

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) Boston/Norton MA	
		REPORT FOR: MONTH YEAR March 2021	
MONTHLY REPORT OF HYDROLOGIC CONDITIONS		SIGNATURE Nicole M. Belk Senior Service Hydrologist	
TO: Hydrologic Information Center, W/OS31 NOAA's National Weather Service 1325 East West Highway Silver Spring, MD 20910-3283		DATE April 6, 2021	

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.

March 2021 brought below normal precipitation across southern New England. Liquid equivalent precipitation ranged from 1.5 to 3.5 inches, with the lower totals across northern MA and the Connecticut River Valley region of MA. The higher precipitation totals were noted across portions of central and southern RI, south coastal MA, the Cape and Martha's Vineyard. Across the region, March precipitation was 1 to 3 inches below normal.

Temperatures for the month were 2 to 5 degrees F above normal. More details on precipitation and temperatures for major climate sites are available on Table 1. Maps 1 and 2 provide more details on liquid equivalent precipitation and departures from normal across the area. Map 3 depicts the temperature departure from normal for the month.

<i>Location</i>	<i>March Precipitation (Inches)</i>	<i>Precipitation Departure from Normal (Inches)</i>	<i>Temperature Departure from Normal (Degrees F)</i>
<i>Boston</i>	1.89	-2.43	+3.7
<i>Worcester</i>	2.03	-2.18	+4.4
<i>Providence</i>	3.67	-1.34	+2.2
<i>Hartford</i>	2.50	-1.12	+3.1

Table 1. March 2021 precipitation, precipitation departure from normal, and temperature departure from normal, for major climate sites within southern New England. Precipitation totals include rainfall and melted snow. Information is preliminary.

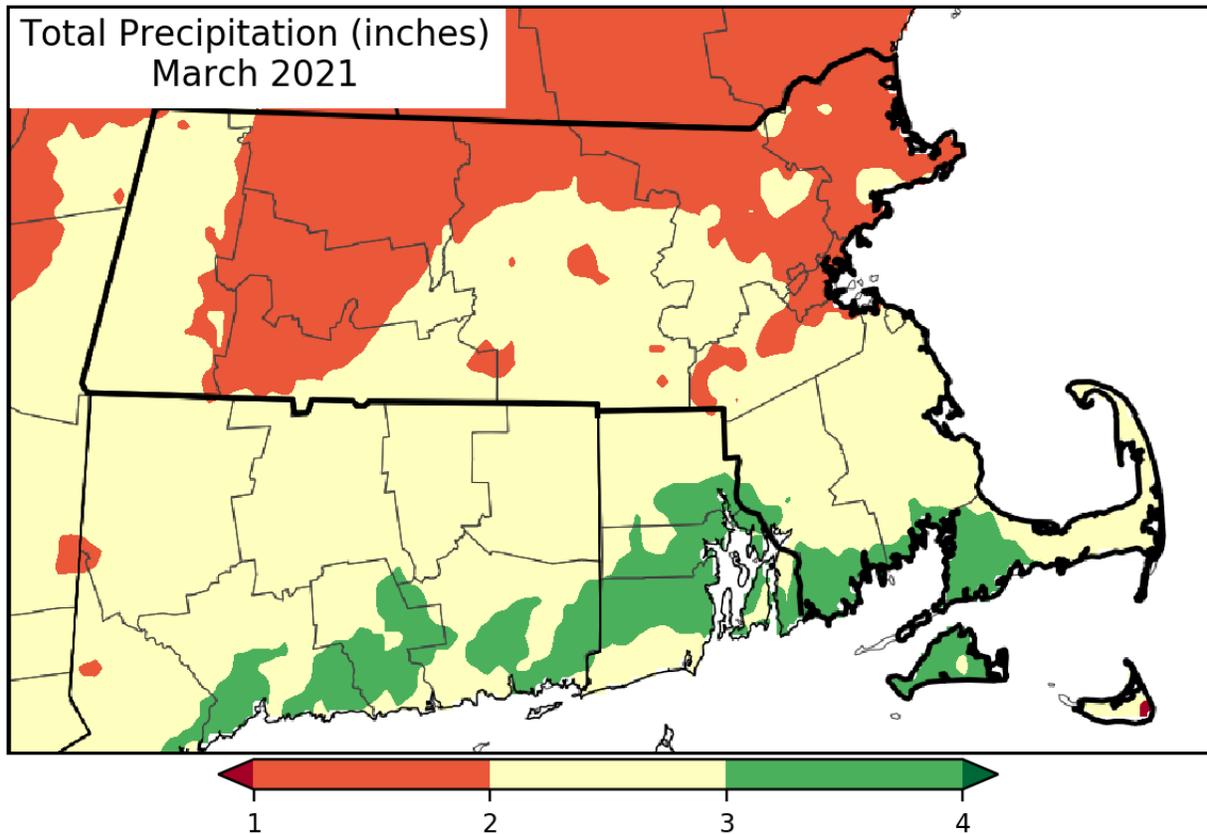
MA State Drought Declaration Update

A combination of below normal precipitation, below normal streamflow and below normal groundwater in western MA prompted a convening of the MA Drought Management Task Force (DMTF) on March 10th. Following a recommendation from the MA DMTF, the MA Energy and Environmental Affairs (EEA) Secretary declared a Level 1- Mild Drought in the Western Drought Region of MA (Map 4). The Western Drought Region encompasses Berkshire County. The remainder of the Commonwealth remained in normal conditions.

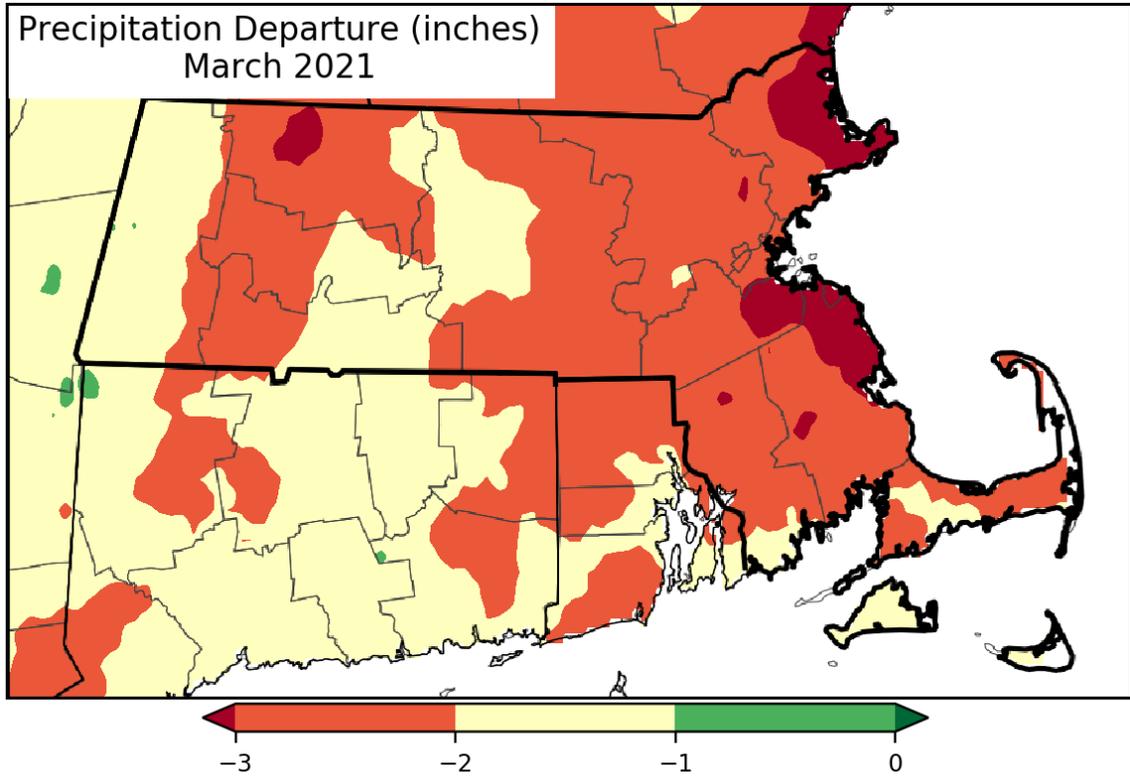
Over the course of March, the US Drought Monitor depicted an introduction and gradual expansion of D0, or Abnormally Dry Conditions, into southern New England. Map 5 shows the USDM map effective March 30th 2021.

Streamflow and Groundwater:

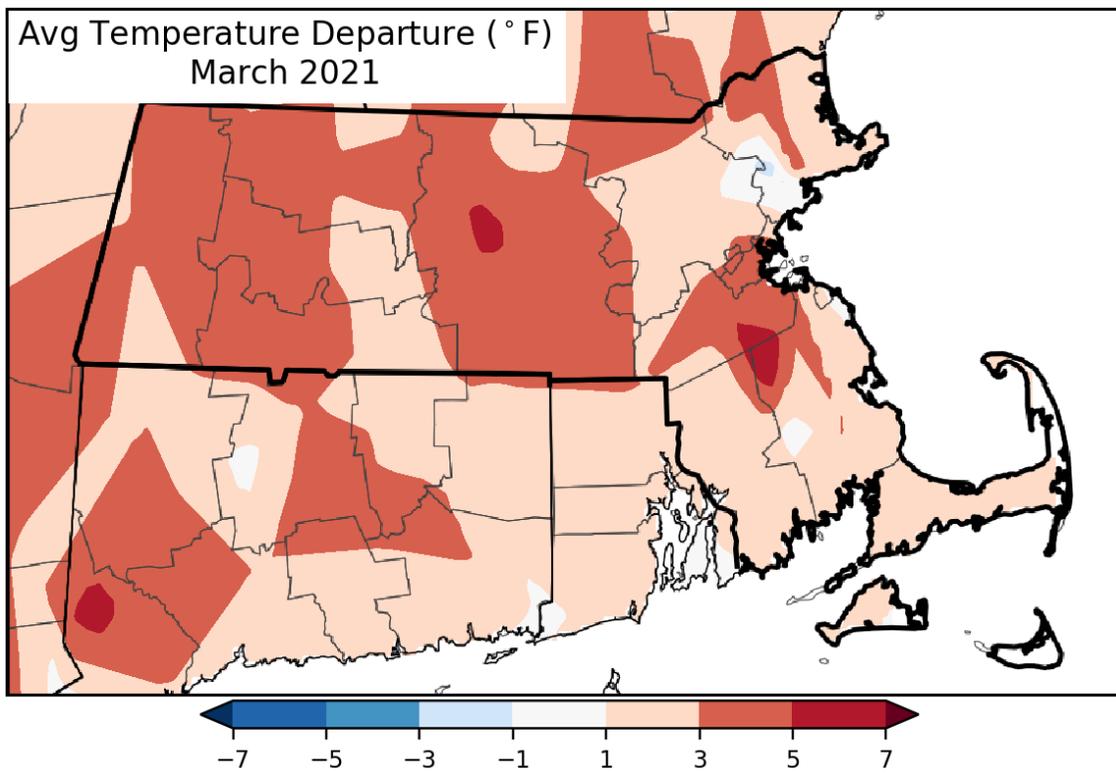
Streamflows across southern New England were mostly in the normal to below normal range during March. Groundwater levels were mainly in the normal or below normal range at the end of the month.



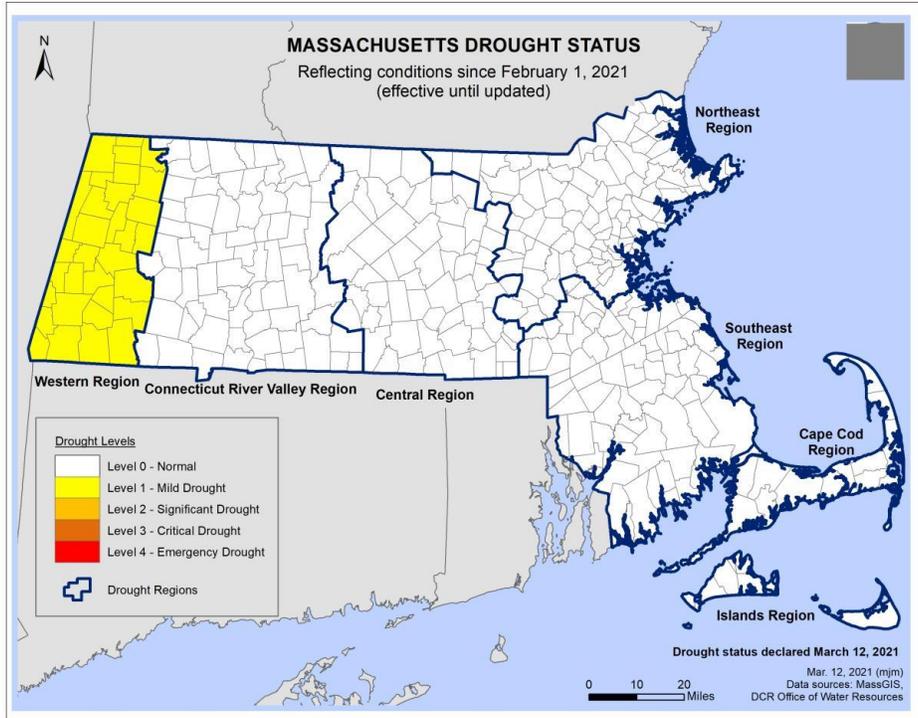
Map 1: March 2021 precipitation for southern New England. Precipitation includes rainfall and melted snowfall. From the Northeast Regional Climate Center.



Map 2. March 2021 precipitation departure from normal for southern New England. From the Northeast Regional Climate Center.



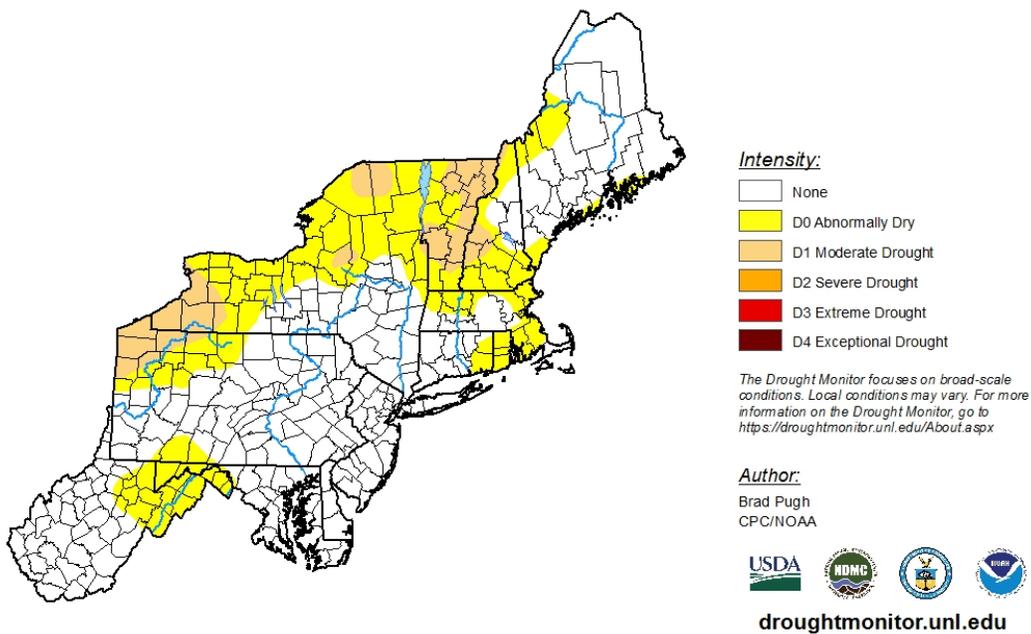
Map 3. March 2021 temperature departure from normal for southern New England. From the Northeast Regional Climate Center.



Map 4. MA Drought Status map reflecting the Level 1- Mild Drought declared for the Western Drought Region on March 12th, 2021. Reflects conditions retroactive to February 2021. Map from the MA Department of Conservation and Recreation, Office of Water Resources.

**U.S. Drought Monitor
Northeast**

March 30, 2021
(Released Thursday, Apr. 1, 2021)
Valid 8 a.m. EDT



Map 5. U.S. Drought Monitor for the Northeast U.S, valid March 30th 2021.

Rhode Island Precipitation
National Weather Service Boston/Norton, MA
Preliminary Precipitation Data (inches) by Drought Region
Past 12 to 36 months ending March 2021
Includes CoCoRaHS Data

RI 1 month March 2021	Rainfall	Departure	Percent	Normal
Northwest	2.42	-3.03	44	5.45
Northeast	2.42	-2.60	48	5.02
Central West	3.16	-2.00	61	5.16
Central East	3.15	-1.86	63	5.01
Eastern	2.66	-3.02	47	5.68
Southern	3.23	-2.31	58	5.54
New Shoreham	2.99	-2.55	54	5.54

RI 2 month Feb-Mar 21	Rainfall	Departure	Percent	Normal
Northwest	5.85	-3.56	62	9.41
Northeast	5.99	-2.58	70	8.57
Central West	6.91	-1.85	79	8.76
Central East	6.65	-1.65	80	8.30
Eastern	6.32	-3.13	67	9.45
Southern	7.53	-1.70	82	9.23
New Shoreham	9.83	0.60	107	9.23

RI 3 month Jan-Mar 21	Rainfall	Departure	Percent	Normal
Northwest	8.64	-5.05	63	13.69
Northeast	8.48	-4.16	67	12.64
Central West	9.65	-3.18	75	12.83
Central East	8.88	-3.28	73	12.16
Eastern	8.33	-4.97	63	13.30
Southern	9.92	-3.42	74	13.34
New Shoreham	12.19	-1.15	91	13.34

RI 6 month Oct 20-Mar 21	Rainfall	Departure	Percent	Normal
Northwest	28.18	-0.08	100	28.26
Northeast	27.79	0.97	104	26.82
Central West	30.86	4.23	116	26.63
Central East	29.32	4.50	118	24.82
Eastern	25.45	-0.43	98	25.88
Southern	30.47	3.11	111	27.36
New Shoreham	32.83	5.47	120	27.36

RI 12 month Apr 20-Mar 21	Rainfall	Departure	Percent	Normal
Northwest	46.72	-6.98	87	53.70
Northeast	45.90	-5.52	89	51.42
Central West	47.55	-3.22	94	50.77
Central East	45.57	-1.61	97	47.18
Eastern	38.82	-9.72	80	48.54
Southern	46.16	-6.71	87	52.87
New Shoreham	47.09	-5.78	89	52.87

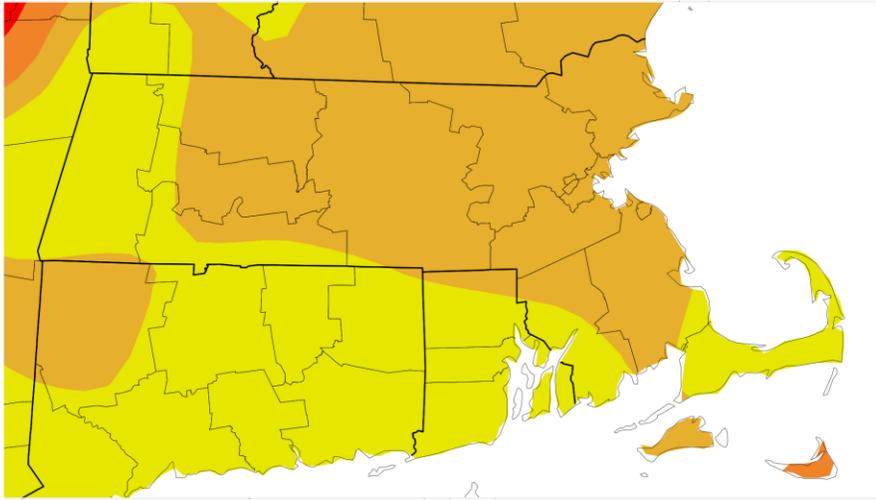
RI 24 month Apr 19-Mar 21	Rainfall	Departure	Percent	Normal
Northwest	104.80	-2.60	98	107.40
Northeast	98.85	-3.99	96	102.84
Central West	104.94	3.40	103	101.54
Central East	96.84	2.48	103	94.36
Eastern	90.78	-6.30	94	97.08
Southern	106.15	0.41	100	105.74
New Shoreham	98.12	-7.62	93	105.74

RI 36 month Apr 18-Mar 21	Rainfall	Departure	Percent	Normal
Northwest	170.39	9.29	106	161.10
Northeast	162.55	8.29	105	154.26
Central West	170.60	18.29	112	152.31
Central East	159.57	18.03	113	141.54
Eastern	144.55	-1.07	99	145.62
Southern	164.23	5.62	104	158.61
New Shoreham	151.04	-7.57	95	158.61

RI 4 month Dec 20-Mar 21	Rainfall	Departure	Percent	Normal
Northwest	16.82	-1.71	91	18.53
Northeast	18.38	1.00	106	17.38
Central West	20.50	3.07	118	17.43
Central East	19.12	2.74	117	16.38
Eastern	15.62	-2.00	89	17.62
Southern	19.49	1.44	108	18.05
New Shoreham	20.33	2.28	113	18.05

RI 5 month Nov 20-Mar 21	Rainfall	Departure	Percent	Normal
Northwest	22.91	-0.58	98	23.49
Northeast	22.38	0.21	101	22.17
Central West	24.62	2.44	111	22.18
Central East	23.09	2.20	111	20.89
Eastern	19.78	-2.17	90	21.95
Southern	24.16	1.06	105	23.10
New Shoreham	26.09	2.99	113	23.10

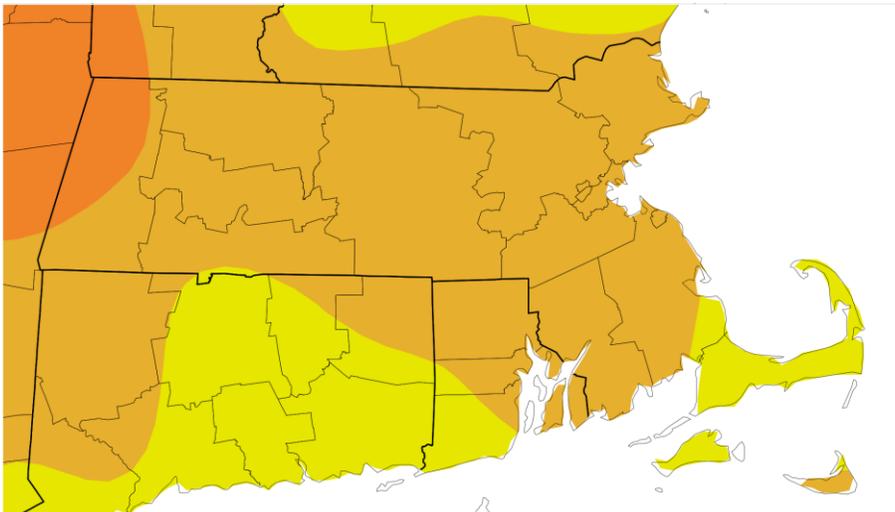
Monthly SPI
3/1/2021 – 3/31/2021



Generated 4/1/2021 at HPRCC using provisional data. NOAA Regional Climate Centers

Map 1. March 2021 SPI. From the NOAA Regional Climate Centers.

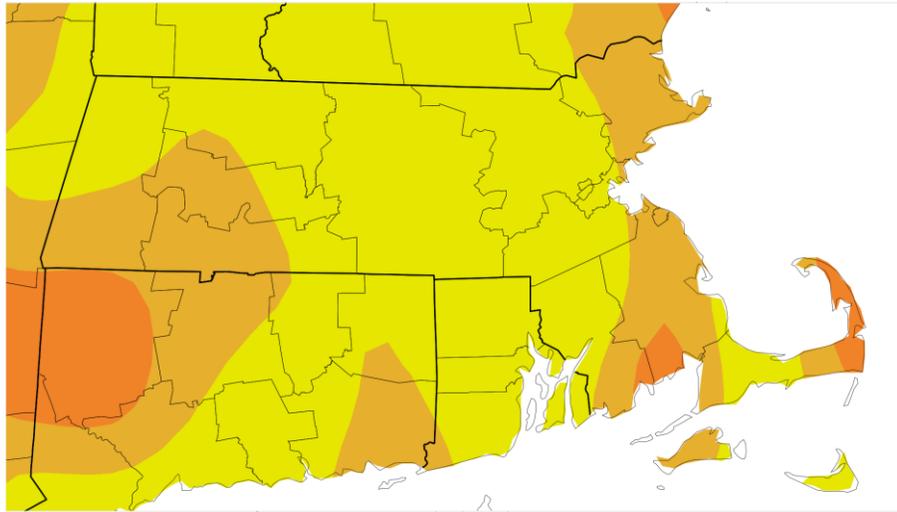
3-Month SPI
1/1/2021 – 3/31/2021



Generated 4/1/2021 at HPRCC using provisional data. NOAA Regional Climate Centers

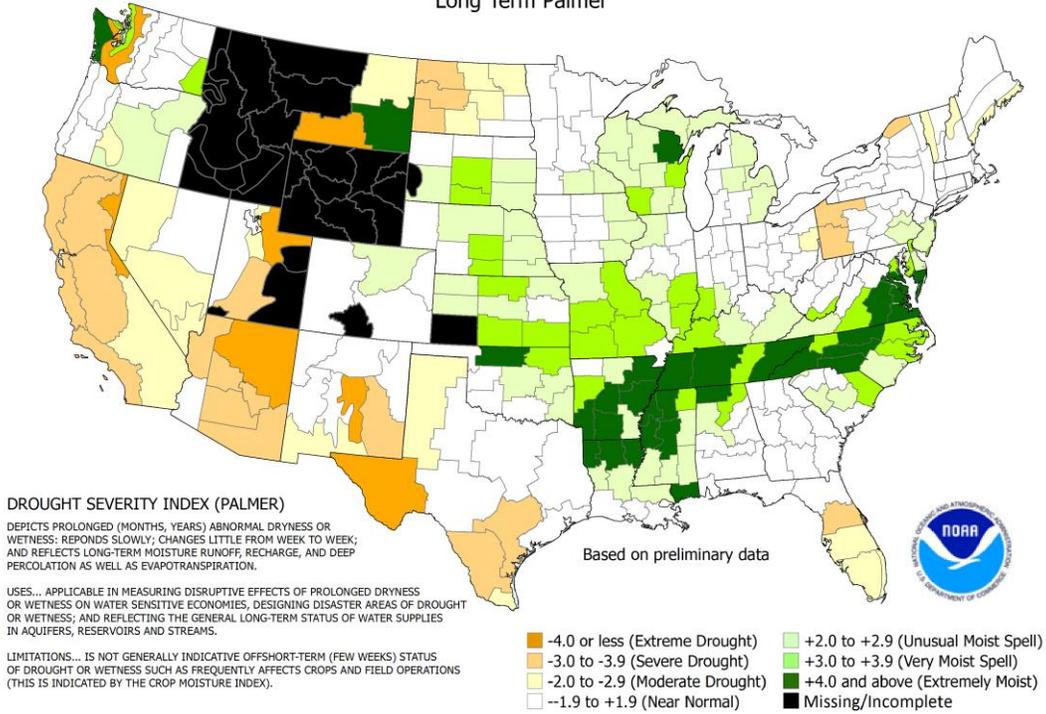
Map 2. Three-Month SPI ending March 2021. From the NOAA Regional Climate Centers.

12-Month SPI
4/1/2020 – 3/31/2021



Generated 4/1/2021 at HPRCC using provisional data. NOAA Regional Climate Centers
Map 3. Twelve month SPI ending March 2021. From the NOAA Regional Climate Centers.

Drought Severity Index by Division
Weekly Value for Period Ending Mar 27, 2021
Long Term Palmer



Map 4. Palmer Drought Index from the Climate Prediction Center, NOAA, dated 3/27/21.
RI Palmer is in the Normal range, -0.10.

U.S. Drought Monitor Rhode Island

March 30, 2021
(Released Thursday, Apr. 1, 2021)
Valid 8 a.m. EDT



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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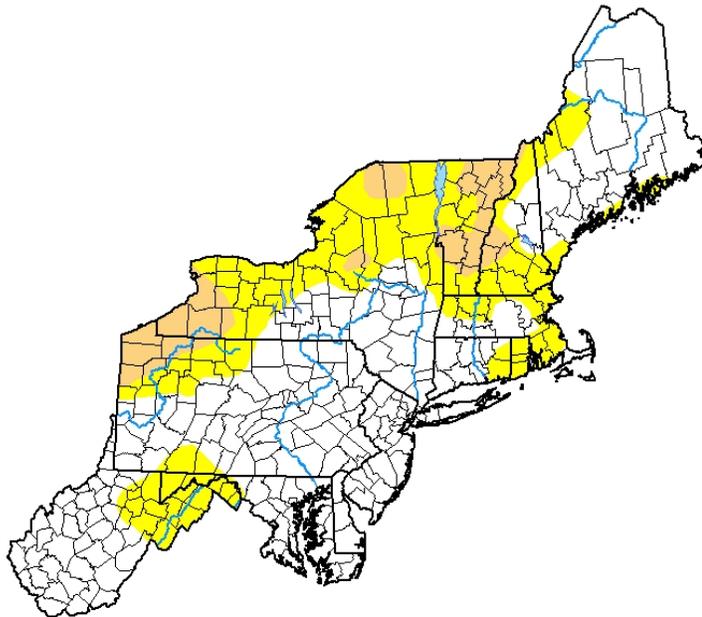


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Map 5. US Drought Monitor for Rhode Island, valid 3/30/2021.

U.S. Drought Monitor Northeast

March 30, 2021
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Intensity:

- None
- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

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Map 6. US Drought Monitor for the Northeast US, valid 3/30/2021.