

State of Maine Drought Task Force Report on Current Hydrologic Conditions April 29, 2021

Overview:

On Thursday, April 29, 2021, the US Drought Monitor classified 55.66% of the State of Maine as D0 (Abnormally Dry) status (Figure 1). **Recent rainfall has temporarily paused the growth of abnormally dry conditions in the state, however there remains a substantial deficit in precipitation for this time of the year.** These conditions are identical to last week, and exceed the threshold required for activating the Drought Task Force (Task Force), as stated in MEMA’s Emergency Operations Plan Drought Annex.

This report summarizes the information presented on current hydrologic and drought conditions as of this date. Factors such as snowpack, stream flow, groundwater levels, reservoir levels, soil moisture, and weather forecasts are being monitored closely. We are proceeding with weekly communication between MEMA, USGS, NWS, DWP, and other drought monitoring partners to compile a weekly report on the status of drought in Maine. **Task Force partners will report any drought-related impacts for which they are notified.** This preliminary approach will continue until a more comprehensive activation is needed in response to specific drought-related impacts around the state.

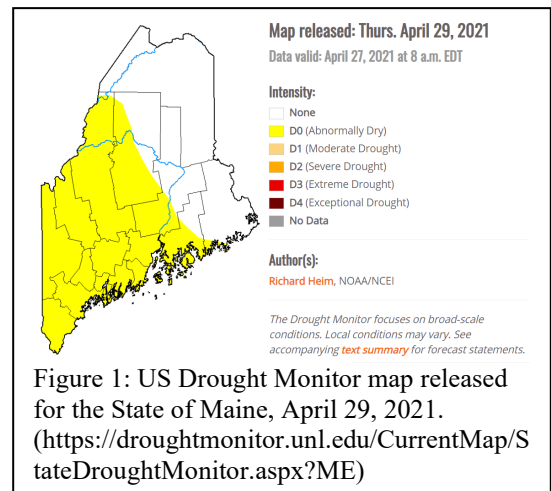


Figure 1: US Drought Monitor map released for the State of Maine, April 29, 2021. (<https://droughtmonitor.unl.edu/CurrentMap/StateDroughtMonitor.aspx?ME>)

Current Hydrologic Conditions:

Stream Flows

Current stream flows vary statewide (Figure 2), though the majority trend below to much below normal. Stream flows in central Maine are much below normal relative to historic spring flow averages. Stream flows in northern and some southern/coastal portions of Maine are below normal to much below normal. However, moderate rainfall from last week has temporarily increased stream flows at a few locations in eastern and western Maine. Low stream flows are a result of lower than average snow pack and early snowmelt that occurred in this past winter/spring.

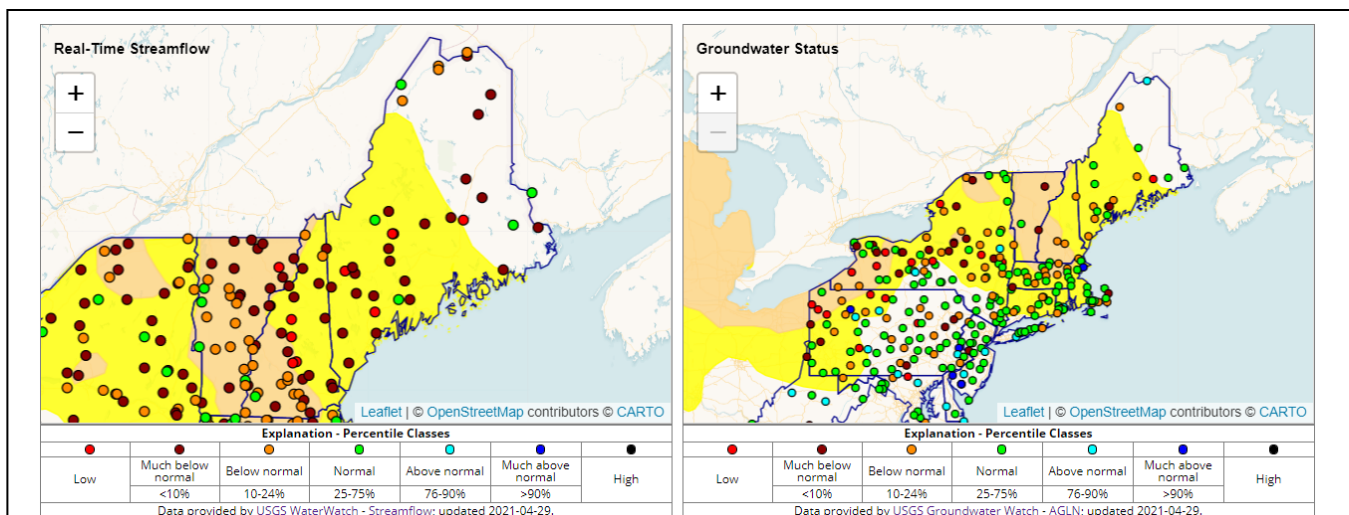


Figure 2: USGS maintains real time surface level water (shown here overlain on US Drought Monitor Map) and groundwater information. Water Watch: waterwatch.usgs.gov ; Ground Water Watch: groundwaterwatch.usgs.gov

Ground Water

Groundwater levels as of April 28th vary statewide from above normal to low relative to historic springtime averages. Groundwater levels in northern and central Maine trend above normal to below normal, and ground water levels along coastal Maine trend normal to low.

There are currently no updates on water levels from the Drinking Water Program. Any future drought-related impacts will be reported to the Task Force.

Headwater Storage Levels:

At present, hydro operators are aware of developing dry conditions and the upper storage impoundments are holding a little more water than the average for this time of the year where they can. The Androscoggin River storage reservoirs are 69.9% full, approximately 9.2% above the long term average. The Kennebec River storage reservoirs are 80.6% full, approximately 15.8% above the long term average. The Union River storage is only slightly higher than its long term average. The West Branch Penobscot River is less than rule curve for this time of year, Ripogenus storage is within the normal range, although less than this time last year and appears to be leveling off. Inflows at Ripogenus and North Twin are less than the rule curve. For the Presumpscot River, water levels at Sebago Lake increased 2.4 inches this week, but this remains 8.4 inches below the long-term average. At 200 cfs, outflow remains below the minimum flow (270 cfs). Sluice gates at the Songo River are now closed, limiting additional inflow to Sebago Lake and the Presumpscot River system.

Weather Outlook:

According to the National Weather Service's Climate Prediction Center, probabilities slightly favor above normal precipitation over the next 2 weeks (Figure 3). In addition, probabilities favor seasonally average temperatures over the next 2 weeks. After variable conditions forecasted for today, a frontal system lifts northeast overnight with rain for all, then it will emerge into the Gulf of Maine on Friday, where it will amplify as it continues to track into the Bay of Fundy by the end of the day. Steady beneficial rainfall is expected from this with low flood risk since deep moisture and convection remains to our south. From late today to Friday rainfall amounts are expected to reach 0.5 to 1 inch across southern and western Maine, highest in the mountains and over the coast. Current expected storm totals are 0.75 to 1 inch over Downeast, central Aroostook, and the North Woods, with 1 to 1.25 inches expected over central Maine. Rain will be followed this weekend by drier and cooler air and wind gusts are expected to pick up out of the west, posing a potential hazard. Snow may be likely in the mountains before skies eventually clear on Saturday. There is another slight chance of sprinkles on Sunday and showers on Monday. Cold air is expected to remain through next week.

Astronomical tides remain high through the end of this week and could pose a risk of coastal flooding, but coastal surge is expected to remain low.

As of April 22, yearly precipitation departure is -3.8 inches in Portland, -3.63 inches in Augusta, and -4.87 inches in Rangeley. As of April 29, yearly precipitation departure is -5.13 inches in Bangor, -0.31 inches in Caribou, -4.85 inches in Houlton, and -3.6 inches in Millinocket.

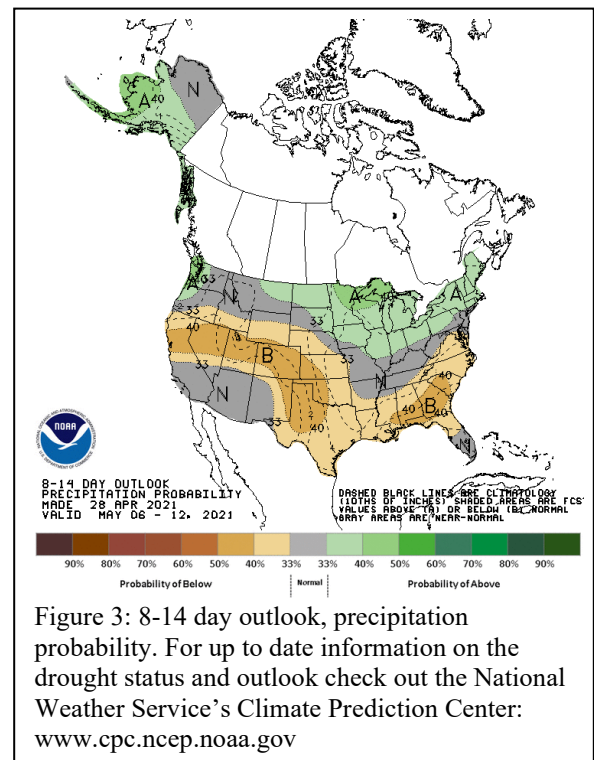


Figure 3: 8-14 day outlook, precipitation probability. For up to date information on the drought status and outlook check out the National Weather Service's Climate Prediction Center: www.cpc.ncep.noaa.gov

There are no strong indicators of weather trends beyond this time frame. All interests should monitor both weather forecasts and hydrologic factors as conditions progress.

Drought Outlook:

Currently 15 counties in Maine are partially or completely classified as abnormally dry. Dry conditions are expected to improve in New England from now to August, according to the National Weather Service's Climate Prediction Center US Seasonal Drought Outlook. However, drought development is also likely on the shorter term (Figure 4). However, the Task Force will continue to monitor abnormally dry conditions in the state until conditions broadly improve across Maine.

Conclusion:

The current information in this report represents a "snapshot" of conditions throughout the state as of April 21, 2021. 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. Many new factors will influence drought potential in Maine as the season progresses. These factors will be monitored, and the Drought Task Force will convene monthly to 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.

Drought Task Force members will stay in close communication until the dry conditions subside. The United States Geological Survey (USGS) provides real time ground and surface water level data and the U.S. Drought Monitor Program provides weekly drought outlooks.

Information Resources:

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

- Drought.gov site for the State of Maine: <https://www.drought.gov/states/maine>
- 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/
- 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>

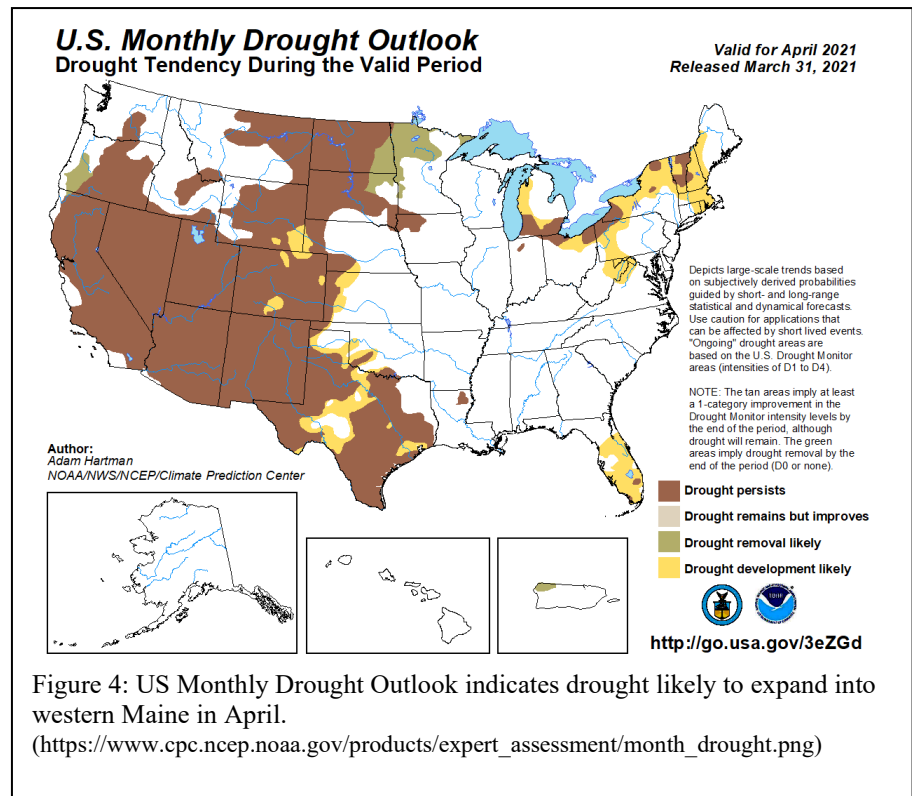


Figure 4: US Monthly Drought Outlook indicates drought likely to expand into western Maine in April.
(https://www.cpc.ncep.noaa.gov/products/expert_assessment/month_drought.png)

- 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>

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