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 **December** YEAR **2018**
TO: Hydrologic Information Center, W/OS31 NOAA's National Weather Service 1325 East West Highway Silver Spring, MD 20910-3283		SIGNATURE **Joseph Hewitt, HPM** DATE **February 4th, 2019**

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.

December 2018

Minor flooding occurred during the month of December with the majority of this flooding being culverts filling up and clogged storm drains. This resulted in some roads being closed due to high water. A storm system on the 21st and 22nd brought heavy rainfall and mild temperatures to the HSA resulting in rapid snowmelt and runoff leading significant rises on rivers and streams, thus leading to minor flooding. The heavy rainfall and mild temperatures allowed ice on the rivers and streams to break up and move, and then jam back up as colder temperatures moved back into the region. Ice jams set up on the Aroostook River in Washburn and near the Caribou-Fort Fairfield town line. Ice jams also set up on the St. John River near the towns of Fort Kent, Frenchville and the Madawaska-Grand Isle area. No flooding was reported with these ice jams. Ice thicknesses were estimated to be 6 to possibly 12 inches thick in spots. The ice on the Penobscot and Piscataquis Rivers flushed out with the warmer temperatures, but frazil ice started reforming on these rivers toward the end of the month with colder temperatures.

Temperatures for the month of December averaged 2 to 3 degree below normal despite the major warmup on the 21st and 22nd. This was due to the first 2 weeks of December being very cold with departures of 6 to 9 degrees below the 30 year average (1981-2010). The event on the 21ST and 22nd brought near record high temperatures to much of the HSA with Caribou recording 50 degrees on the 22nd.

In regards to precipitation, amounts ranged from 4.23 inches at Bangor, to 3.77 inches in Caribou and 2.48 inches in both Houlton and Frenchville. Precipitation overall was above normal for Bangor and Caribou while areas such as the Houlton-Millinocket areas came in with below normal precipitation as did Frenchville. The heaviest precipitation came in the form of rainfall during the event on the 21ST and 22nd with rainfall amounts of 1.5 to 3 inches with some areas across Hancock and Washington Counties coming in with rainfall amounts over 3 inches.

As far as snowfall goes, snowfall was below normal across the HSA for the month of December. Caribou recorded 19.0 inches of snow for December, which was 3.9 inches below normal. Bangor recorded 10.0 inches of snow for the month, which was 4.4 inches below normal. There was only one significant snowfall event and that came on the 17th with amounts of 4 to 8 inches with some reports of up to 12 inches across Central Penobscot County and Northern Washington County.

Streamflows across much of the HSA near to slightly above normal for December.

Groundwater conditions also were near to slightly above normal levels. The exception to this was across the interior Downeast, as a few sites such as the Acadia region recorded High levels.

In regards to Drought monitoring, conditions remained the same for the month of December with Abnormally Dry conditions holding across the far northern and northwest sections of the HSA.

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	2.48	2.594	-0.06	NA	NA	NA	NA
Caribou	3.77	3.27	+0.50	19.0	22.9	-3.9	21
Houlton	2.48	3.29	-0.81	NA	NA	NA	NA
*Millinocket	3.21	3.53	-0.32	NA	NA	NA	NA
Bangor	4,23	3.48	+0.75	10.0	14.4	-4.4	7

*Millinocket snowfall measured at wastewater treatment plant, not the ASOS site. Data was not available at this time.

Stream Flows 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	68
St. John River at Fort Kent	NA	NA	NA	NA	5929	92
Aroostook River at Washburn	NA	NA	NA	NA	1654	88
Narraguagus River at Cherryfield	NA	NA	NA	NA	227	70
E Br Penobscot River at Grindstone	NA	NA	NA	NA	837	116
Mattawamkeag nr Mattawamkeag	NA	NA	NA	NA	1418	84
Piscataquis River nr Dover-Foxcroft	NA	NA	NA	NA	298	116

Groundwater Levels(November Levels)

Station	Normal Range (ft)	Mean Water Level Below Land-sfc Datum (ft)	Departure from Month-end Median (ft)	Percentile Class	Years of Record
McFarland Hill	10.50 – 0.56	-1.02	-4.33	High	15
Crooked Road	5.67 – 4.91	4.17	-0.80	High	15
Hadley Lakes	6.00 – 4.53	4.27	-1.04	Above Normal	33
Kenduskeag	25.80 – 21.30	20.04	-3.37	Above Normal	41
Calais	1.78 – 0.62	0.10	-0.98	High	19
Millinocket	10.80 – 9.32	10.79	0.48	Normal	24
Clayton Lake	15.00 – 13.90	13.62	-0.99	Above Normal	40
Fort Kent	11.60 – 9.50	10.37	-0.04	Normal	40

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
October 2018
WFO Caribou, ME

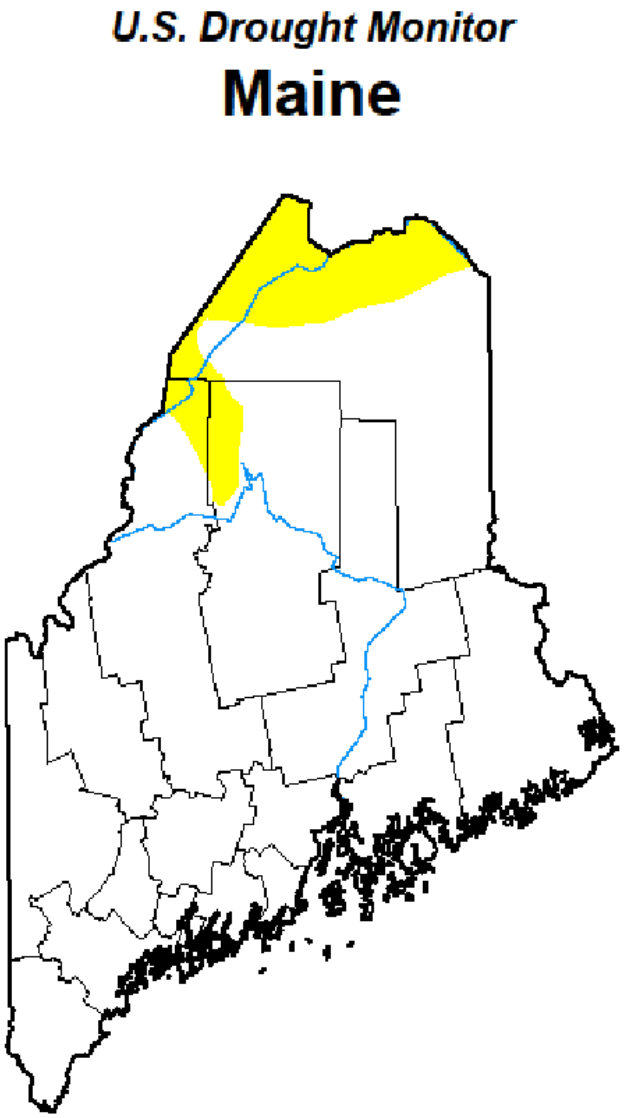
PIL	TIME (UTC)	Date	Description
PWMFLWCAR	2252	12/22/2018	Flood Warning for Pleasant River in Piscataquis County
PWMFLSCAR	2011	12/23/2018	Flood Advisory for Ice Jam on Aroostook River near Washburn
PWMFLSCAR	1218	12/24/2018	Extension of Flood Advisory for Aroostook River near Washburn
PWMFLSCAR	1441	12/25/2018	Continuation of Flood Advisory for Aroostook River near Washburn
PWMFLSCAR	1545	12/26/2018	Extension of Flood Advisory for Aroostook River near Washburn
PWMFLSCAR	1455	12/27/2018	Extension of Flood Advisory for Aroostook River near Washburn
PWMFLSCAR	2239	12/28/2018	Flood Advisory for Aroostook River near Fort Fairfield-Caribou town line
PWMFLSCAR	1205	12/29/2018	Continuation of Flood Advisory for Aroostook River near Fort Fairfield-Caribou town line

Significant River Crests
October 2018

WFO Caribou, ME

Location	ID	Date	Time (UTC)	Crest Stage (ft)	Flood Stage (ft)

Drought Conditions



December 4, 2018

(Released Thursday, Dec. 6, 2018)

Valid 7 a.m. EST

Drought Conditions (Percent Ar

	None	D0-D4	D1-D4	D2-D4	D3-D4
Current	91.32	8.68	0.00	0.00	0.00
Last Week 11-27-2018	90.47	9.53	0.00	0.00	0.00
3 Months Ago 09-04-2018	46.45	53.55	9.75	1.88	0.00
Start of Calendar Year 01-02-2018	92.38	7.62	0.00	0.00	0.00
Start of Water Year 09-26-2018	41.90	58.10	4.89	0.00	0.00
One Year Ago 12-05-2017	92.38	7.62	0.00	0.00	0.00

Intensity:

D0 Abnormally Dry
D1 Moderate Drought
D2 Severe Drought
D3 Extreme Drou
D4 Exceptional D

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summ for forecast statements.

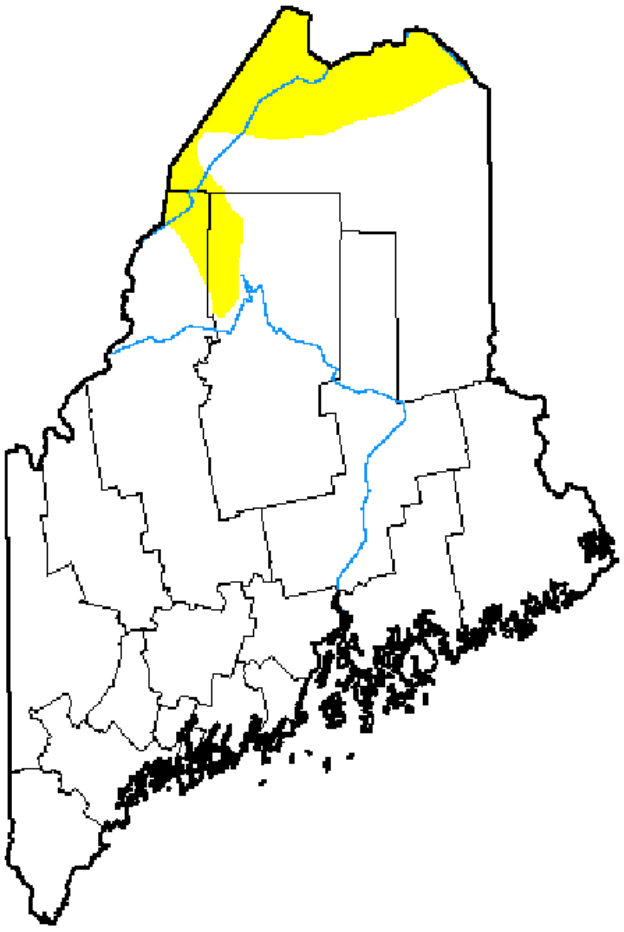
Author:

Deborah Bathke
National Drought Mitigation Center

http://droughtmonitor.unl.edu/

U.S. Drought Monitor

Maine



December 25, 2018

(Released Thursday, Dec. 27, 2018)

Valid 7 a.m. EST

Drought Conditions (Percent Ar

	None	D0-D4	D1-D4	D2-D4	D3-D4
Current	91.32	8.68	0.00	0.00	0.00
Last Week 12-18-2018	91.32	8.68	0.00	0.00	0.00
3 Months Ago 09-25-2018	41.90	58.10	4.89	0.00	0.00
Start of Calendar Year 01-02-2018	92.38	7.62	0.00	0.00	0.00
Start of Water Year 09-25-2018	41.90	58.10	4.89	0.00	0.00
One Year Ago 12-26-2017	92.38	7.62	0.00	0.00	0.00

Intensity:

- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drou
- D4 Exceptional D

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summ for forecast statements.

Author:
Richard Tinker
CPC/NOAA/NWS/NCEP

http://droughtmonitor.unl.edu/