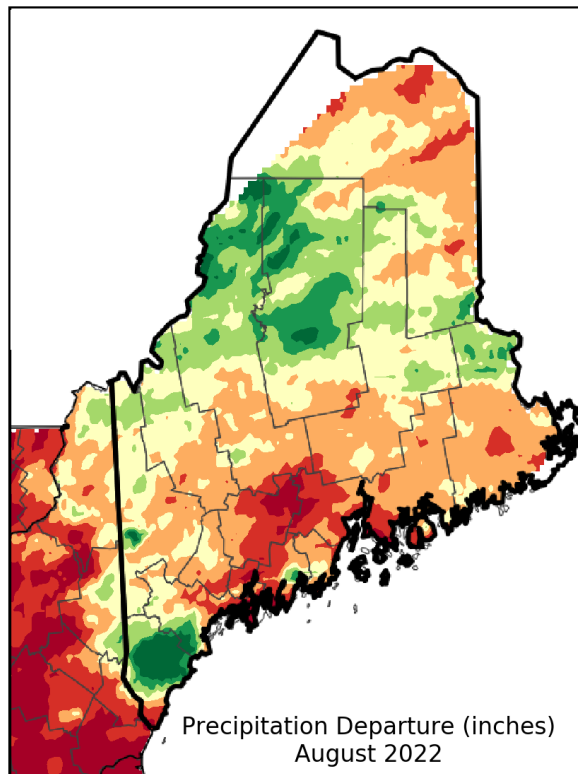
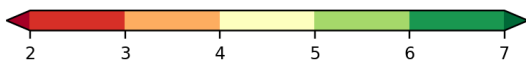
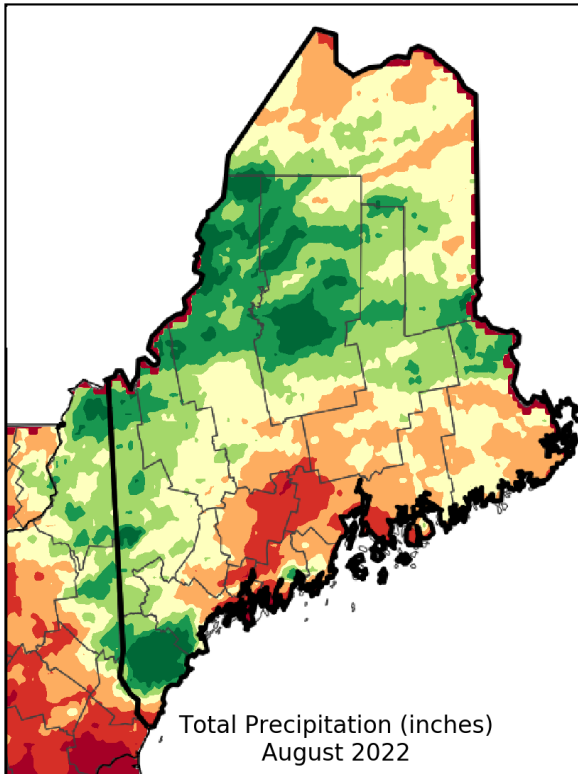


Figure 1: Monthly Precipitation Totals for August 2022

Figure 2: Monthly Precipitation Departures from Normal for August

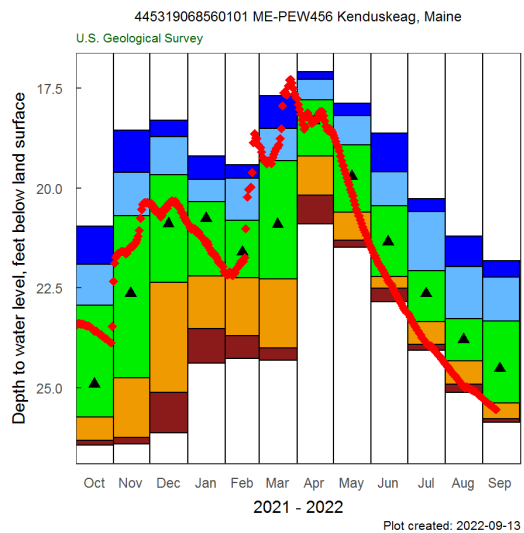
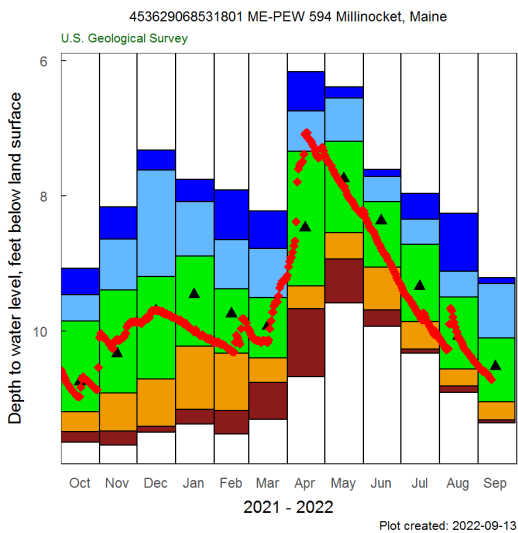
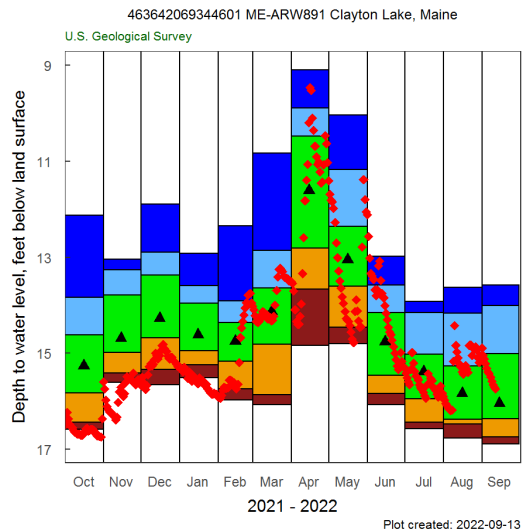
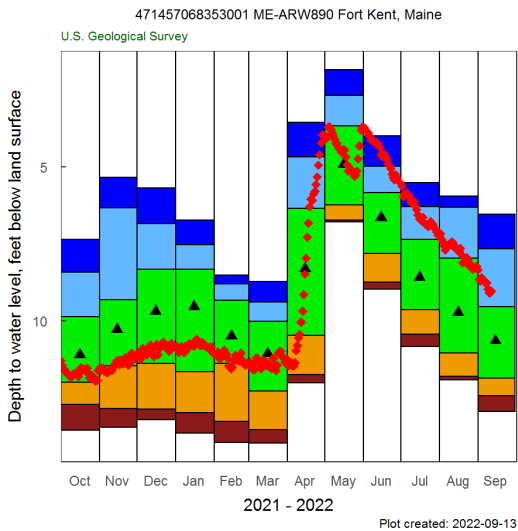
Source: [Northeast Regional Climate Center](https://www.norc.clemson.edu/)

### August 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	105.97	73.8%	Normal	171	38
St. John River at Ninemile Bridge	2260.16	175.82%	Above Normal	1341	71
Allagash River near Allagash	1354.23	119.85%	Above Normal	1478	92
St. John River at Fort Kent	2906.97	56.02%	Normal	5929	95
Fish River near Fort Kent	378.42	52.34%	Normal	873	92
Aroostook River near Masardis	580.61	93.22%	Normal	892	64
Aroostook River at Washburn	1023.97	95.86%	Normal	1654	91
St. Croix River at Vanceboro	348.15	45.14%	Much Below Normal	413	93
St. Croix River at Baring	635.58	40.13%	Low	1374	62
Grand Lake Stream at Grand Lake Stream	95.72	21.24%	Low	228.3	93
Narraguagus River at Cherryfield	68.95	49.18%	Normal	227	74
East Branch Penobscot River at Grindstone	1129.19	121.25%	Above Normal	837	119
Mattawamkeag near Mattawamkeag	1272.83	164.01%	Above Normal	1418	87
Piscataquis River near Dover-Foxcroft	88.11	49.51%	Normal	298	119
Sebec River at Sebec	164.51	60.16%	Below Normal	326	67
Piscataquis River at Medford	752.55	94.35%	Normal	1162	91
Penobscot River at West Enfield	7288.39	112.11%	Above Normal	6422	119

## August Groundwater Levels

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



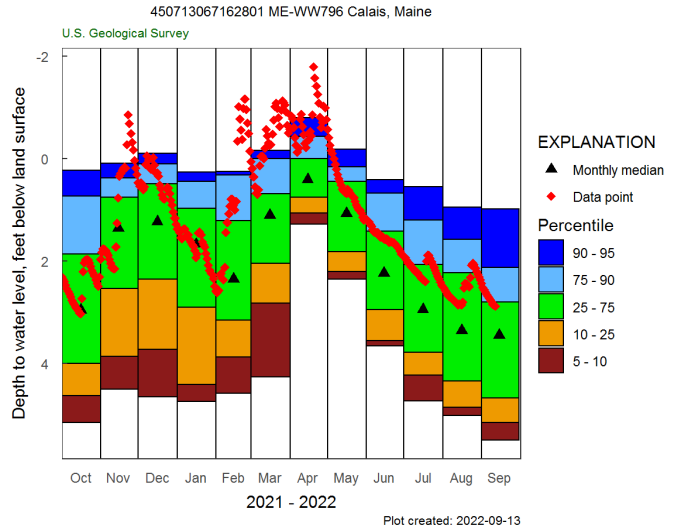
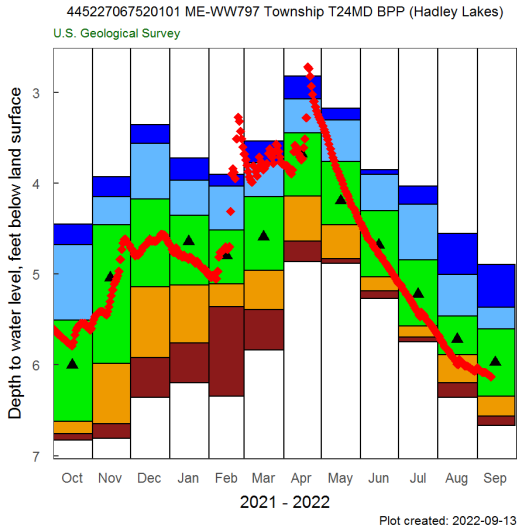


Figure 3-8: Groundwater Level Yearly Plots to Current  
Source: [United States Geological Survey](https://www.usgs.gov/)

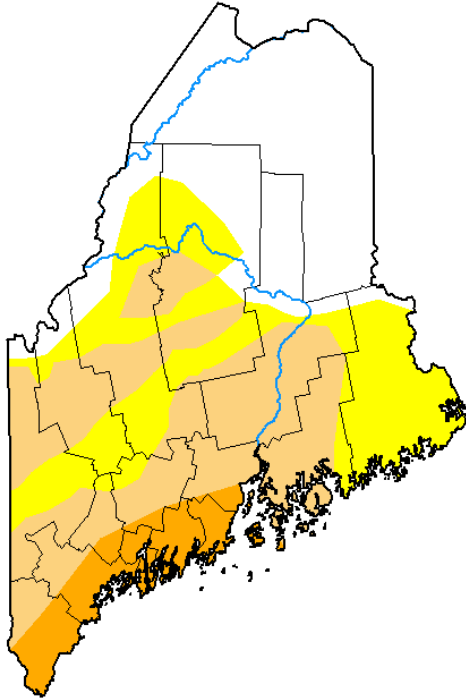
Flow or Water Level	Percentile Range	Explanation
Low	0 <sup>th</sup>	The monthly mean streamflow or median water level during this month is the lowest ever recorded during the period of record for this site.
Much below normal	0 <sup>th</sup> to 10 <sup>th</sup>	The monthly mean streamflow or median water 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  
August 2022  
WFO Caribou, ME**

Product	How Many Issued	Reason for Issuance
Flood Advisory	2	Convection
Flood Advisory	1	Excessive Rainfall

**Drought Conditions for August 2022**

**U.S. Drought Monitor  
Maine**



**August 2, 2022**

*(Released Thursday, Aug. 4, 2022)  
Valid 8 a.m. EDT*

*Drought Conditions (Percent Area)*

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
<b>Current</b>	34.22	65.78	39.85	8.14	0.00	0.00
<b>Last Week</b> <i>07-26-2022</i>	28.48	71.52	42.19	0.00	0.00	0.00
<b>3 Months Ago</b> <i>05-03-2022</i>	78.57	21.43	5.94	0.00	0.00	0.00
<b>Start of Calendar Year</b> <i>01-04-2022</i>	72.42	27.58	11.82	5.32	0.00	0.00
<b>Start of Water Year</b> <i>09-28-2021</i>	66.54	33.46	15.50	4.85	0.00	0.00
<b>One Year Ago</b> <i>08-03-2021</i>	32.12	67.88	47.03	9.15	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:

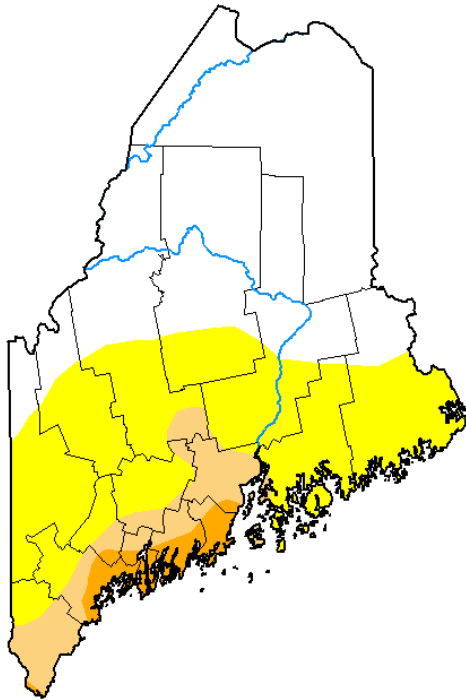
Curtis Riganti  
National Drought Mitigation Center



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

**U.S. Drought Monitor**  
**Maine**

**August 30, 2022**  
(Released Thursday, Sep. 1, 2022)  
Valid 8 a.m. EDT



Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
<b>Current</b>	51.35	48.65	11.70	3.38	0.00	0.00
<b>Last Week</b> 08-23-2022	51.35	48.65	20.92	8.15	0.00	0.00
<b>3 Months Ago</b> 05-31-2022	76.74	23.26	2.90	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> 08-31-2021	26.17	73.83	53.43	9.15	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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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
8/2/2022	34.22	65.78	39.85	8.14	0.00	0.00	114
8/30/2022	51.35	48.65	11.70	3.38	0.00	0.00	64
Change	17.13	-17.13	-28.15	-4.76	0.00	0.00	-50



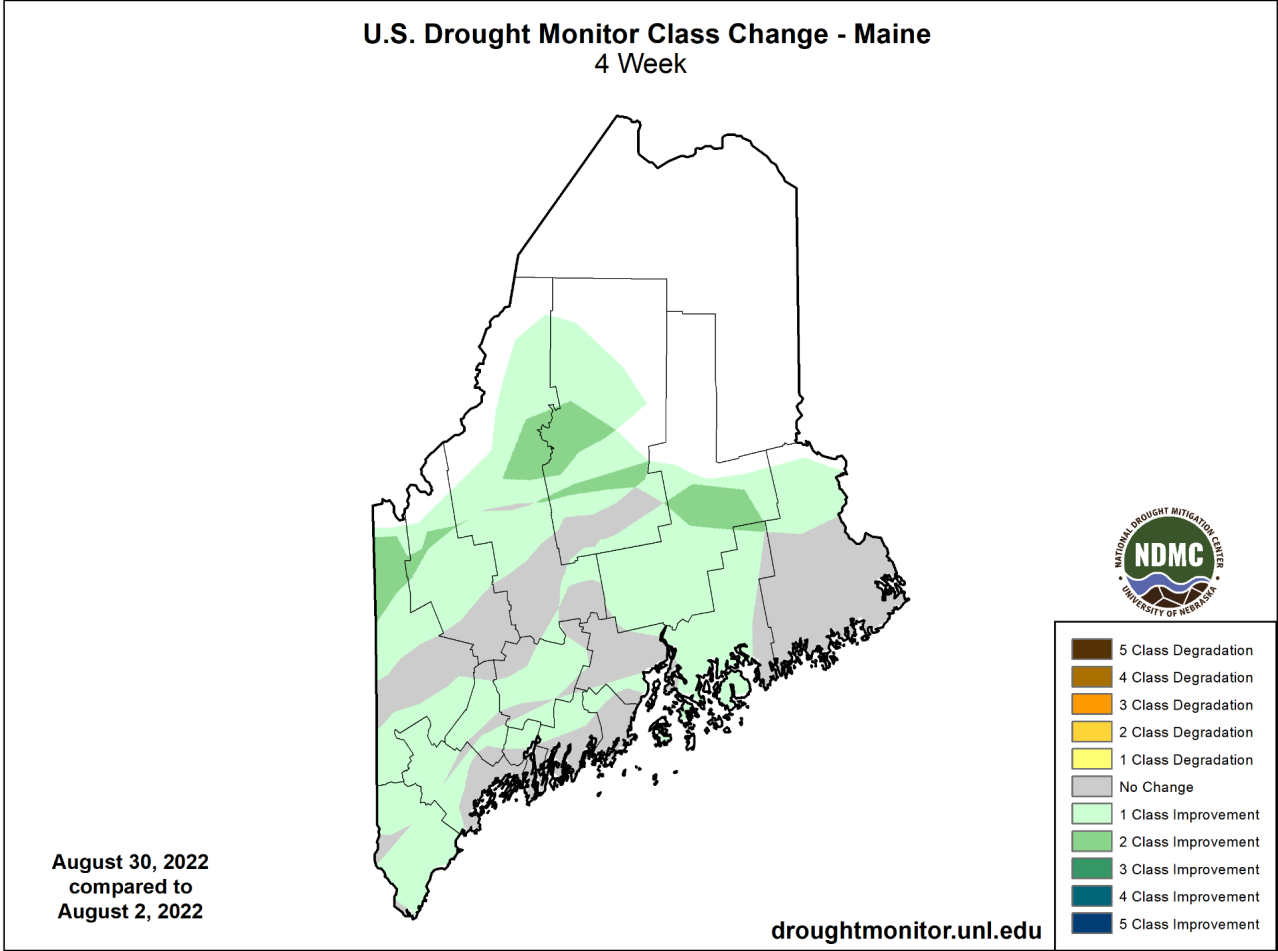


Figure 9-11: U.S. Drought Monitor Drought Classification & Statistics for August  
Source: [U.S. Drought Monitor](https://droughtmonitor.unl.edu)