

MONTHLY REPORT OF HYDROLOGIC CONDITIONS

WFO Caribou, Maine

REPORT FOR:
MONTH YEAR

June 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

July 16, 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.

June 2022

June finished a little cooler than average. Temperatures generally ranged from 0.5° to 1.5° below average across the region, which was in sharp contrast to the prior two June's which were amongst the warmest two June's on record for the region. Frequent cold frontal passages and upper level low pressure systems kept sunshine at a premium and temperatures reaching highs of 80+ across Northern locations such as Caribou until the 25th. Interestingly, the coldest day of the month was on the 19th when high temperatures across some locations remained below 50 degrees, as evident by a high of 49° at Caribou which was 47° cooler than the all-time record tying high of 96° on that date two years ago. Warmest high temperatures this month occurred on the 25th and 26th where most locations reached 80s to lower 90s as evident by highs of 90° and 92°, respectively, at Bangor.

<i>Town/City</i>	<i>Avg Monthly Temperature (°F)</i>	<i>Normal Monthly Temperature (°F)</i>	<i>Departure from Normal (°F)</i>
Frenchville	59.2	60.8	-1.6
Fort Kent	57.9	59.1	-1.2
Caribou	59.9	61.4	-1.5
Houlton	60.0	60.2	-0.2
Millinocket	61.7	62.6	-0.9
Greenville	60.2	60.7	-0.5
Bangor	62.7	63.6	-0.9
Robbinston	60.5	60.4	+0.1

The North Atlantic Oscillation (NAO) monthly mean was -0.12 standard deviation with the Pacific North American Pattern (PNA) monthly mean around -0.31 standard deviation. This within a La Nina

regime resulted in rainfall varying widely to the degree of less than 50% of average over some Downeast locations up to the Greater Bangor area. Then rainfall was locally upwards of +130% of average over extreme Northern Maine. At Bangor, the 1.49 inch total for the month was the 6th driest on record with the driest June at Bangor 0.87 inches set in 1930 (meteorological records at Bangor began in 1925). Wettest days, mainly across the North, occurred on the 5-6th, 9-10th and 18-20th. Total evaporation, measured at NWS Caribou, from the 4th onward for the month was 3.55 inches, which was a decent representation of the North. Across the Downeast coast and Greater Bangor area into the Moosehead Region with more sunshine there was greater evaporation that took place. Overall, rainfall-evaporation surpluses existed in the North while southern areas experienced deficits which is part of the changes in drought conditions noted below.

Streamflows for the month averaged above normal for the St. John River Basin given the above normal precipitation in the basin. As you head south into the Aroostook Basin the streamflows were running at normal levels. This is a significant change compared to the June's of 2020 and 2021 where these basins were running at historically low levels. The Mattawamkeag River was normal this June which is also a huge improvement from June 2020 and 2021. Streamflows averaged below normal across the southern Penobscot, much of the Piscataquis and all of the Narraguagus River.

Groundwater wells for the month averaged above to well above normal for the North Woods and Aroostook county. Groundwaters were at normal for portions of the Downeast and Below Normal in the 10th-25th percentile across the Greater Bangor area to the Moosehead Region. Overall this is a large improvement compared to the last 2 years but this has become drier since last month.

In regards to Drought monitoring, we saw worsening of the drought conditions across southern zones. In the Downeast areas & Bangor Area we went from Abnormally Dry (D0) to Moderate Drought (D1). By the end of the month the D1 covered much of southern Penobscot and more than half of Hancock county. There was some D1 that was added across Southern Piscataquis as conditions became very dry by the end of the 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	4.86	4.23	+0.63				
Fort Kent	4.60	4.42	+0.18	0.0	0.0	0	0
Caribou	4.65	3.89	+0.76	0.0	0.0	0	0
Houlton	3.17	4.04	-0.87				
*Millinocket	2.10	4.20	-2.10	0.0			0
Bangor	1.49	3.87	-2.38	0.0	0.0	0	0
Robbinston	3.69	4.10	-0.41	0.0	0.0	0	0

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

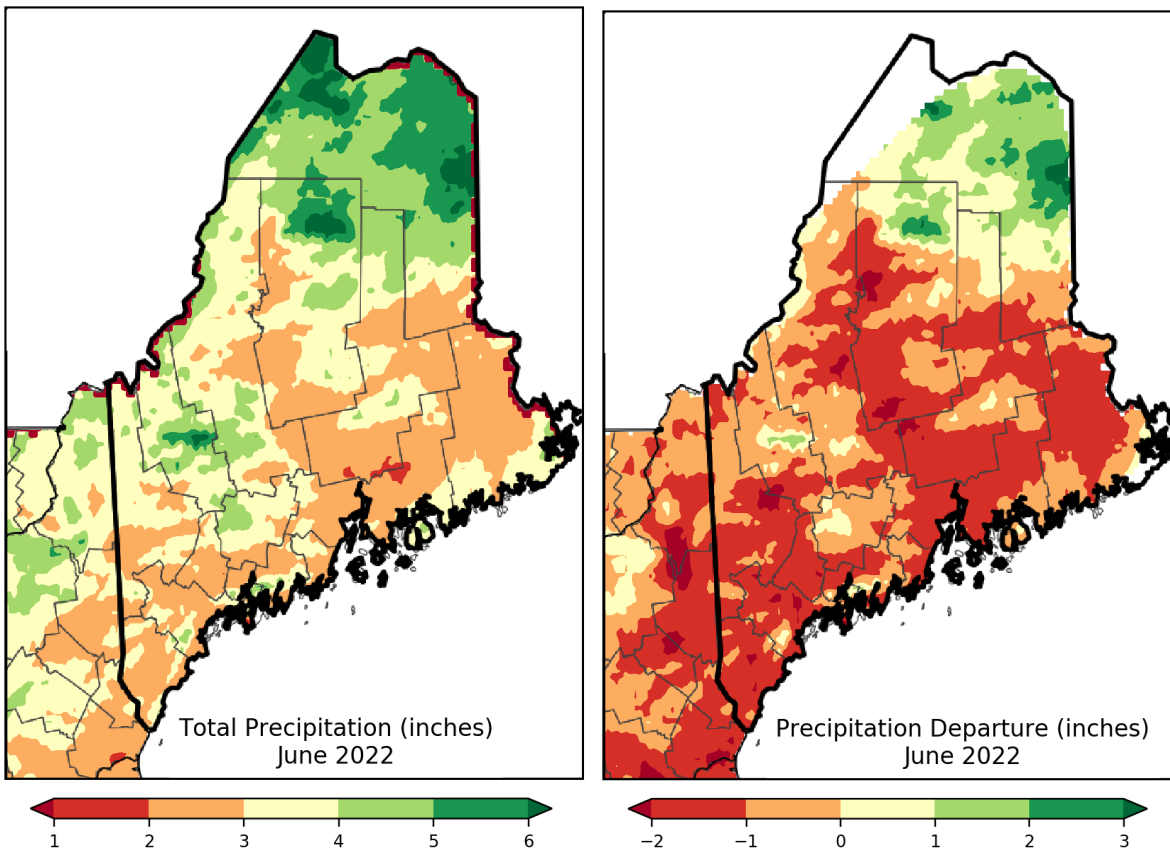


Figure 1: Monthly Precipitation Totals for June 2022

Figure 2: Monthly Precipitation Departures from Normal for June

Source: [Northeast Regional Climate Center](#)

June 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	1270 - 2770	3250	2.70	Above Normal	1341	71
St. John River at Fort Kent	7590 - 12200	15400	2.90	Above Normal	5929	95
Aroostook River at Washburn	1370 - 3060	2860	1.93	Normal	1654	91
Narraguagus River at Cherryfield	206 - 490	173	0.85	Below Normal	227	74
E Br Penobscot River at Grindstone	1280 - 2780	1540	2.05	Normal	837	119
Mattawamkeag near Mattawamkeag	1070 - 2500	1110	0.87	Normal	1418	87
Piscataquis River near Dover-Foxcroft	233 - 635	164	0.61	Below Normal	298	119



Surface Water Conditions
June 2022

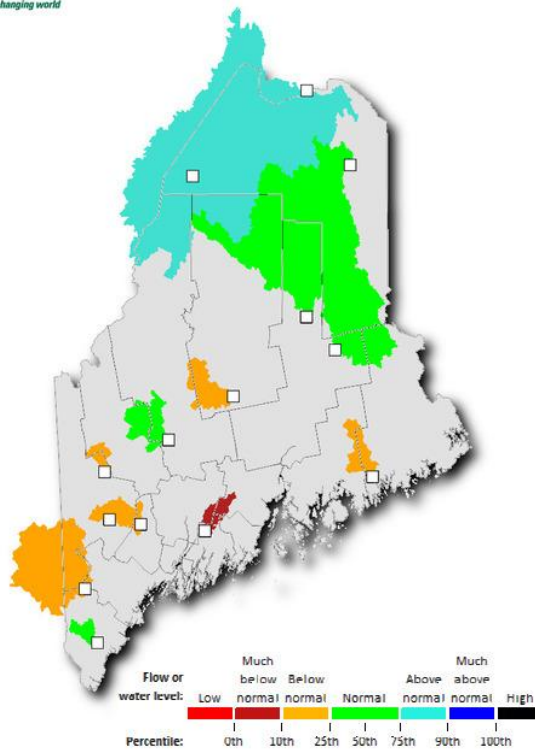


Figure 3: Surface Water Conditions for June 2022
Source: [USGS Monthly Report](#)

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
Hadley Lakes	5.03 - 4.31	4.79	0.11	Normal	36
Kenduskeag	22.20 - 20.50	22.34	1.04	Below Normal	44
Calais	2.30 - 0.88	1.56	-0.19	Normal	22
Millinocket	9.08 - 8.02	8.79	0.32	Normal	28
Clayton Lake	15.40 - 14.10	14.09	-0.51	Above Normal	43
Fort Kent	7.81 - 5.83	4.58	-2.07	Much Above Normal	44



Groundwater Conditions
June 2022

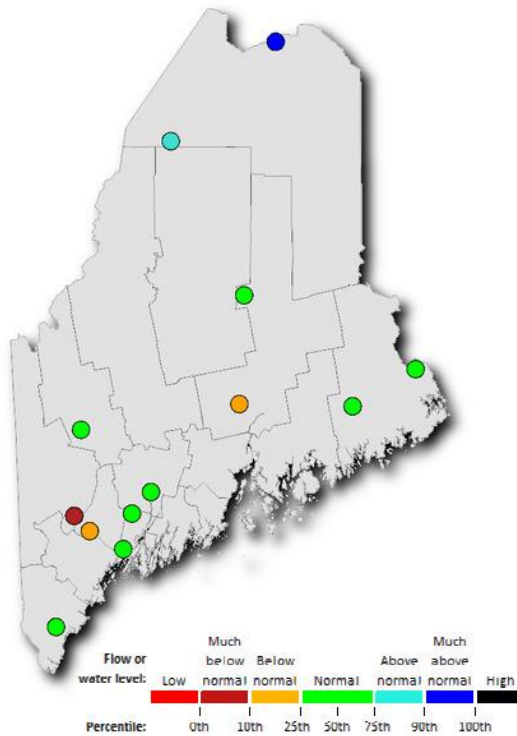


Figure 4: Ground Water Conditions for June 2022
Source: [USGS Monthly Report](#)

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.

**Non-Routine Hydrologic Products
June 2022
WFO Caribou, ME**

WMO Identifier	Office ID	Issued Date & Time	Expire/Canceled Date & Time	Brief Description
PWMFLSCAR	FA.Y 019	6/4/22 1:31PM	6/4/22 4:37PM	T-Storm Heavy Rain in Northern Somerset County
PWMFLSCAR	FA.Y 020	6/4/22 2:28PM	6/4/22 3:50PM	T-Storm Heavy Rain in Aroostook County
PWMFLSCAR	FA.Y 021	6/4/22 3:10PM	6/4/22 4:28PM	T-Storm Heavy Rain in Aroostook County
PWMFLSCAR	FA.Y 022	6/4/22 3:36PM	6/4/22 5:16PM	T-Storm Heavy Rain in Piscataquis County
PWMFLSCAR	FA.Y 022	6/4/22 3:36PM	6/4/22 5:16PM	T-Storm Heavy Rain in Piscataquis County
PWMFLSCAR	FA.Y 023	6/4/22 6:32PM	6/4/22 8:30PM	T-Storm Heavy Rain in Aroostook County
PWMFLSCAR	FA.Y 024	6/4/22 6:38PM	6/4/22 8:40PM	T-Storm Heavy Rain in Aroostook County
PWMFLSCAR	FA.Y 025	6/13/22 6:21AM	6/13/22 7:45AM	Heavy Rain in Washington County
PWMFLSCAR	FA.Y 026	6/13/22 3:41PM	6/13/22 6:45PM	T-Storm Heavy Rain in Aroostook County
PWMFLSCAR	FA.Y 027	6/17/22 3:22PM	6/17/22 5:43PM	T-Storm Heavy Rain in Aroostook County
PWMFLSCAR	FA.Y 028	6/17/22 4:21PM	6/17/22 5:11PM	T-Storm Heavy Rain in Aroostook County
PWMFLSCAR	FA.Y 029	6/17/22 5:07PM	6/17/22 6:15PM	T-Storm Heavy Rain in Aroostook County

WMO Identifier	Office ID	Issued Date & Time	Expire/Canceled Date & Time	Brief Description
PWMFLSCAR	FA.Y 030	6/17/22 7:33PM	6/17/22 9:46PM	T-Storm Heavy Rain in Aroostook County
PWMFLSCAR	FA.Y 031	6/18/22 1:25PM	6/18/22 4:25PM	Heavy Rain in Aroostook County
PWMFLSCAR	FA.Y 032	6/19/22 7:13PM	6/20/22 1:04AM	Heavy Rain in Aroostook County
PWMFLSCAR	FA.Y 033	6/27/22 12:17PM	6/27/22 2:48PM	Heavy Rain in Aroostook County

Drought Conditions for June 2022

U.S. Drought Monitor Maine

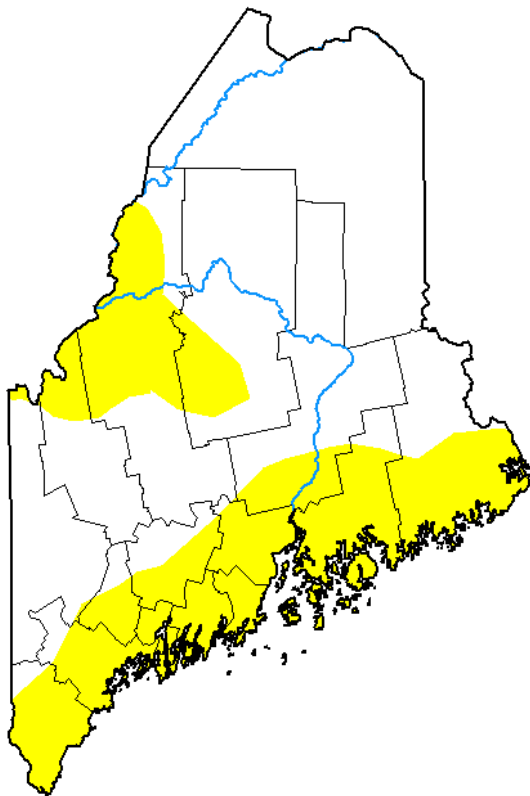
June 7, 2022

(Released Thursday, Jun. 9, 2022)

Valid 8 a.m. EDT

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	65.16	34.84	0.00	0.00	0.00	0.00
Last Week 05-31-2022	76.74	23.26	2.90	0.00	0.00	0.00
3 Months Ago 03-08-2022	60.22	39.78	11.82	5.32	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 06-08-2021	34.65	65.35	26.89	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>

Author:

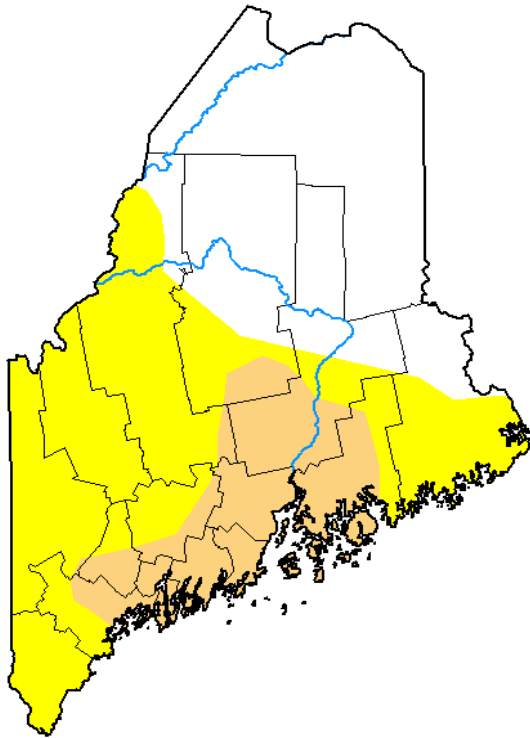
Brad Pugh
CPC/NOAA



droughtmonitor.unl.edu

U.S. Drought Monitor
Maine

June 28, 2022
(Released Thursday, Jun. 30, 2022)
Valid 8 a.m. EDT



Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	40.34	59.66	17.77	0.00	0.00	0.00
Last Week 06-21-2022	65.29	34.71	2.16	0.00	0.00	0.00
3 Months Ago 03-29-2022	69.40	30.60	7.46	4.22	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 06-29-2021	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:

Curtis Riganti
National Drought Mitigation Center



droughtmonitor.unl.edu

Drought Classification (Cumulative Percent Area %)

Week	None	D0-D4	D1-D4	D2-D4	D3-D4	D4	DSCI
6/7/2022	65.16	34.84	0.00	0.00	0.00	0.00	35
6/28/2022	40.34	59.66	17.77	0.00	0.00	0.00	77
Change	-24.82	24.82	17.77	0.00	0.00	0.00	42

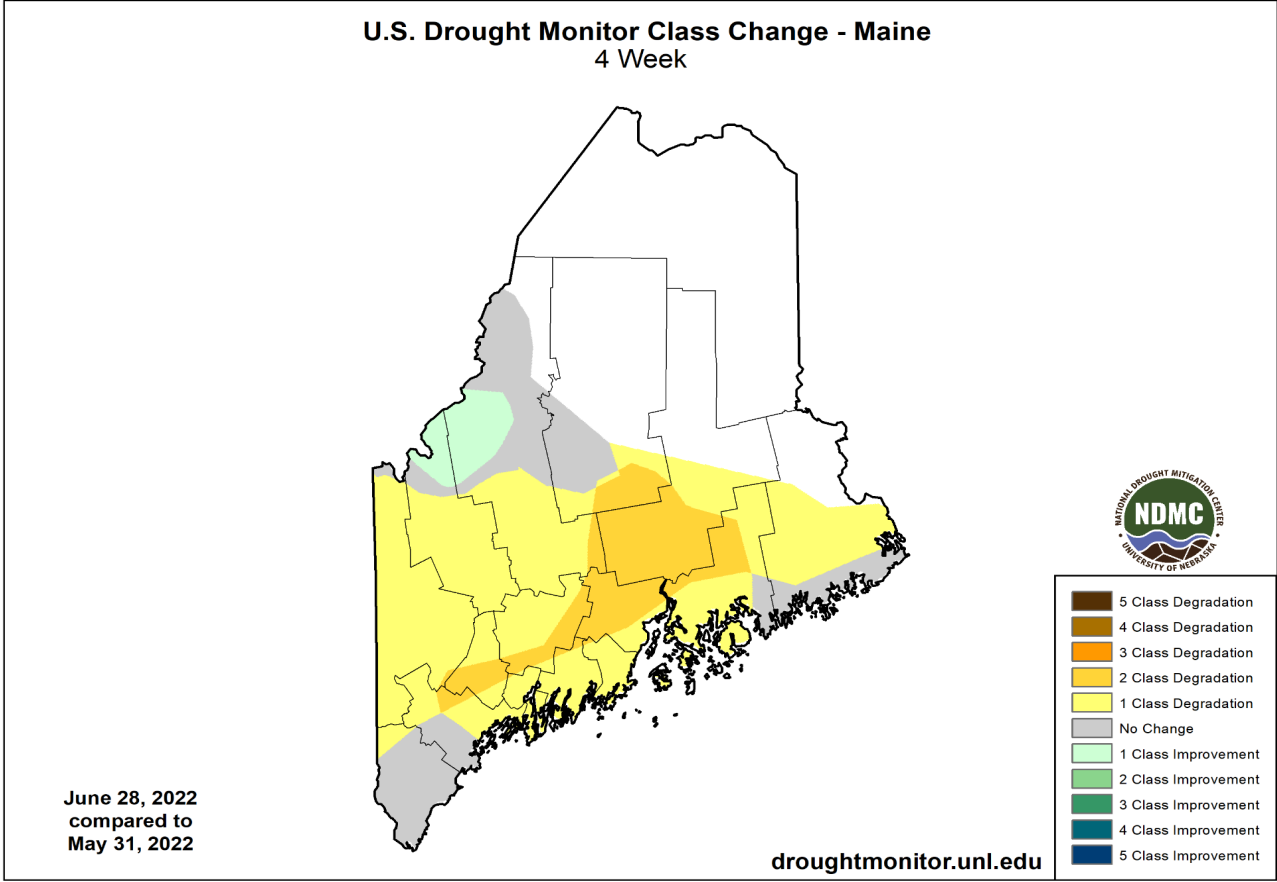


Figure 5-7: U.S. Drought Monitor Drought Classification & Statistics for June
Source: [U.S. Drought Monitor](https://droughtmonitor.unl.edu)