

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	
		MONTHLY REPORT OF HYDROLOGIC CONDITIONS	REPORT FOR: MONTH YEAR June 2021
TO: Hydrologic Information Center, W/OS31 NOAA's National Weather Service 1325 East West Highway Silver Spring, MD 20910-3283		SIGNATURE Nicole M. Belk Senior Service Hydrologist	
		DATE July 21st 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.

June 2021 rainfall was below normal across southern New England. Rainfall totals ranged from 1 to 3 inches across most of the region, which was 1 to 3 inches below normal. Thunderstorms brought a few pockets of higher 3 to 4 inch totals, which were mainly noted in the vicinity of the MA Turnpike, as well as the MA South Shore. These higher totals were 0.5 inch to around 1 inch below normal. Temperatures averaged 2 to over 6 degrees above normal. At the 4 major climate sites in NWS Boston/Norton's area, this was one of the top 3 hottest Junes on record.

More details for major climate sites in southern New England are included in Table 1. Maps 4 and 5 show rainfall and rainfall departure from normal for May. Map 6 depicts temperature departure from normal.

State Drought Declarations were in place in MA. No State Drought Declarations were in place in RI and CT.

<i>Location</i>	<i>June Rainfall (Inches)</i>	<i>Precipitation Departure from Normal (Inches)</i>	<i>Temperature Departure from Normal (Degrees F)</i>	<i>Ranking for Hottest June on Record</i>
<i>Boston</i>	2.57	-1.32	+6.4	#1 Hottest
<i>Worcester</i>	1.41	-2.81	+4.8	#2
<i>Providence</i>	2.85	-0.96	+3.8	#2
<i>Hartford</i>	2.74	-1.54	+3.3	#3 (Tie w/2005)

Table 1. June 2021 rainfall and departure from normal, as well as temperature departure from normal and ranking for hottest June on record, for major climate sites within southern New England. Information is preliminary.

Flooding During June

There were 2 localized flood events during the month of June.

During June 4th, showers and thunderstorms brought heavy rainfall of 3 to 5 inches within 3 hours in a small section of north central CT, inclusive of northern Marlborough, northwest Hebron and southeast Glastonbury. Localized flash flooding occurred in Marlborough, where floodwaters from local drainage and the Foot Sawmill

Brook swept down Stony Brook Drive. These floodwaters were also reported to have inundated a home on Stony Brook Drive, and isolated other homes. In addition, poor drainage flooding occurred at a fire station in Marlborough due to the combination of heavy rainfall and a clogged storm drain.

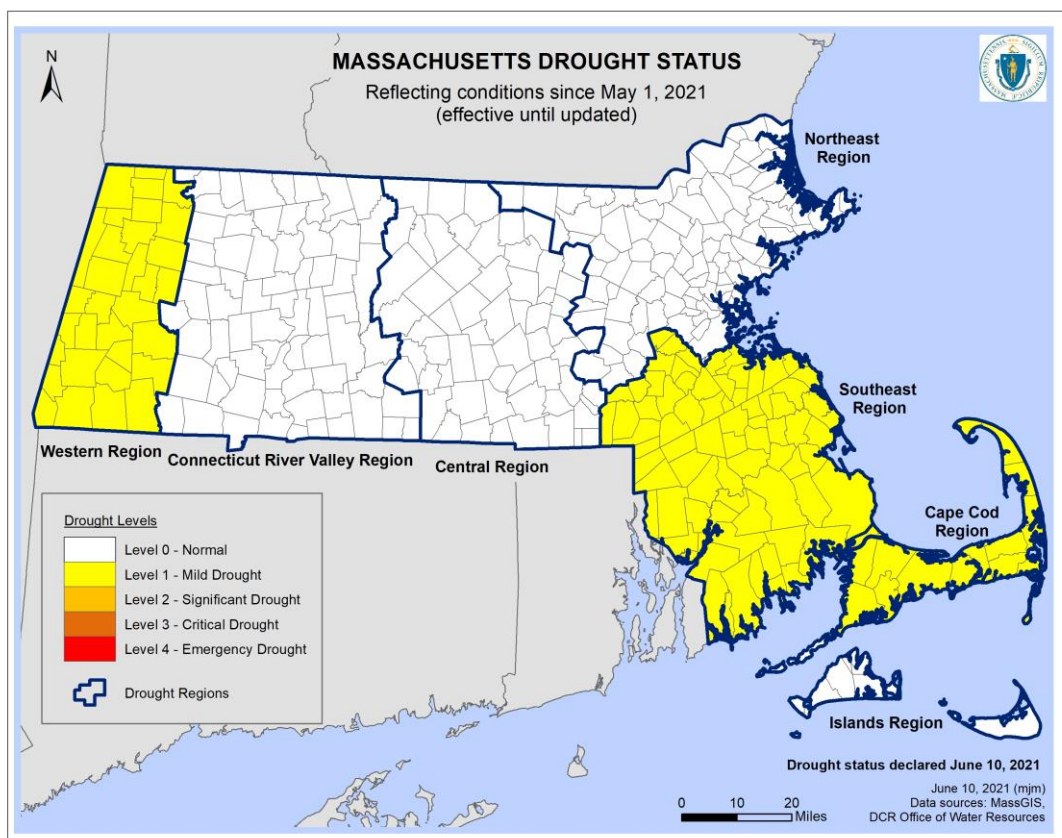
During the afternoon of June 8th, localized flooding occurred in the Methuen MA area due to thunderstorms crossing through that area. On Pilgrim Circle, floodwaters were up to the headlights of vehicles, and on Independence Drive a car was stuck in standing floodwaters.

MA State Drought Declaration Update

The MA Drought Management Task Force (DMTF) convened on June 8th to review conditions from May and early June. Due to a deterioration in groundwater conditions in the Southeast Drought Region, the MA Energy and Environmental Affairs (EEA) Secretary announced a degradation to a Level 1-Mild Drought in that area. A Level 1- Mild Drought remained in place across the Western and Cape Cod Regions. However, based on improving conditions in the Connecticut River Valley and Central Drought Regions, the Drought Level there was improved from a Level 1 to Level 0 (Normal Conditions). Normal Conditions were also in place across the Northeast and Islands Drought Regions. These updates are also available on Map 1.

U.S. Drought Monitor

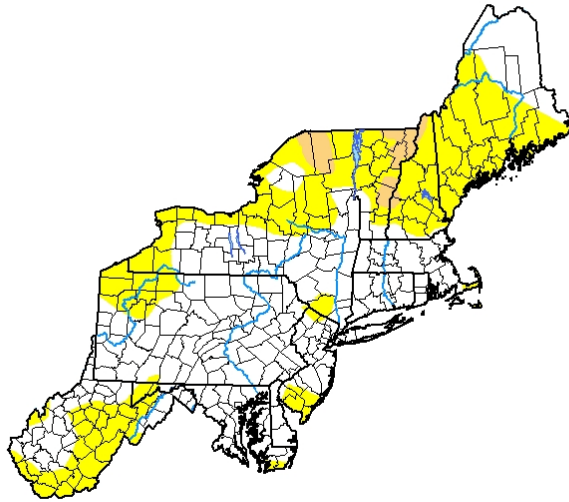
On the June 1st rendition of the US Drought Monitor (Map 2), the only locales highlighted with a Drought Classification in southern New England were Cape Cod and Nantucket. In those areas, Abnormally Dry (D0) conditions were in place. On the June 29th rendition of the US Drought Monitor (Map 3), northwest MA, Nantucket and Martha’s Vineyard, and western Cape Cod were under Abnormally Dry Conditions. The outer Cape was under D1, or Moderate Drought Conditions. The remainder of the region had normal conditions.



Map 1. MA Drought Declarations from June 10th 2021, retroactive to May 1 2021. Map from MA DCR, Office of Water Resources.

U.S. Drought Monitor Northeast Climate Region

June 1, 2021
(Released Thursday, Jun. 3, 2021)
Valid 8 a.m. EDT



Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	59.43	40.06	2.82	0.00	0.00	0.00
Last Week <i>05-25-2021</i>	52.15	47.34	2.82	0.00	0.00	0.00
3 Months Ago <i>03-02-2021</i>	81.42	18.06	3.88	0.00	0.00	0.00
Start of Calendar Year <i>12-29-2020</i>	77.20	22.28	3.61	0.00	0.00	0.00
Start of Water Year <i>09-29-2020</i>	29.69	69.80	45.08	26.13	3.87	0.00
One Year Ago <i>06-02-2020</i>	90.77	8.71	0.00	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>

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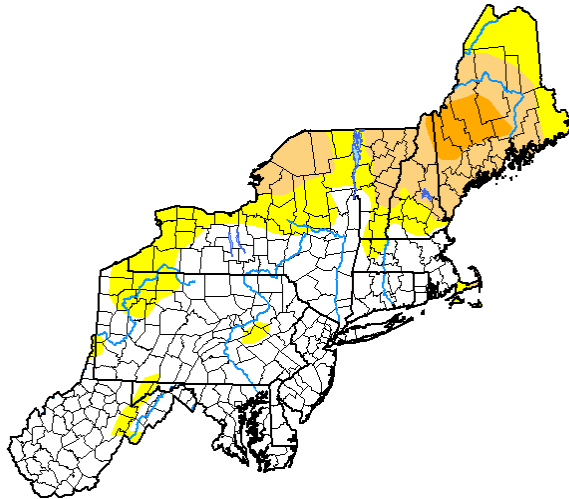


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Map 2. U.S. Drought Monitor Map valid June 1st, 2021.

U.S. Drought Monitor Northeast Climate Region

June 29, 2021
(Released Thursday, Jul. 1, 2021)
Valid 8 a.m. EDT



Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	58.59	41.41	20.05	3.51	0.00	0.00
Last Week <i>06-22-2021</i>	58.57	41.43	19.45	1.11	0.00	0.00
3 Months Ago <i>03-30-2021</i>	62.96	37.04	8.69	0.00	0.00	0.00
Start of Calendar Year <i>12-29-2020</i>	77.60	22.40	3.63	0.00	0.00	0.00
Start of Water Year <i>09-29-2020</i>	29.84	70.16	45.31	26.26	3.89	0.00
One Year Ago <i>06-30-2020</i>	54.44	45.56	14.23	0.00	0.00	0.00

Intensity:

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

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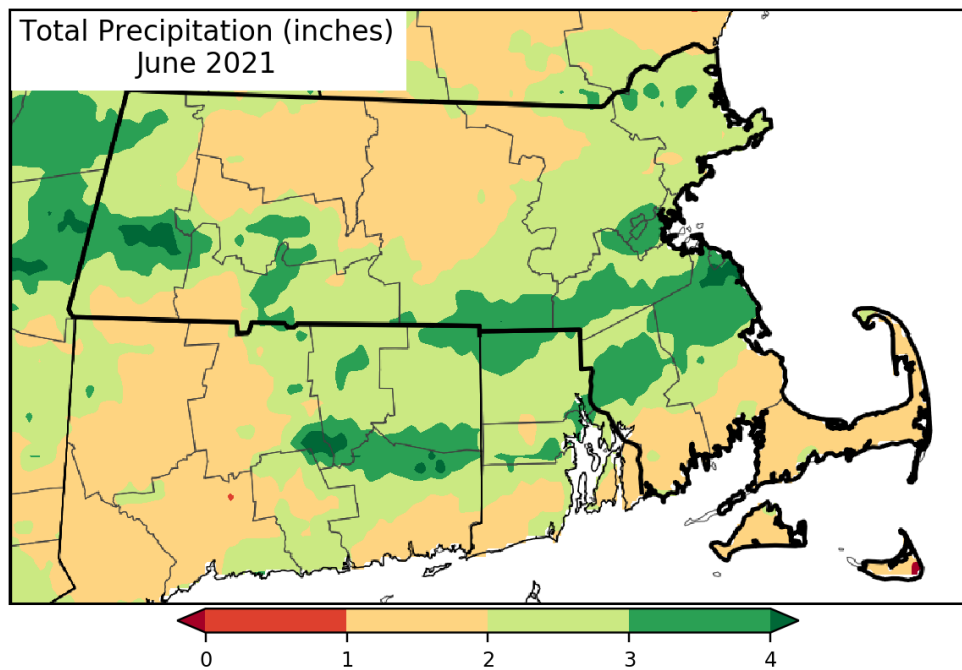


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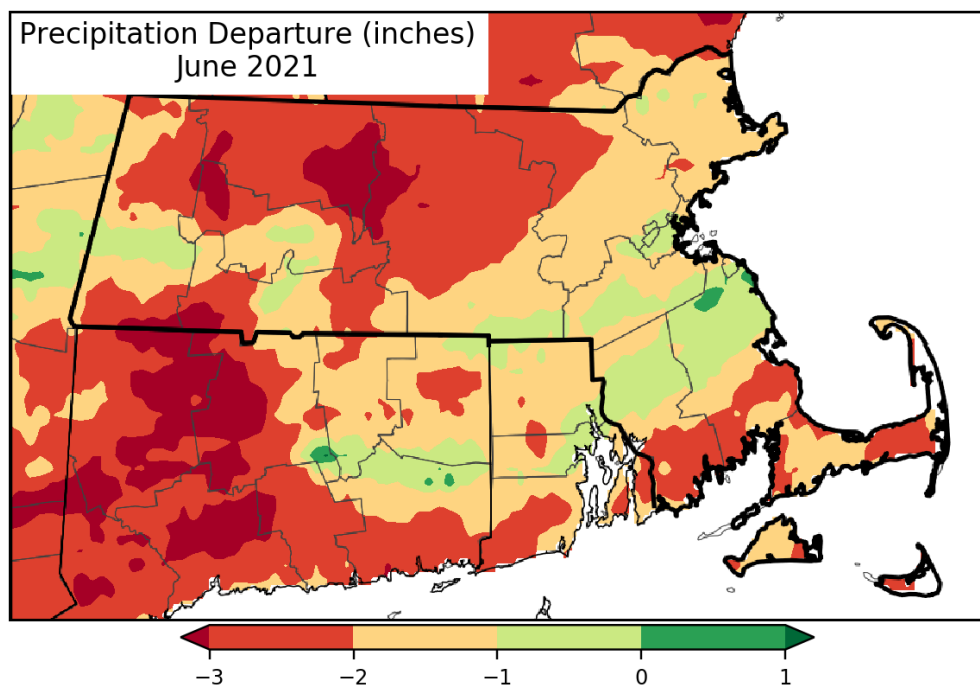
Map 3. US Drought Monitor Map valid June 29th 2021.

Streamflow and Groundwater:

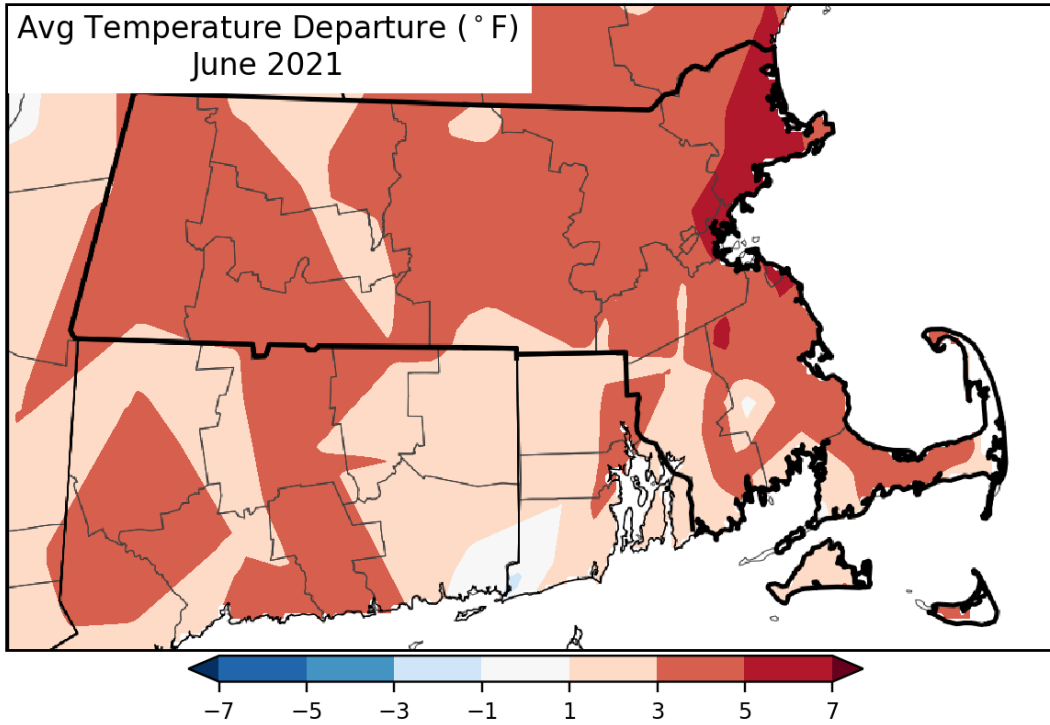
Streamflows varied during the month, but overall averaged normal to below normal during June. Groundwater conditions during June varied across the region, with some wells below normal, and some above normal. Most wells were within the normal range at the end of June.



Map 4: June 2021 rainfall for southern New England. From the Northeast Regional Climate Center.



Map 5: June 2021 rainfall departure from normal for southern New England. From the Northeast Regional Climate Center.



Map 6. Average temperature departure from normal across southern New England for June 2021.
From the Northeast Regional Climate Center.

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

RI 1 month June 2021	Rainfall	Departure	Percent	Normal
Northwest	3.36	-1.22	73	4.58
Northeast	3.02	-1.19	72	4.21
Central West	3.27	-0.87	79	4.14
Central East	2.93	-0.71	80	3.64
Eastern	1.89	-1.99	49	3.88
Southern	1.90	-2.38	44	4.28
New Shoreham	1.50	-2.78	35	4.28

RI 2 month May-June 21	Rainfall	Departure	Percent	Normal
Northwest	9.68	1.18	114	8.50
Northeast	8.83	0.84	111	7.99
Central West	8.66	0.77	110	7.89
Central East	8.08	0.89	112	7.19
Eastern	6.92	-0.60	92	7.52
Southern	6.72	-1.51	82	8.23
New Shoreham	6.83	-1.40	83	8.23

RI 3 month Apr-Jun 21	Rainfall	Departure	Percent	Normal
Northwest	13.72	0.52	104	13.20
Northeast	13.02	0.30	102	12.72
Central West	13.17	0.68	105	12.49
Central East	11.95	0.40	103	11.55
Eastern	10.54	-1.80	85	12.34
Southern	10.43	-2.84	79	13.27
New Shoreham	10.57	-2.70	80	13.27

RI 6 month Jan-Jun 21	Rainfall	Departure	Percent	Normal
Northwest	22.36	-4.53	83	26.89
Northeast	21.46	-3.90	85	25.36
Central West	22.82	-2.50	90	25.32
Central East	20.59	-3.12	87	23.71
Eastern	18.87	-6.77	74	25.64
Southern	20.35	-6.26	76	26.61
New Shoreham	22.76	-3.85	86	26.61

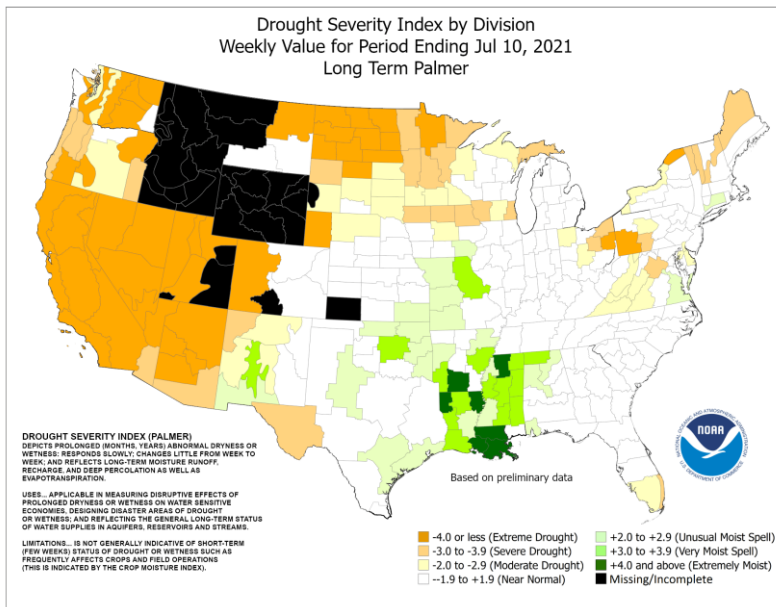
RI 12 month Jul 20-Jun 21	Rainfall	Departure	Percent	Normal
Northwest	47.01	-6.69	88	53.70
Northeast	46.46	-4.96	90	51.42
Central West	49.25	-1.52	97	50.77
Central East	45.13	-2.05	96	47.18
Eastern	39.94	-8.60	82	48.54
Southern	45.34	-7.53	86	52.87
New Shoreham	48.72	-4.15	92	52.87

RI 24 month Jul 19-Jun 21	Rainfall	Departure	Percent	Normal
Northwest	101.97	-5.43	95	107.40
Northeast	96.97	-5.87	94	102.84
Central West	100.35	-1.19	99	101.54
Central East	91.97	-2.39	97	94.36
Eastern	86.56	-10.52	89	97.08
Southern	97.52	-8.22	92	105.74
New Shoreham	92.46	-13.28	87	105.74

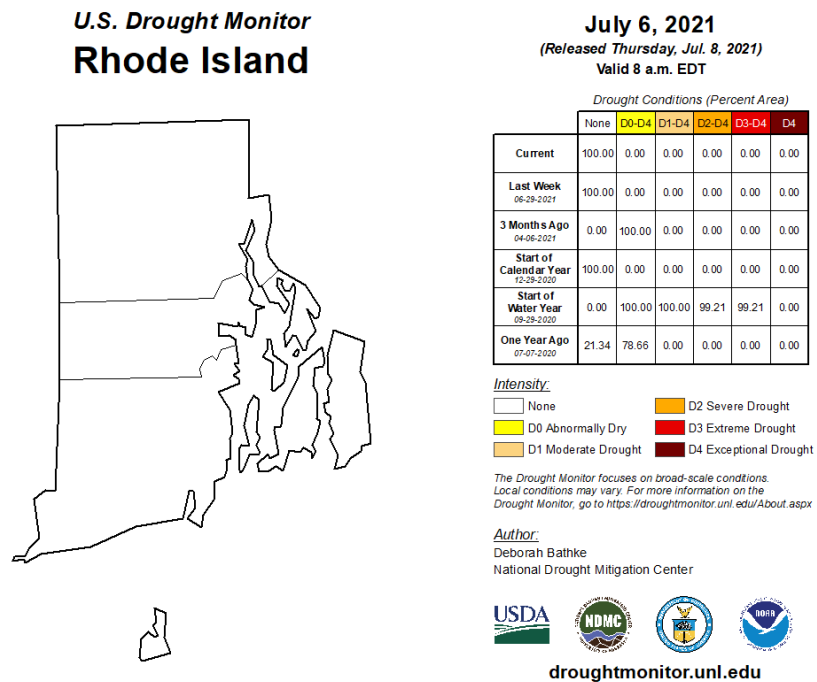
RI 36 month Jul 18-Jun 21	Rainfall	Departure	Percent	Normal
Northwest	172.38	11.28	107	161.10
Northeast	165.55	11.29	107	154.26
Central West	172.49	20.18	113	152.31
Central East	159.46	17.92	113	141.54
Eastern	145.45	-0.17	100	145.62
Southern	165.09	6.48	104	158.61
New Shoreham	152.23	-6.38	96	158.61

RI 4 month Mar-Jun 21	Rainfall	Departure	Percent	Normal
Northwest	16.14	-2.51	87	18.65
Northeast	15.10	-2.64	85	17.74
Central West	16.33	-1.32	93	17.65
Central East	14.90	-1.66	90	16.56
Eastern	13.20	-4.82	73	18.02
Southern	13.66	-5.15	73	18.81
New Shoreham	13.56	-5.25	72	18.81

RI 5 month Feb-Jun 21	Rainfall	Departure	Percent	Normal
Northwest	19.57	-3.04	87	22.61
Northeast	18.74	-2.55	88	21.29
Central West	20.08	-1.17	94	21.25
Central East	18.39	-1.46	93	19.85
Eastern	16.86	-4.93	77	21.79
Southern	17.96	-4.54	80	22.50
New Shoreham	20.40	-2.10	91	22.50



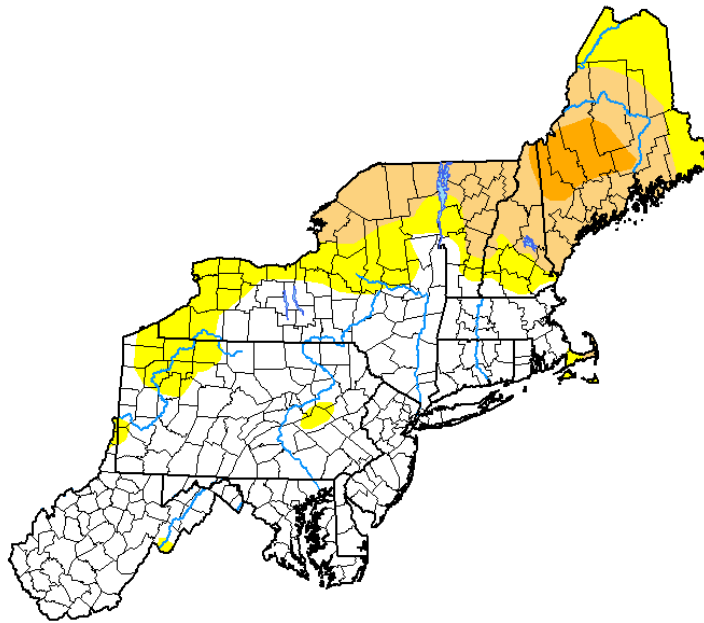
Map 1. Palmer Drought Index from the Climate Prediction Center, NOAA, dated 7/10/21.
RI Palmer is in the Normal range, +1.29.



Map 2. US Drought Monitor for Rhode Island. valid 7/6/2021.

U.S. Drought Monitor
Northeast

July 6, 2021
(Released Thursday, Jul. 8, 2021)
Valid 8 a.m. EDT



Intensity:

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

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Map 3. US Drought Monitor for the Northeast US, valid 7/6/2021.