

**State of Maine  
Drought Task Force  
Report on Current Hydrologic Conditions  
December 15, 2021**

*Though drought conditions have largely improved across the state during 2021, dry conditions persist in northwestern Maine as we enter winter. This report serves to inform Drought Task Force members of current drought conditions, reservoir levels, precipitation, and temperature forecasts for winter 2021-2022, and to provide monitoring resources to track relative snowpack, streamflow, and groundwater conditions in preparation for next year.*

**Overview:**

- According to the U.S. Drought Monitor: 15.76% of the state is Abnormally Dry (5 counties), 6.5% in Moderate Drought (5 counties), 5.32% in severe drought (3 counties).
- An estimated 4.4% of Maine’s population resides in abnormally dry or drought-stricken regions
- Water levels for some reservoirs in Androscoggin, Kennebec, and West Branch Penobscot Rivers are at below average conditions. No other impacts are reported.
- Seasonal temperature outlooks favor a warmer than normal winter.

**Winter Drought Monitoring Resources:**

In addition to the maps and plots presented in this report, the following resources are useful for monitoring snowpack, hydrologic, and temperature conditions and comparing these to normal values:

- Maine Cooperative Snow Survey: [https://www.maine.gov/dacf/mgs/hazards/snow\\_survey/](https://www.maine.gov/dacf/mgs/hazards/snow_survey/)
- [NOAA Interactive Snow Information: Monthly Normal Snow Depths](#)
- [NOAA Modeled 24 hour snowmelt](#)
- [NOAA Hourly Modeled Snowpack Density](#)
- U.S. Drought Monitor: [droughtmonitor.unl.edu/CurrentMap/StateDroughtMonitor.aspx?ME](https://droughtmonitor.unl.edu/CurrentMap/StateDroughtMonitor.aspx?ME)
- Northeast DEWS Dashboard: <https://nedews.nrc.cornell.edu/>

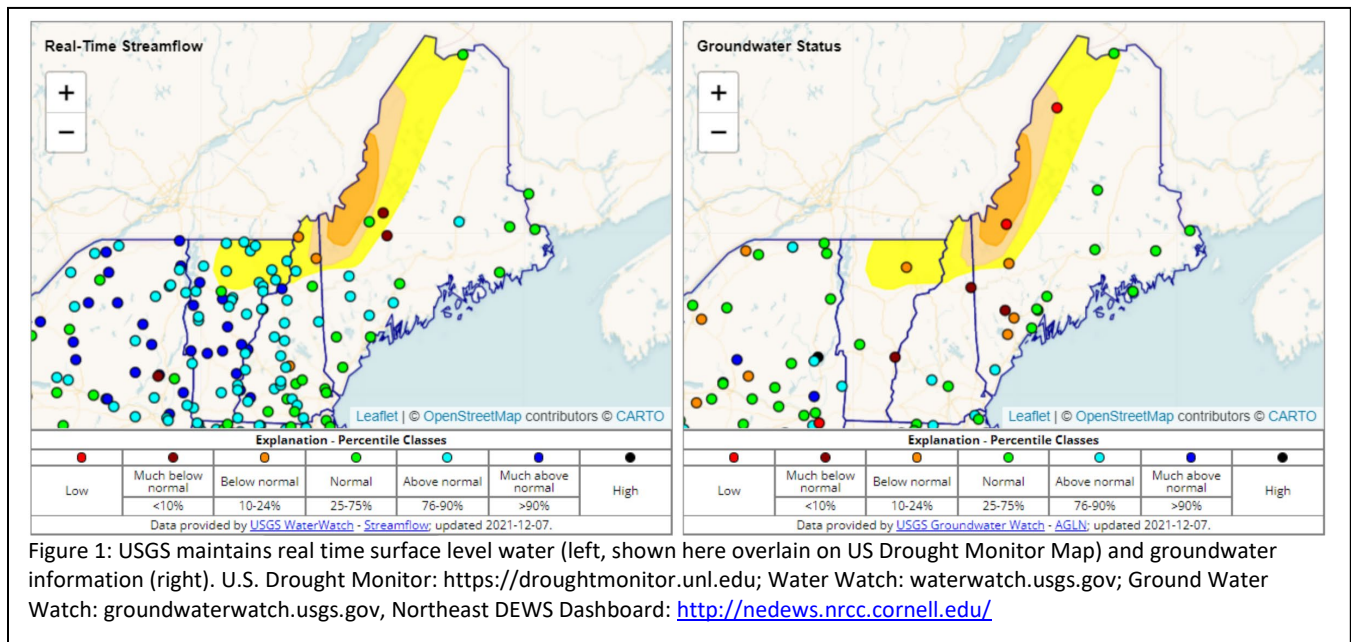


Figure 1: USGS maintains real time surface level water (left, shown here overlain on US Drought Monitor Map) and groundwater information (right). U.S. Drought Monitor: <https://droughtmonitor.unl.edu/>; Water Watch: [waterwatch.usgs.gov](https://waterwatch.usgs.gov/); Ground Water Watch: [groundwaterwatch.usgs.gov](https://groundwaterwatch.usgs.gov/), Northeast DEWS Dashboard: <http://nedews.nrc.cornell.edu/>

**Previous Drought Task Force reports are available here:**  
<https://www.maine.gov/mema/hazards/drought-task-force>.

This report summarizes information presented by Task Force members on current hydrologic and drought conditions as of this date. Task Force partners will report any drought-related impacts for which they are notified.

### **Current Hydrologic Conditions:**

#### ***Stream Flows***

Comparison of current values to historic values are not available for many stations in Maine due to ice cover on these rivers. This includes most stations from Millinocket to northern Maine. Stations in southern/coastal Maine, and inland regulated stations, are clear of ice and are mostly in the normal to above normal range. The exception are stations on the mainstem of the Kennebec River, which are Much Below Normal (<10%) overall. The headwaters of the Kennebec River fall within the boundaries of the area with lingering drought conditions.

#### ***Ground Water***

Groundwater conditions through southern and coastal Maine have remained in the normal range through the fall into the early winter. Stations in the western mountains, and along the western Maine/Canada border, have showed some recharge, but remain below normal. Without this recharge, they would have been at record lows for the months of November and December. The monitoring well in Eustis falls within the area of lingering drought identified above, and is significantly lower than historic levels for November and December. This based on a period of record that extends back to 1985.

### **Weather Outlook:**

The 2021 winter outlooks favor above normal temperatures and near normal precipitation for the State of Maine. This forecast is similar to the outlooks from last year, mostly due to the fact that this is the second winter in a row with moderate La Niña conditions, which forecasters continue to show lasting into spring 2022. A weak La Niña usually means it's a little snowier than normal; while a strong La Niña can mean it's less snowy than normal, especially in southern New England.

La Niña is the result of cooler than normal sea surface temperatures in the equatorial Tropical Pacific, which changes tropical rainfall patterns, and therefore changes the pattern of the jet streams across the Pacific and into North America. There are other smaller scale patterns like the Arctic Oscillation that can impact things like the increase or decrease of nor'easters, however those patterns are on shorter time scales and less predictable. With large-scale trends the [U.S. Seasonal Drought Outlook](#) depicts drought remaining but improving across the Mountain Region of Maine through this winter.

Station	2021 Precipitation (inches) ending Dec 10, 2021					
	Last 30 Days		Since Jan 1		Since Oct 1	
	Observed	Departure	Observed	Departure	Observed	Departure
Bangor Area	3.73	-0.1	38.8	-0.49	8.37	-1.35
Caribou Area	4.05	0.63	35.07	-3.26	6.54	-2.03
Houlton	3.34	-0.18	34.28	-2.83	5.78	-3.07
Millinocket Area	3.69	-0.32	35.96	-4.47	8.32	-1.61
Portland Area	4.19	-0.13	41.95	-3.19	11.42	0.4
Rangeley	2.45	-0.87	25.19	-15.03	5.2	-3.97

### Winter 2021: U.S. Precipitation Outlook

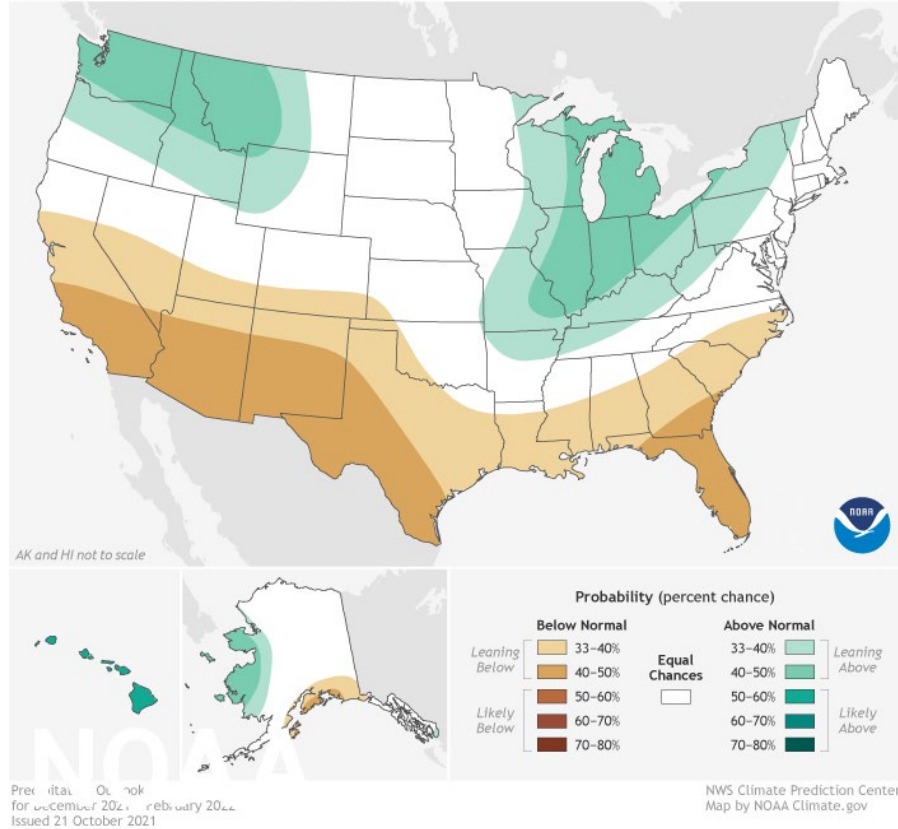


Figure 2: NOAA Precipitation outlook for winter 2021-2022.

### Winter 2021: U.S. Temperature Outlook

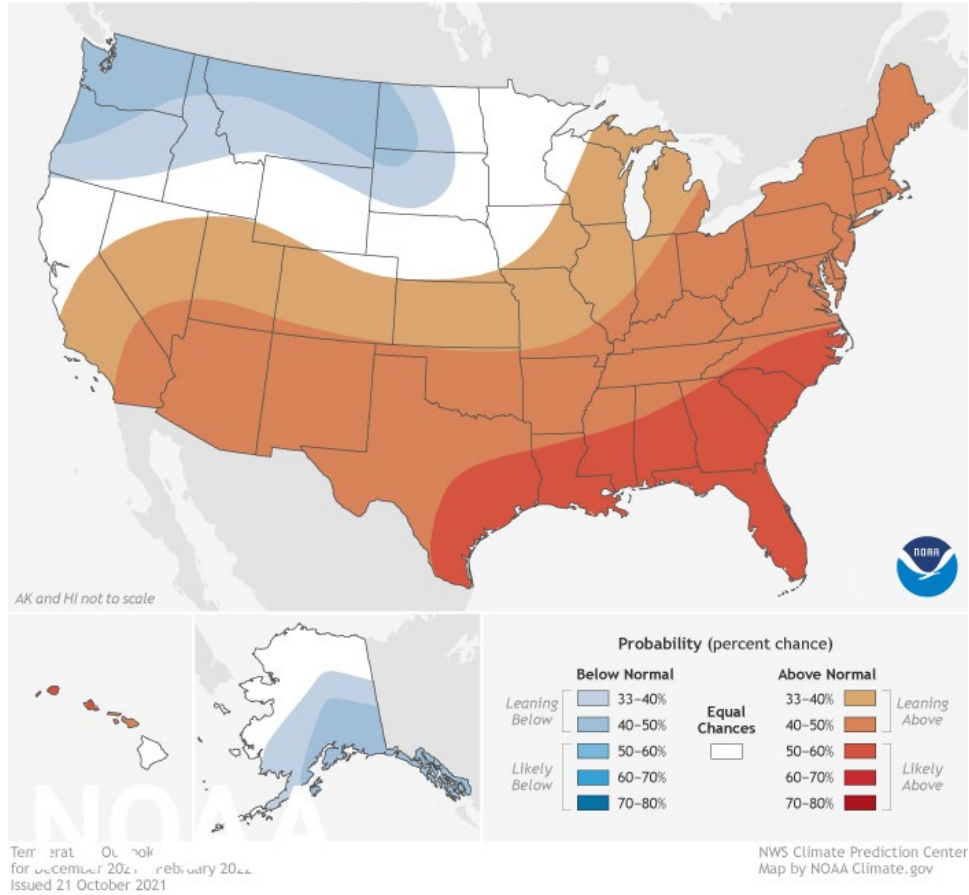


Figure 3: NOAA Temperature outlook for winter 2021-2022.

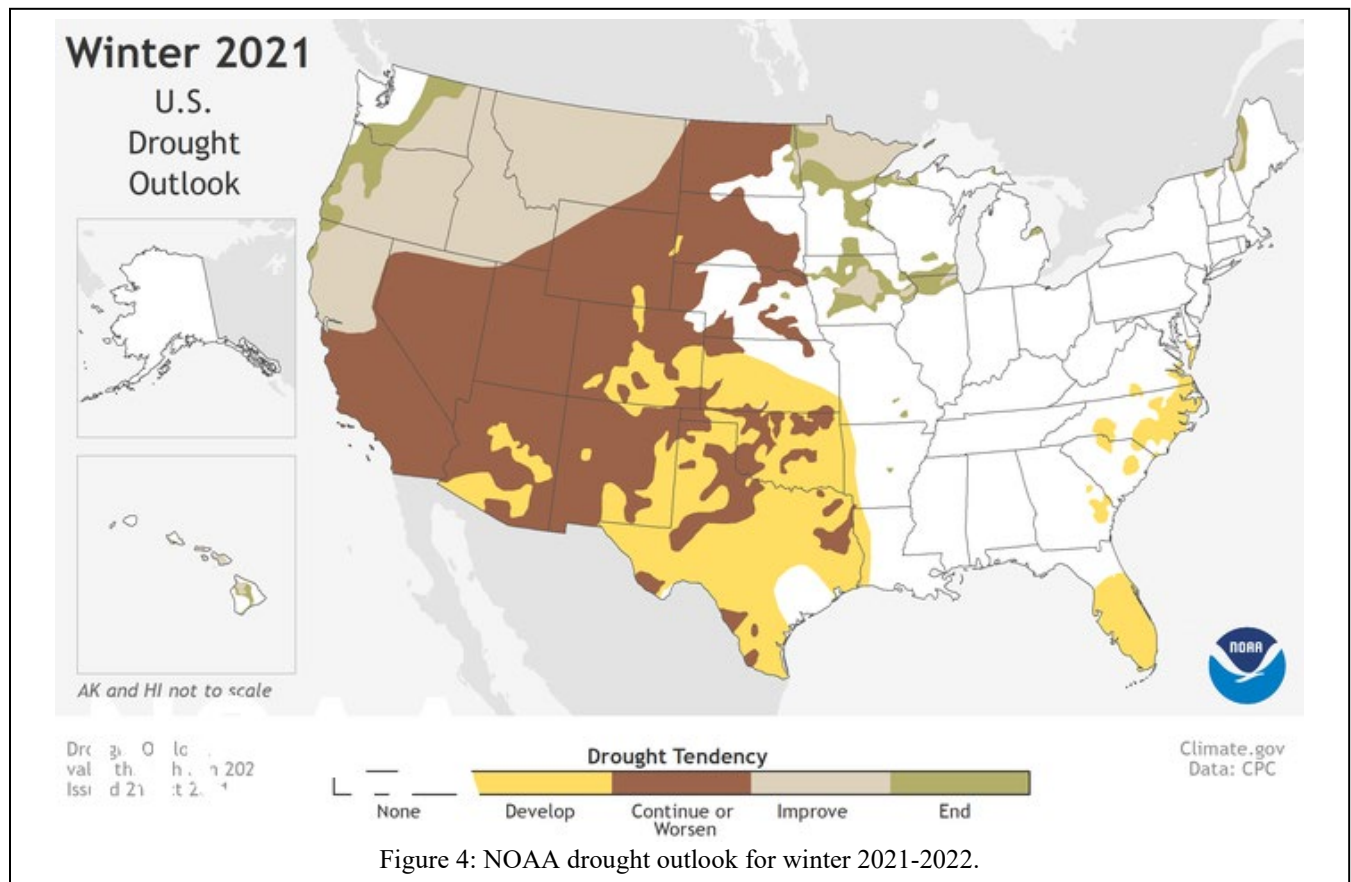


Figure 4: NOAA drought outlook for winter 2021-2022.

Month	Normal Snowfall 1991-2020 (inches)								
	Caribou	Bangor	Allagash	Dover-Foxcroft	Eastport	Portland	Farmington	Moosehead	Rangeley
July	0	0	0	0	0	0	0	0	0
August	0	0	0	0	0	0	0	0	0
September	0.1	0	0	0	0	0	0	0	0
October	1.7	0.6	2.1	0.5	0.1	0.2	0.3	1.2	2.3
November	10.4	4.3	8.5	3.9	1.6	2.3	4.9	6.5	8.8
December	25.2	14.7	24	15.1	14.3	14.6	20.8	22.6	28.7
January	25	18.6	19.1	18.1	15.3	18.6	20.7	20.2	24.3
February	25.3	17.5	21	19.8	13.7	16.6	22.9	21.6	25.7
March	21.4	15.2	17.5	15.1	12.7	13.6	18.8	18.4	24.4
April	8.3	3.7	7.1	4.7	4.1	2.8	5.3	7.5	8.6
May	0.8	0	0.4	0.1	0	0	0.2	0.3	0.5
June	0	0	0	0	0	0	0	0	0
Annual	118.2	74.6	99.7	77.3	61.8	68.7	93.9	98.3	123.3

## **Headwater Storage Levels**

Storage conditions in the major river basins as reported by the hydropower companies this week are as follows:

- **Presumpscot River** – The water level at Sebago Lake is currently 262.57 feet, a decrease of 2.5” over the last week. Flow from Sebago Lake is currently 833 cfs. Sappi continues to closely monitor conditions and make adjustments as necessary to manage water levels in Sebago Lake and downstream flows to the Presumpscot River.
- **Androscoggin River** – The Androscoggin River basin is 55.2% full which is 9.4% below the long term average and continues to have somewhat dry conditions. Rangeley Lake is down 1.85 feet, Mooselookmeguntic is down 5.37 feet, Richardson Lake is down 7.92 feet, Aziscohos is down 16.67 feet and Errol is down 1.75 feet. Discharge is stable in the upper and lower reaches of the river.
- **Kennebec River** – The Kennebec River basin is 59.0% full, 12.0% above the long term average for this time of the year and a full ten percent less than the last report. Storage remains low at Brassua, down a total of 17.04 feet, while remaining storage impoundments are low but stable with Moosehead Lake down 2.32 feet and Flagstaff Lake down 5.84 feet. River flows remain relatively stable, discharging 1,500 cfs at Solon, 2,040 cfs at Madison and 2,265 cfs at Weston.
- **Penobscot River** – Total storage in the west branch of the Penobscot River remains below the long-term average for this time of the year and natural inflows remain below average but are beginning to improve slightly. Storage conditions at Ripogenus remain well below the long-term average but are also beginning to show slight improvement as water stored there continues to feed the downstream North Twin development, where water levels remain stable. Water levels in the four small storage reservoirs has leveled off. All indications are that natural inflow is beginning to improve in the upper Penobscot River basin.
- **Union River** – Storage conditions continue to improve in the Union River basin (at Graham Lake, water elevation 102.6 feet) and currently measures 2.66 feet higher than the long term average for this time of the year as a result of changed operating conditions.
- **St. Croix River** –The water elevation at East Grand is 432.50 feet (65.19% full, compared to approximately 51-55% full for this time of the year) and is currently flowing at 131.2 cfs; West Grand is at water elevation 298.72 feet (63.48% full, compared to a long-term average of 53-55% full for this time of year) and is flowing 156.0 cfs. The water elevation at Grand Falls is 197.79 feet and is 89.2% full, while downstream flow is 2079 cfs. Water elevation in the Grand Falls Flowage is 140.54 feet, the flowage is 60.33% full. Minimum water levels were locked in on October 20.

The Department was advised last week that, due to drought conditions exacerbated by maintenance work on the dam embankment, the Brassua Lake storage reservoir at an elevation approximately seven feet below the long-term average water level for this time of the year, highlighting that drought conditions present across much of the state last spring and summer persist in some isolated areas.

## **Drought Impact Sectors**

There are currently no reported drought impacts other than reservoir conditions stated above.

## 2021 Agricultural Disaster Designation

The USDA Farm Service Agency has received a Secretarial Disaster Designation dated 8/13/2021 due to the drought situation. This designation opens up the Livestock Forage Disaster Program (LFP) and Emergency Assistance for Livestock, Honeybees, and Farm-Raised Fish Program (ELAP) for the designated counties of Oxford, Franklin, Somerset, and Piscataquis. Additionally, Aroostook, Penobscot, Androscoggin, Cumberland, York, Kennebec, and Waldo Counties are included under the disaster designation as “contiguous counties.” Secretarial Disaster Designations immediately trigger the availability of low-interest FSA Emergency (EM) loans to eligible producers in all primary and contiguous counties. Applications for an EM loan will be accepted for 8 months from the date of the disaster designation. In addition the Emergency Loan Program and Disaster Set-Aside Loan Program are now available for the designated counties as well as the contiguous counties. Refer to [www.farmers.gov/protection-recovery/drought](http://www.farmers.gov/protection-recovery/drought) for more information.

Governor Janet Mills is encouraging small businesses in several Maine counties to apply for [newly available Economic Injury Disaster Loans](#) (EIDL) through the U.S. Small Business Administration (SBA). Farm-related entities in Androscoggin, Aroostook, Franklin, Kennebec, Oxford, Penobscot, Piscataquis, Somerset and Waldo counties that have suffered financial losses as a result of the drought that began in Maine on June 22nd are eligible for low-interest loans from the SBA.

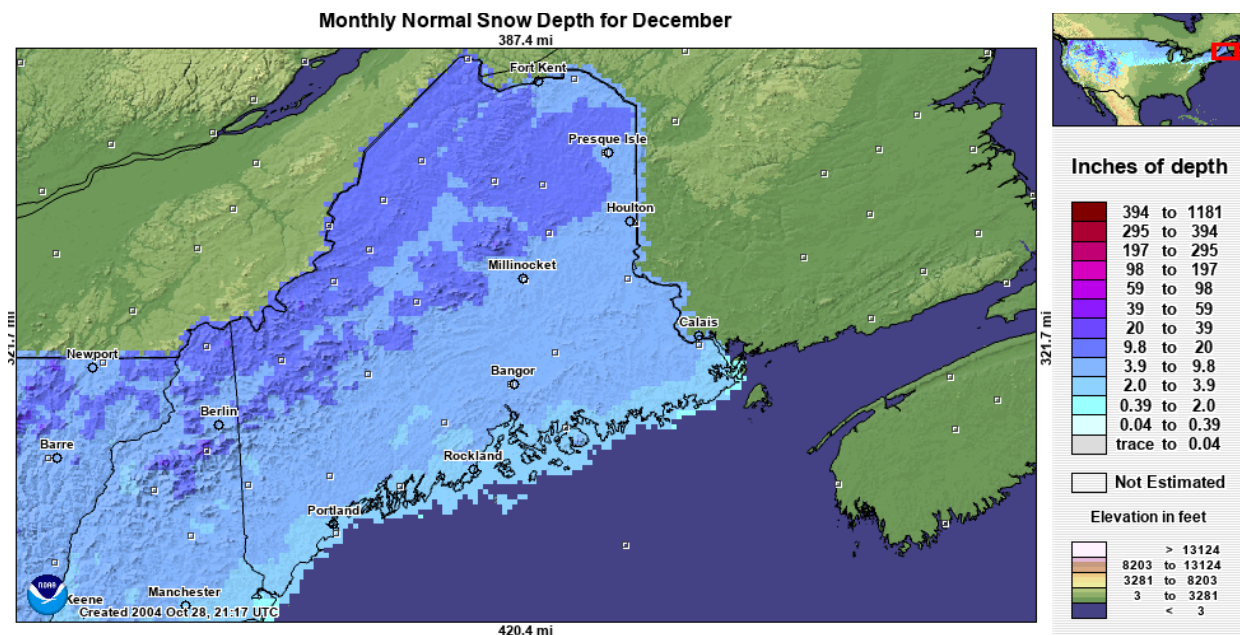
## About this Report

**Current information represents a “snapshot” of conditions throughout the state for the date of reporting.** This report provides information on the preliminary effects of the drought and more monitoring must be done to assess potential impacts if the situation worsens. These conditions will be monitored, and the Drought Task Force will monitor the situation until warning indicators subside.

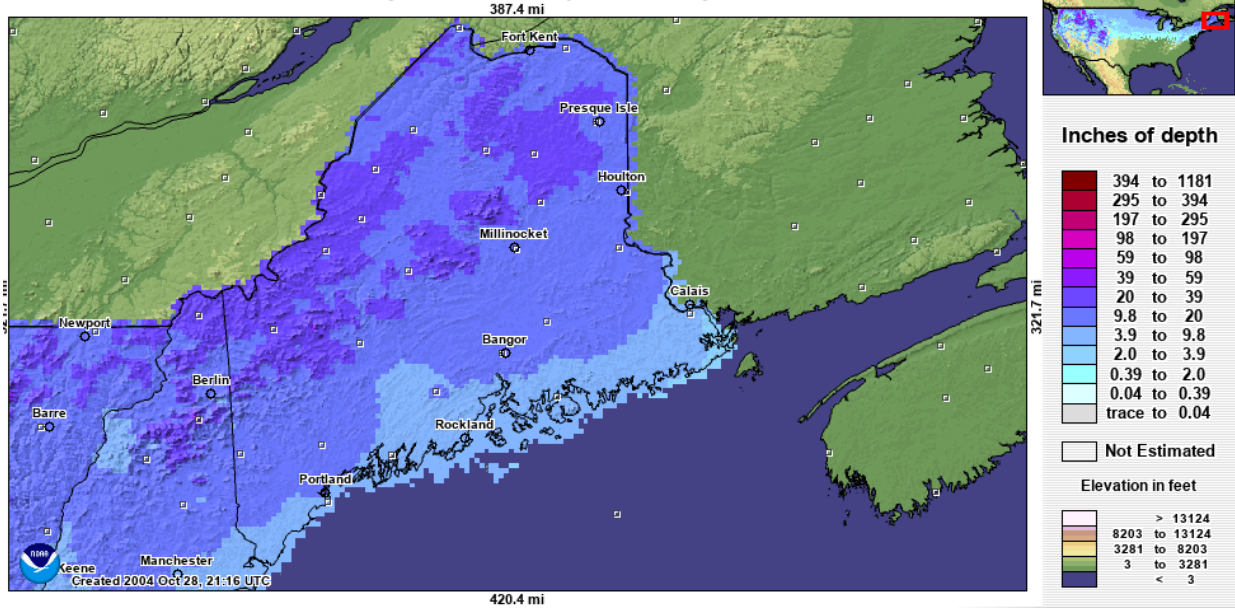
The Maine Drought Task Force is composed of representatives from major river basin management operations, utility operators as well as state agencies and federal agencies. The Task Force is convened when necessary based on drought threat, and members will stay in close communication until the dry conditions subside.

## Maine Winter Snow Depth Normals

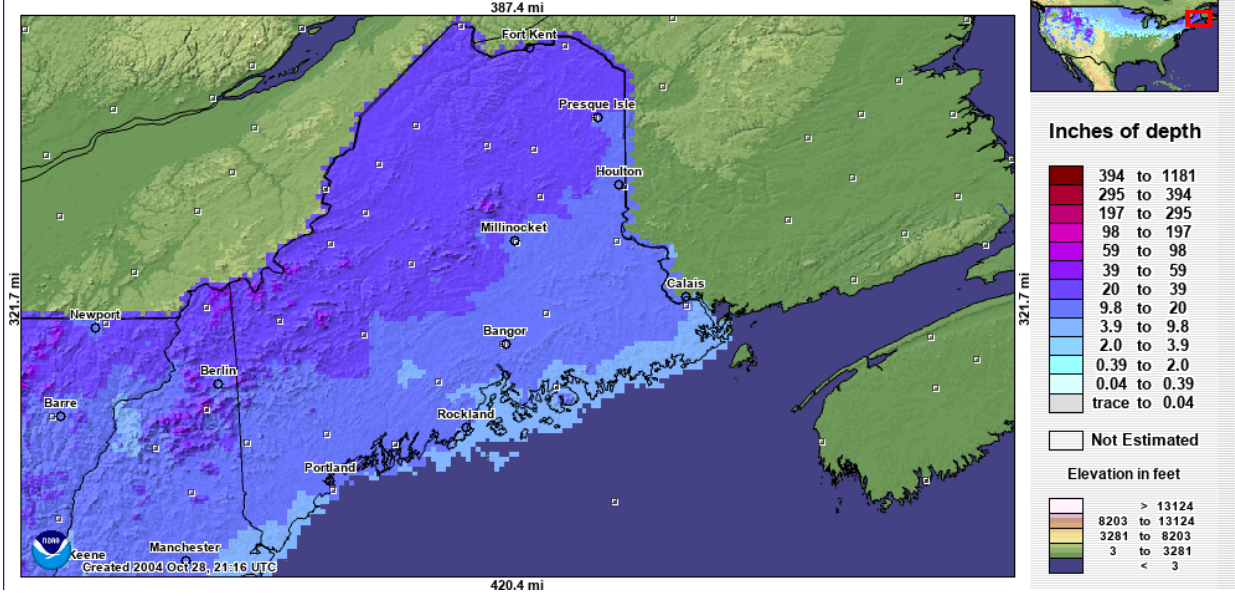
View monthly snow depth normal and other snow analyses [here](#). Maps represent average snow depths at different locations for the months of December to April.



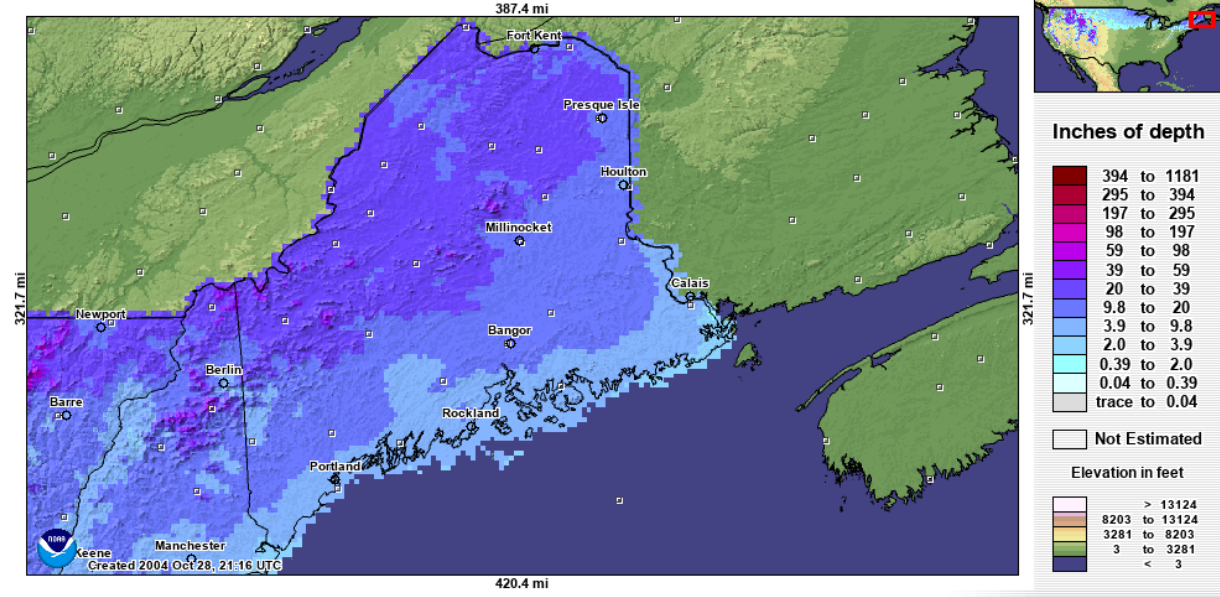
Monthly Normal Snow Depth for January



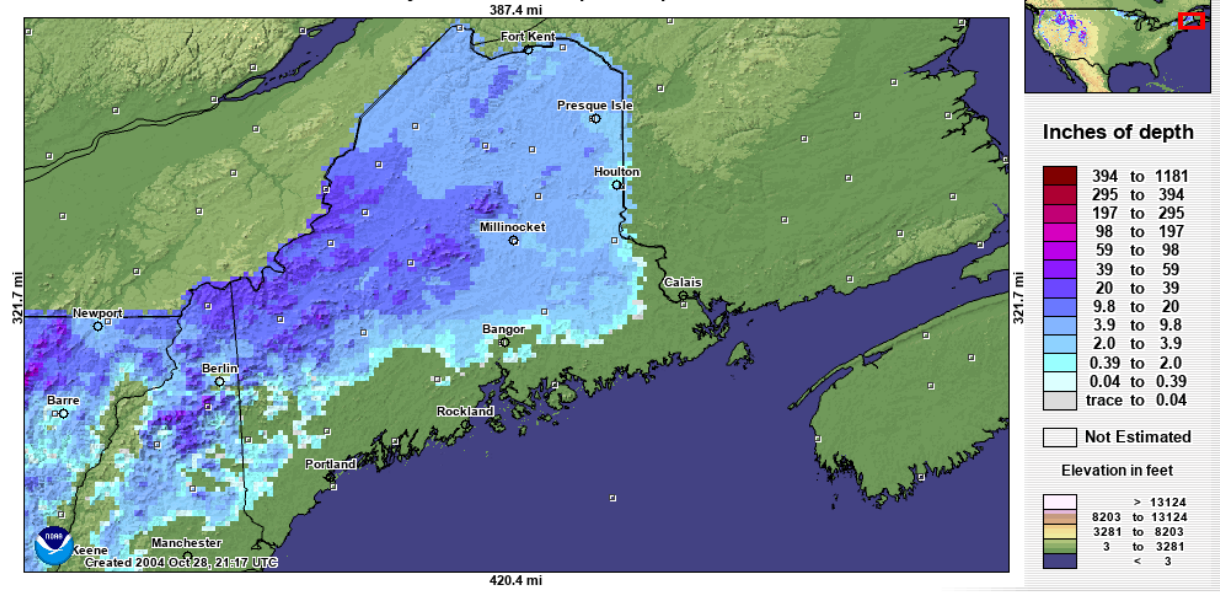
Monthly Normal Snow Depth for February



Monthly Normal Snow Depth for March



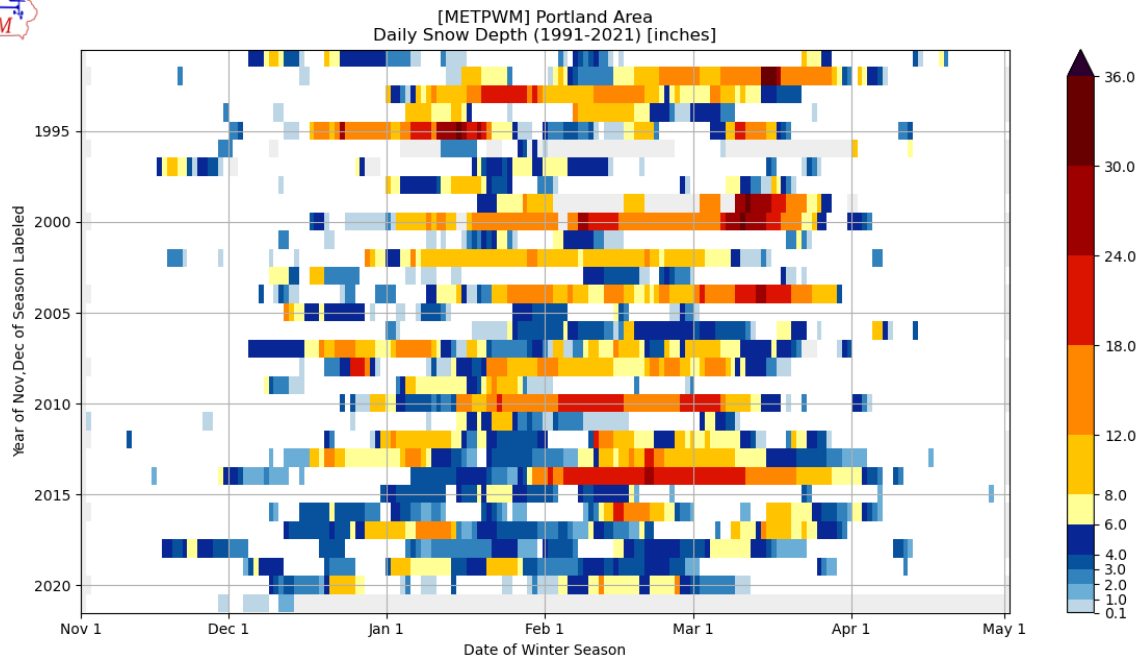
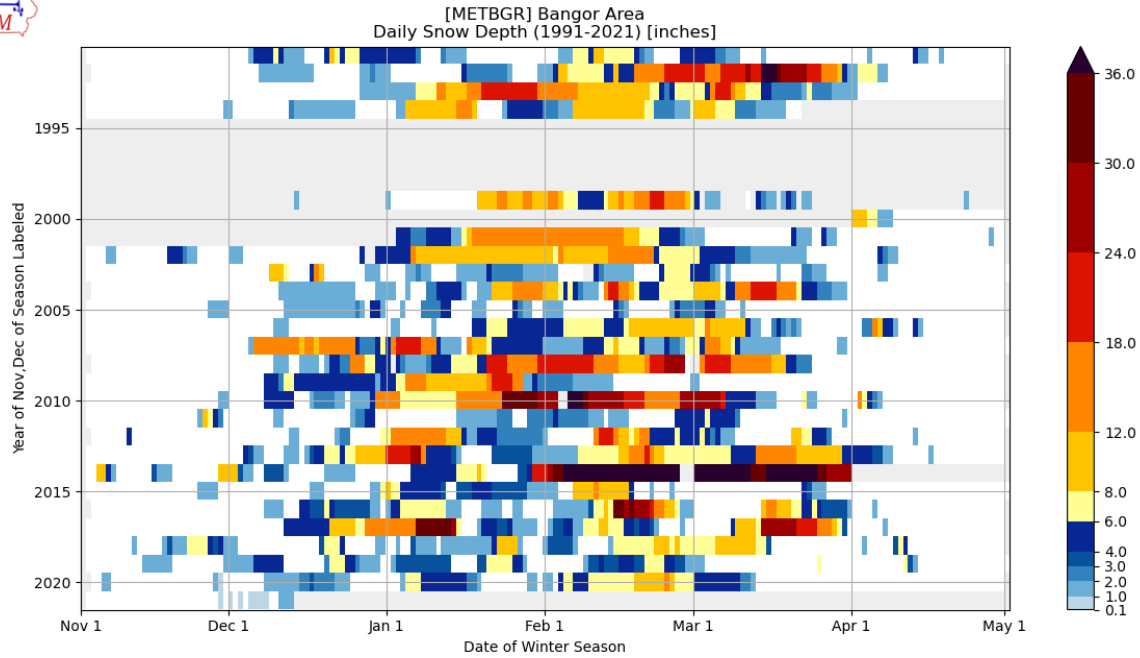
Monthly Normal Snow Depth for April

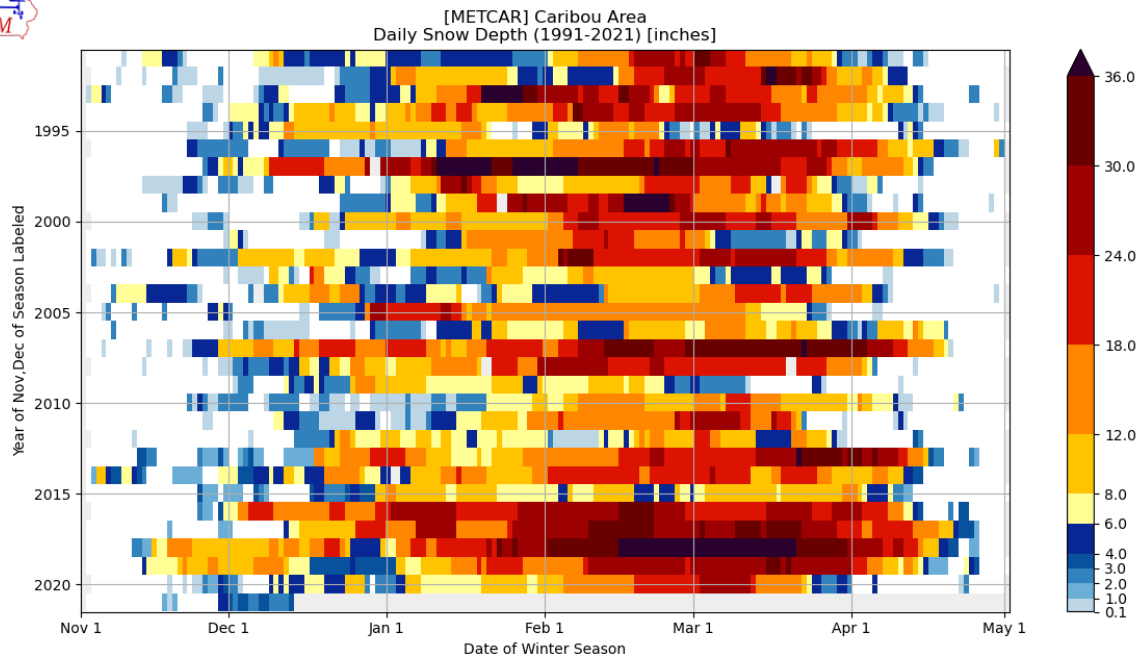
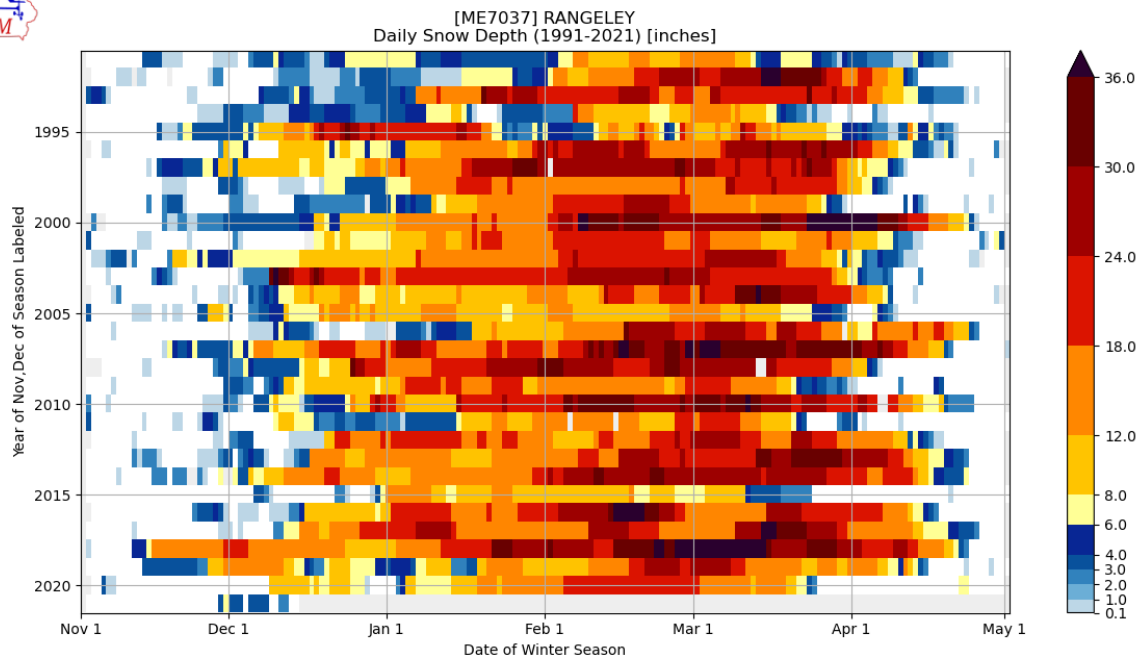




### Daily Snow Depth Reports

View [Daily Snow Depth Reports](#). These plots report daily snow depths at monitoring stations from 1991 to 2021 and are useful for identifying the amount of variation in snow precipitation within a single year (x-axis) and across multiple years (y-axis).





## Information Resources

Please refer to these sources for more information on current water conditions:

- Maine Drought Task Force website, with links to other reports and drought monitoring resources: <https://www.maine.gov/mema/hazards/drought-task-force>
- Drought.gov site for the State of Maine: <https://www.drought.gov/states/maine>
- Northeast DEWS: <http://nedews.nrcr.cornell.edu/>
- National Integrated Drought Information System: <https://www.drought.gov/current-conditions>
- U.S. Drought Monitor: <https://droughtmonitor.unl.edu/CurrentMap/StateDroughtMonitor.aspx?ME>
- Well monitor data: <https://groundwaterwatch.usgs.gov/StateMap.asp?sa=ME&sc=23>
- Streamflow data: <https://waterwatch.usgs.gov/?m=real&r=me>
- Streamflow data aggregated by watershed: <https://waterwatch.usgs.gov/index.php?m=dryw&r=me>
- Maine Cooperative Snow Survey: [https://www.maine.gov/dacf/mgs/hazards/snow\\_survey/](https://www.maine.gov/dacf/mgs/hazards/snow_survey/)
- NWS Gray short- and long-term forecasts: <https://forecast.weather.gov/product.php?site=NWS&issuedby=GYX&product=AFD&format=CI&version=1&glossary=1&highlight=off>
- NWS Caribou short- and long-term forecasts: <https://forecast.weather.gov/product.php?site=NWS&issuedby=CAR&product=AFD&format=CI&version=1&glossary=1&highlight=off>
- USDA farm assistance and loan programs: <https://www.farmers.gov/protection-recovery/drought>
- CoCoRaHS local volunteer weather condition monitoring: <https://www.cocorahs.org/maps/conditionmonitoring/index.html>

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