CT Interagency Drought Workgroup

November 5, 2020, 2:00 p.m. EST, conducted remotely via Zoom:

Join Zoom Meeting
https://us02web.zoom.us/j/89935316213?pwd=L05meHA4N2xsRmlUeDlUemFhdVRQdz09

Meeting ID: 899 3531 6213
Passcode: 329111
One tap mobile
+13017158592,,89935316213# US (Germantown)
+13126266799,,89935316213# US (Chicago)

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Meeting ID: 899 3531 6213
Find your local number: https://us02web.zoom.us/u/kc8YkCLEBk

Agenda

1. Call to order
2. Introductions (if needed)
3. Approval of minutes: 10/01/2020
4. Drought Action Team update
5. Discuss current conditions and areas of improvement/degradation for each drought region (county)

a. Review conditions report compiled by OPM and any questions on agency updates
b. Discussion of other information

6. Recommend a course of action in accordance with State Drought Plan:

a. Maintain or modify current drought stage for each county
b. If modifications are made, review actions to take place in accordance with State Drought Plan

7. Items for next meeting

8. Date of next meeting

9. Adjourn

Drought Conditions Report

November 5, 2020

Connecticut Water Planning Council
Interagency Drought Workgroup

Stage 2 Drought Trigger Summary by Region -- November 5, 2020										
	Stage 2 Trigger	**Fairfield**	**Hartford**	**Litchfield**	**Middlesex**	**New Haven**	**New London**	**Tolland**	**Windham**	**Data of Record**
Precipitation (1)	Two-month total below 65% of normal	97% of normal	94% of normal	91% of normal	77% of normal	95% of normal	76% of normal	90% of normal	70% of normal	10/31/2020
Ground Water (2)	Two out of three months below the 25th percentile	18% stations meet trigger	56% stations meet trigger	40% stations meet trigger	71% stations meet trigger	38% stations meet trigger	80% stations meet trigger	33% stations meet trigger	83% stations meet trigger	10/31/2020
Streamflow (3)	Two out of three months below the 25th percentile	21% stations meet trigger	100% stations meet trigger	70% stations meet trigger	75% stations meet trigger	86% stations meet trigger	100% stations meet trigger	100% stations meet trigger	90% stations meet trigger	10/31/2020
Reservoirs (4)	Average levels less than 80% of normal	74% of normal	73% of normal	87% of normal	82% of normal	79% of normal	73% of normal	103% of normal	100% of normal	10/30/2020
Palmer Drought Severity Index (5)	-2.0 to -2.99	-1.26	-1.07	-1.18	-1.26	-1.26	-1.26	-1.07	-1.07	10/31/2020
Crop Moisture Index (6)	-1.0 to –1.99	0.67	0.93	1.20	0.67	0.67	0.67	0.93	0.93	10/31/2020
VegDRI (seasonal) (7)	Pre-drought stress	Growing season has ended	Growing season has ended	Growing season has ended	Growing season has ended	Growing season has ended	Growing season has ended	Growing season has ended	Growing season has ended	11/1/2020
Fire Danger (8)	Moderate	Low	Low	Low	Low	Low	Low	Low	Low	11/4/2020
U.S. Drought Monitor (9)	Intensity level D1-D2	N/A	D0-D1	D0	D0	D0	D0-D1	D1	D1	11/5/2020

Key:	Drought trigger met across the majority of region	Region partially meets drought trigger or is near trigger threshold (judgement call needed)	Drought trigger not met across the majority of region (conditions can be worse in specific localities)

Methodology:
(1) Based on monthly precipitation averaged by region, calculated by National Weather Service (NWS).
(2) Based on monthly assessment of groundwater stations by region, calculated by United States Geological Survey (USGS). Region is identified as meeting trigger when ≥65% of stations in the region meet the threshold. Region is identified as not meeting trigger when ≤25% of stations in the region meet the threshold. Region is identified as partially meeting trigger when greater than 25% and less than 65% of stations in the region meet the threshold.
(3) Based on monthly assessment of stream gauge stations by region, calculated by USGS. Region is identified as meeting trigger when ≥65% of stations in the region meet the threshold. Region is identified as not meeting trigger when ≤25% of stations in the region meet the threshold. Region is identified as partially meeting trigger when greater than 25% and less than 65% of stations in the region meet the threshold.
(4) Based on latest available reservoir status reports obtained from public water suppliers and compiled by CT Department of Public Health Drinking Water Section.
(5) Calculated by Climate Prediction Center (CPC) for each State Climate Division and extrapolated to county. Northwestern Climate Division reflective of Fairfield county, Central Climate Division reflective of Hartford, Tolland, Windham counties. Blend of Central Climate Division and Coastal Climate Division for Fairfield, New Haven, Middlesex, New London counties.
(6) Calculated by CPC for each State Climate Division and extrapolated to county. Northwestern Climate Division reflective of Fairfield county, Central Climate Division reflective of Hartford, Tolland, Windham counties. Blend of Central Climate Division and Coastal Climate Division for Fairfield, New Haven, Middlesex, New London counties.
(7) Based on visual assessment of geographic extent of each VegDri drought designation in each region, calculated by the National Drought Mitigation Center in collaboration with USGS.
(8) Based on daily forest fire danger report from CT DEEP Bureau of Natural Resources, Division of Forestry.
(9) Based on analysis of most recent edition of the U.S. Drought Monitor, produced by the National Drought Mitigation Center.

Stage 3 Drought Trigger Summary by Region -- November 5, 2020										
	Stage 3 Trigger	**Fairfield**	**Hartford**	**Litchfield**	**Middlesex**	**New Haven**	**New London**	**Tolland**	**Windham**	**Data of Record**
Precipitation (1)	Three-month total below 65% of normal	89% of normal	83% of normal	90% of normal	79% of normal	89% of normal	67% of normal	83% of normal	67% of normal	10/31/2020
Ground Water (2)	Four consecutive months below the 25th percentile	0% stations meet trigger	22% stations meet trigger	40% stations meet trigger	57% stations meet trigger	0% stations meet trigger	40% stations meet trigger	0% stations meet trigger	67% stations meet trigger	10/31/2020
Streamflow (3)	Four out of five months below the 25th percentile	7% stations meet trigger	73% stations meet trigger	50% stations meet trigger	25% stations meet trigger	14% stations meet trigger	20% stations meet trigger	0% stations meet trigger	40% stations meet trigger	10/31/2020
Reservoirs (4)	Average levels less than 70% of normal	74% of normal	73% of normal	87% of normal	82% of normal	79% of normal	73% of normal	103% of normal	100% of normal	10/30/2020
Palmer Drought Severity Index (5)	-3.0 to -3.99	-1.26	-1.07	-1.18	-1.26	-1.26	-1.26	-1.07	-1.07	10/31/2020
Crop Moisture Index (6)	-2.0 to -2.99	0.67	0.93	1.20	0.67	0.67	0.67	0.93	0.93	10/31/2020
VegDRI (seasonal) (7)	Moderate drought conidtions	Growing season has ended	Growing season has ended	Growing season has ended	Growing season has ended	Growing season has ended	Growing season has ended	Growing season has ended	Growing season has ended	11/1/2020
Fire Danger (8)	High	Low	Low	Low	Low	Low	Low	Low	Low	11/4/2020
U.S. Drought Monitor (9)	Intensity level D2-D3	N/A	D0-D1	D0	D0	D0	D0-D1	D1	D1	11/5/2020

Key:	Drought trigger met across the majority of region	Region partially meets drought trigger or is near trigger threshold (judgement call needed)	Drought trigger not met across the majority of region (conditions can be worse in specific localities)

Methodology:

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(8) Based on daily forest fire danger report from CT DEEP Bureau of Natural Resources, Division of Forestry.

(9) Based on analysis of most recent edition of the U.S. Drought Monitor, produced by the National Drought Mitigation Center.

Connecticut Precipitation
National Weather Service Offices
Boston/Norton MA, Albany NY, Upton NY
Preliminary Precipitation Data (inches) by County
Precipitation Data Through October 2020
Includes CoCoRaHS data

CT 1 Month October 2020	Rainfall	Departure	Percent	Normal
Litchfield	5.23	0.40	108	4.83
Hartford	6.41	1.51	131	4.90
Tolland	6.00	1.24	126	4.76
Windham	4.78	0.26	106	4.52
Fairfield	5.33	0.79	117	4.54
New Haven	5.49	0.85	118	4.64
Middlesex	5.00	-0.37	93	5.37
New London	5.19	0.91	121	4.29

CT 2 month Sep-Oct 20	Rainfall	Departure	Percent	Normal
Litchfield	8.45	-0.79	91	9.24
Hartford	8.65	-0.52	94	9.17
Tolland	7.81	-0.88	90	8.69
Windham	6.06	-2.57	70	8.63
Fairfield	8.56	-0.26	97	8.82
New Haven	8.12	-0.46	95	8.58
Middlesex	7.01	-2.05	77	9.06
New London	6.50	-2.02	76	8.52

CT 3 month Aug-Oct 20	Rainfall	Departure	Percent	Normal
Litchfield	12.29	-1.34	90	13.63
Hartford	11.19	-2.33	83	13.52
Tolland	10.45	-2.21	83	12.66
Windham	8.52	-4.28	67	12.80
Fairfield	11.83	-1.43	89	13.26
New Haven	11.21	-1.32	89	12.53
Middlesex	10.32	-2.76	79	13.08
New London	8.71	-4.28	67	12.99

CT 4 month Jul-Oct 20	Rainfall	Departure	Percent	Normal
Litchfield	15.60	-2.62	86	18.22
Hartford	13.15	-4.94	73	18.09
Tolland	13.21	-3.38	80	16.59
Windham	11.02	-6.04	65	17.06
Fairfield	17.72	0.19	101	17.53
New Haven	14.80	-1.77	89	16.57
Middlesex	13.82	-3.64	79	17.46
New London	10.91	-5.80	65	16.71

CT 5 month Jun-Oct 20	Rainfall	Departure	Percent	Normal
Litchfield	17.78	-5.04	78	22.82
Hartford	14.83	-7.88	65	22.71
Tolland	15.64	-5.53	74	21.17
Windham	13.99	-7.41	65	21.40
Fairfield	19.61	-2.36	89	21.97
New Haven	17.30	-3.67	83	20.97
Middlesex	15.34	-7.08	68	22.42
New London	13.63	-7.15	66	20.78

CT 6 month May-Oct 20	Rainfall	Departure	Percent	Normal
Litchfield	21.04	-6.18	77	27.23
Hartford	17.70	-9.43	65	27.13
Tolland	18.76	-6.50	74	25.27
Windham	17.70	-7.72	70	25.42
Fairfield	22.07	-4.28	84	26.35
New Haven	20.19	-5.01	80	25.20
Middlesex	18.74	-7.90	70	26.64
New London	17.33	-7.22	71	24.55

CT 7 month Apr-Oct 20	Rainfall	Departure	Percent	Normal
Litchfield	26.00	-5.42	83	31.42
Hartford	22.61	-8.83	72	31.44
Tolland	24.26	-5.61	81	29.88
Windham	23.08	-6.93	77	30.01
Fairfield	27.35	-3.45	89	30.80
New Haven	25.85	-3.73	87	29.58
Middlesex	24.75	-6.31	80	31.06
New London	22.22	-6.88	76	29.10

CT 12 month Nov 19-Oct 20	Rainfall	Departure	Percent	Normal
Litchfield	45.95	-4.77	91	50.72
Hartford	43.18	-7.66	85	50.84
Tolland	44.76	-5.30	89	50.06
Windham	43.64	-6.53	87	50.17
Fairfield	46.17	-4.04	92	50.21
New Haven	45.62	-3.07	94	48.69
Middlesex	45.81	-5.35	90	51.16
New London	42.36	-7.53	85	49.89

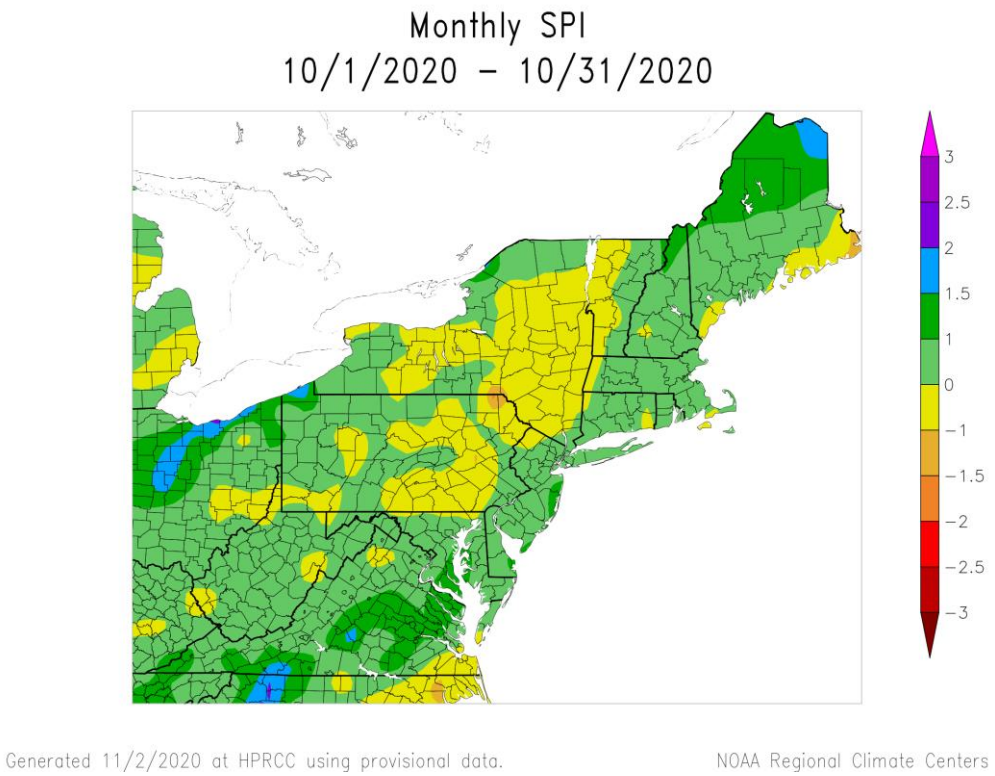
CT 24 month Nov 18-Oct 20	Rainfall	Departure	Percent	Normal
Litchfield	102.49	1.05	101	101.44
Hartford	100.80	-0.89	99	101.69
Tolland	105.42	5.29	105	100.13
Windham	103.36	3.01	103	100.35
Fairfield	107.42	7.00	107	100.42
New Haven	106.48	9.11	109	97.38
Middlesex	105.74	3.42	103	102.32
New London	106.59	6.81	107	99.79

CT 36 month Nov 17-Oct 20	Rainfall	Departure	Percent	Normal
Litchfield	159.34	7.18	105	152.16
Hartford	155.39	2.86	102	152.53
Tolland	159.89	9.70	106	150.19
Windham	162.87	12.35	108	150.52
Fairfield	164.83	14.20	109	150.63
New Haven	161.67	15.61	111	146.06
Middlesex	163.48	10.00	107	153.48
New London	161.54	11.86	108	149.68

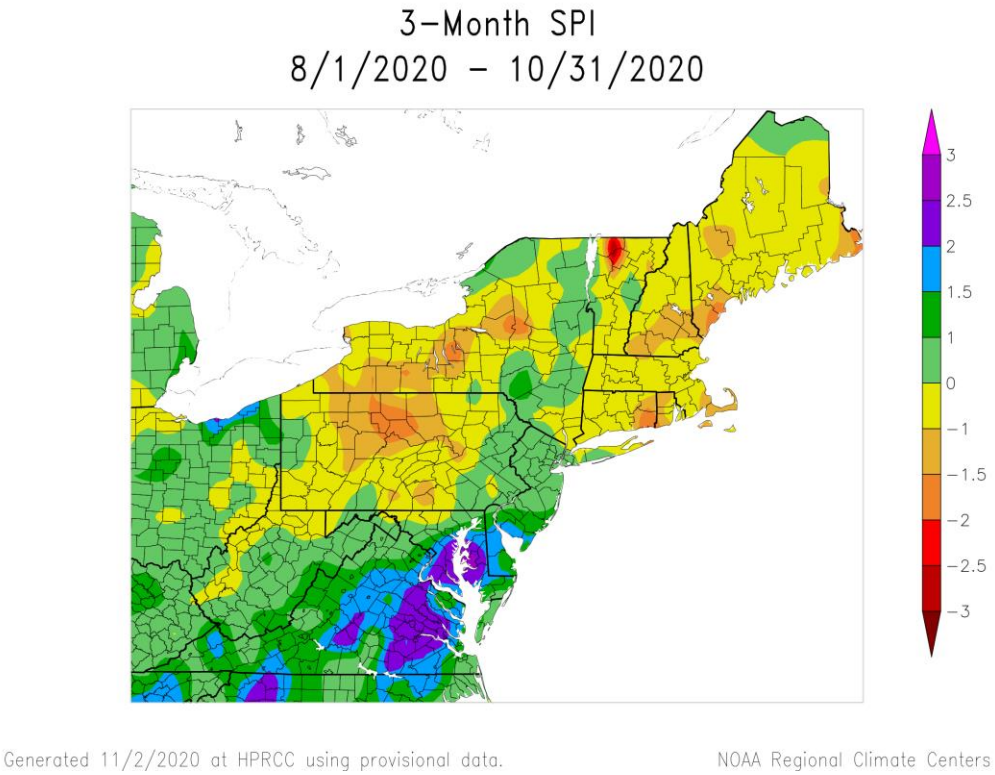
County-based monthly precipitation totals are calculated using an average of all available full-month precipitation totals within that County from the following networks: Community Collaborative Rain, Hail and Snow network (CoCoRaHS), Cooperative Weather Observer Program (Coop), and Automated Surface Observing Systems (ASOS) data.

Coop and ASOS sites are part of National Weather Service networks. CoCoRaHS is a community-based network of volunteers that report precipitation.

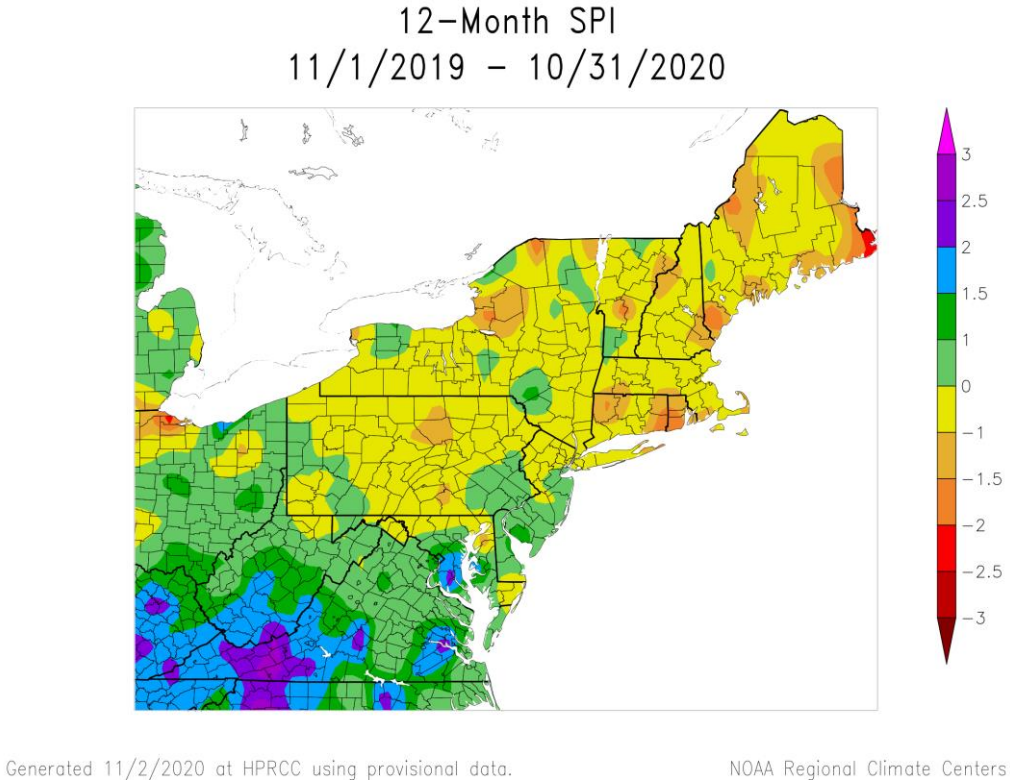
County-based monthly normals were calculated using 30-year precipitation normals from NOAA/National Centers for Environmental Information (NCEI) for the period of 1981-2010. Monthly normals from 42 stations (consisting of Coop and ASOS stations) were grouped by County to calculate a single monthly normal for each County.



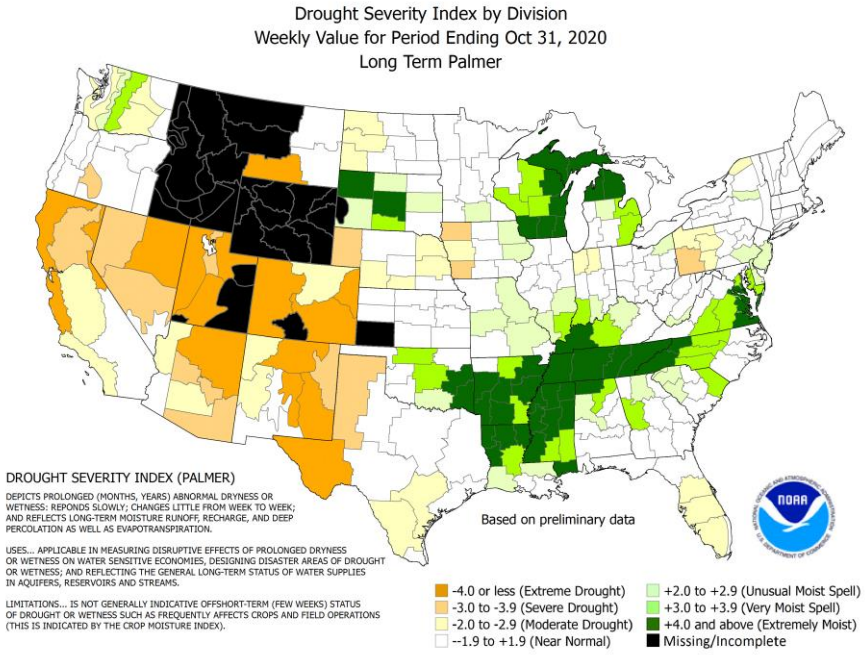
Map 1. October 2020 SPI, from NOAA Regional Climate Centers.\



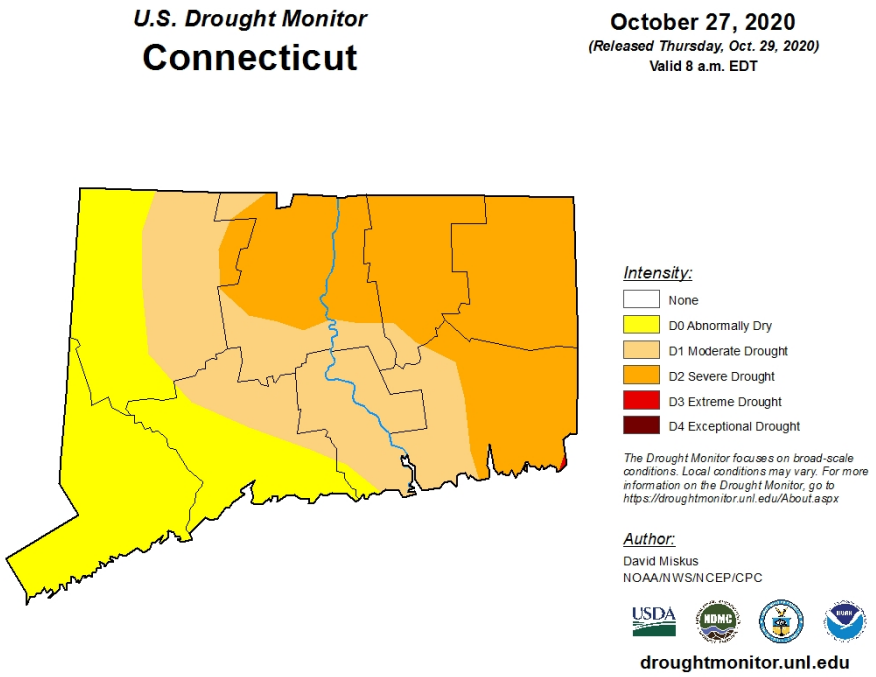
Map 2. Three month SPI ending October 2020, from the NOAA Regional Climate Centers.



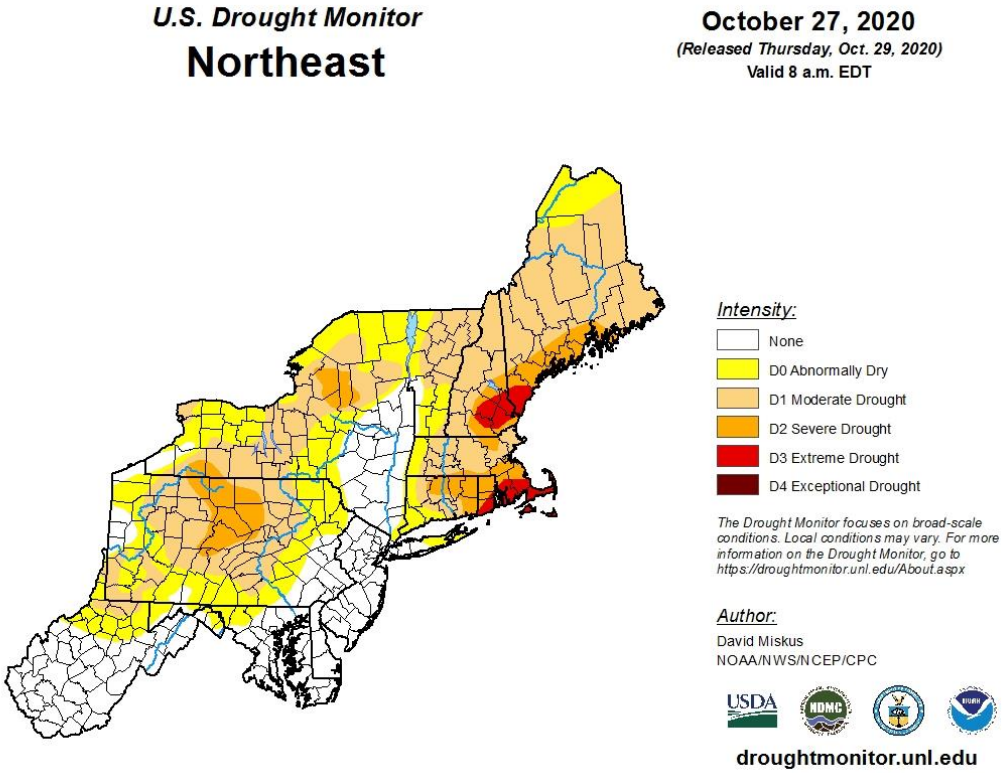
Map 3. Twelve month SPI ending October 2020, from the NOAA Regional Climate Centers.



Map 4. Palmer Drought Index from the Climate Prediction Center as of 10/31/20. CT Palmer Drought Index values: Northwest -1.18 (Near Normal), Central -1.07 (Near Normal), Coastal -1.44 (Near Normal).



Map 5. U.S. Drought Monitor zoom-in on CT, effective 10/27/2020.



Map 6. U.S. Drought Monitor for Northeast US, effective 10/27/2020.

Connecticut Interagency Drought Workgroup Meeting
November 5, 2020
NWS Boston/Albany Summary

Rainfall totals for October were near normal to above normal across the State. This was the first near normal to above normal month Statewide since April 2020. County averaged precipitation for October ranged from 4.78 to 6.41 inches. Temperatures averaged 1 to 3 degrees above normal.

Rainfall from November 1 to 3 ranged from 0.4 to 0.75 inches across most of the State. There were a few higher totals approaching 1 inch along southern New Haven and southern New London Counties.

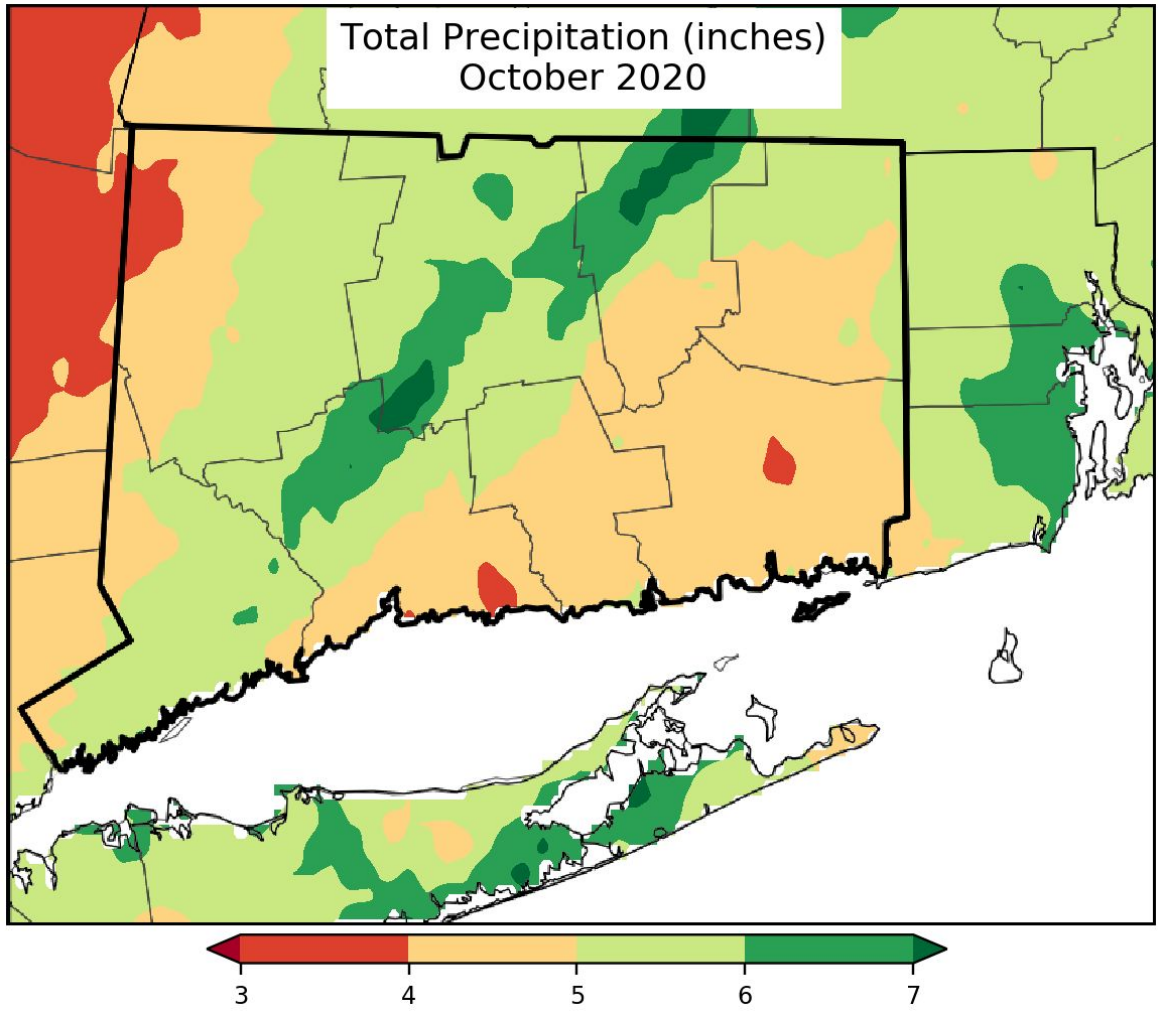
The generous October rainfall bumped up multi-month precipitation totals to 65% of normal or higher. There were some multi-month thresholds that were a close call. This included the 3 month figures for Windham and New London Counties, at 67% of normal (3 month figures used for Stage 3 Drought). The 5-month figures for Hartford, WIndham, Middlesex and New London Counties were at or just above 65% of normal (5 month figures used for Stage 4 Drought).

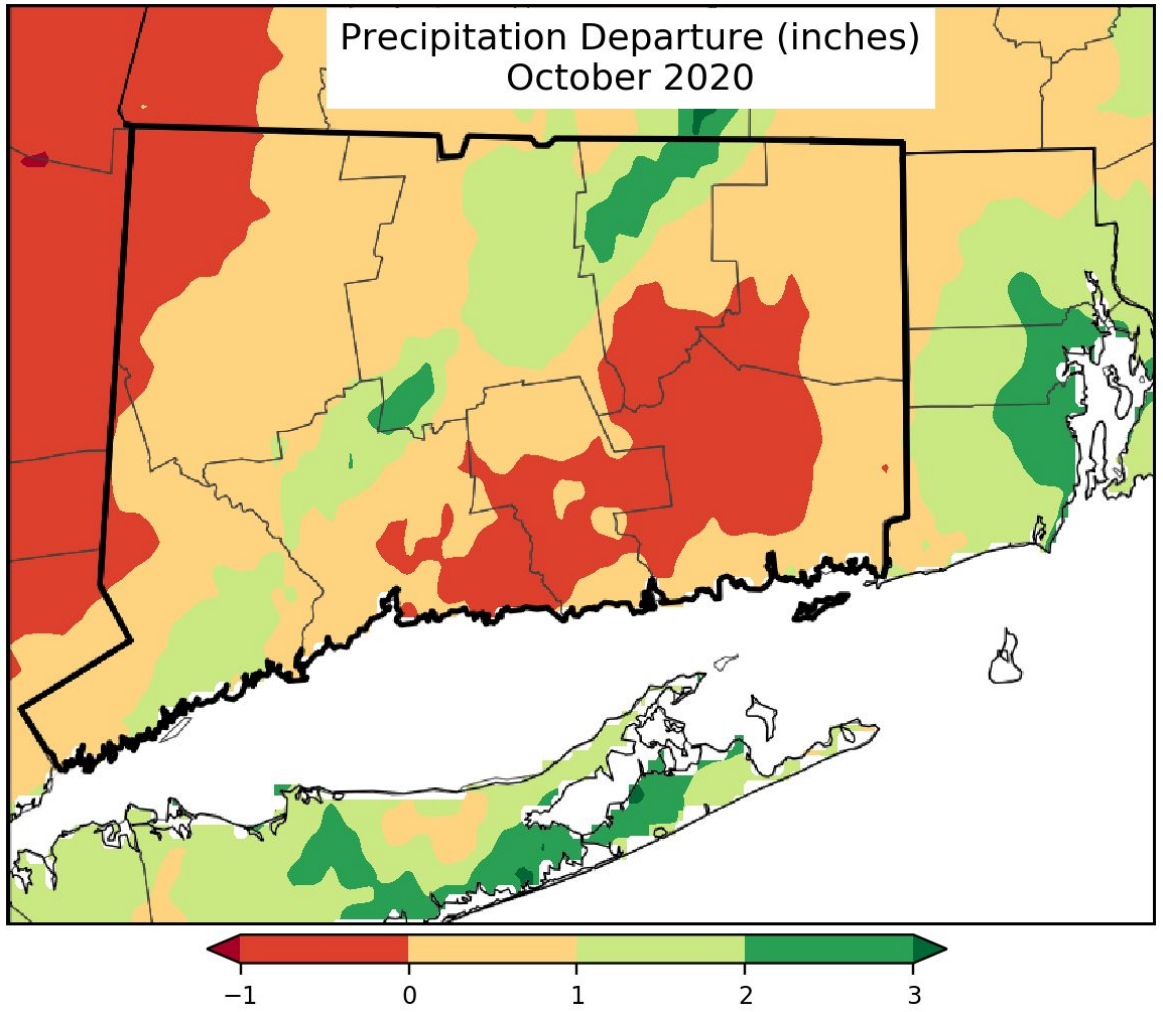
The weather pattern is mainly dry through 8 am next Wednesday 11/11, with temperatures averaging much above normal. Climate Prediction Center outlooks follow. The 8 to 14 day outlook from November 11 to 17 calls for above normal temperatures and above normal precipitation. The outlook from November 14 to 27 indicates normal to above normal precipitation and above normal temperatures are probable. Lastly the winter outlook (December through February) indicates above normal temperatures are likely, while precipitation amounts are more uncertain.

NWS Conditions Update

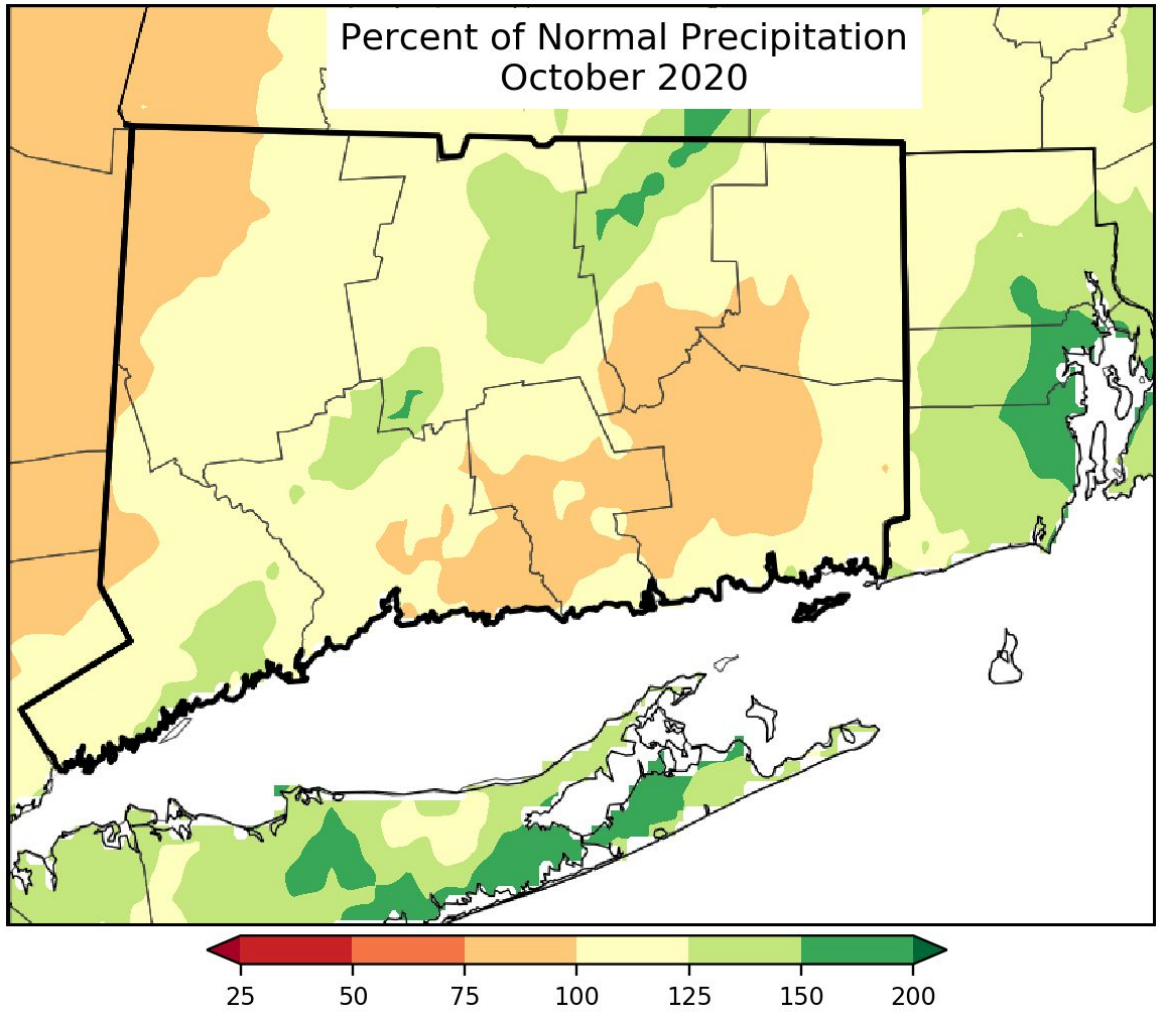
Connecticut Interagency Drought Workgroup Meeting
National Weather Service Boston MA and Albany NY
November 5 2020

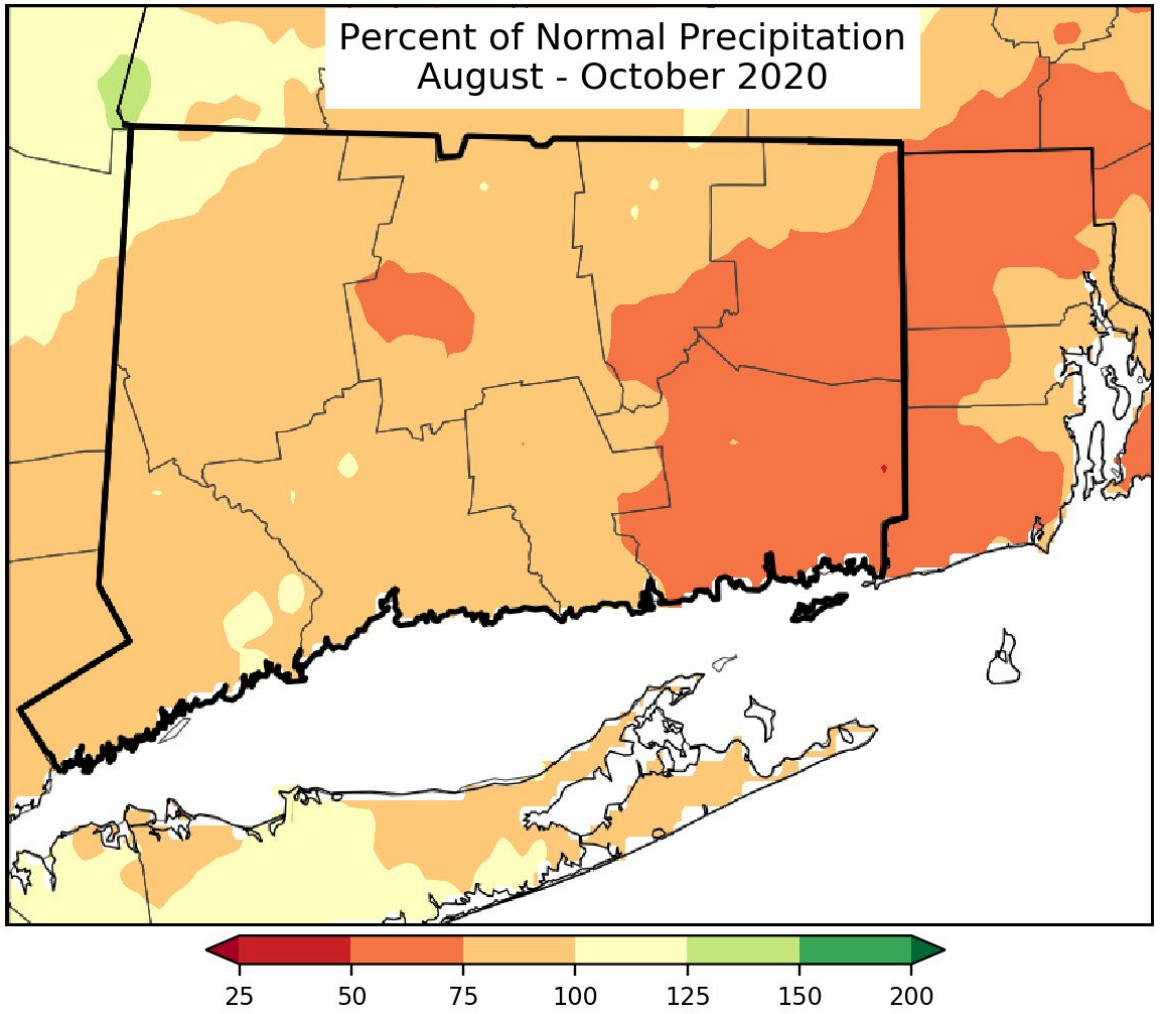
October 2020 Rainfall





Oct 2020 and Aug-Oct Percent of Normal



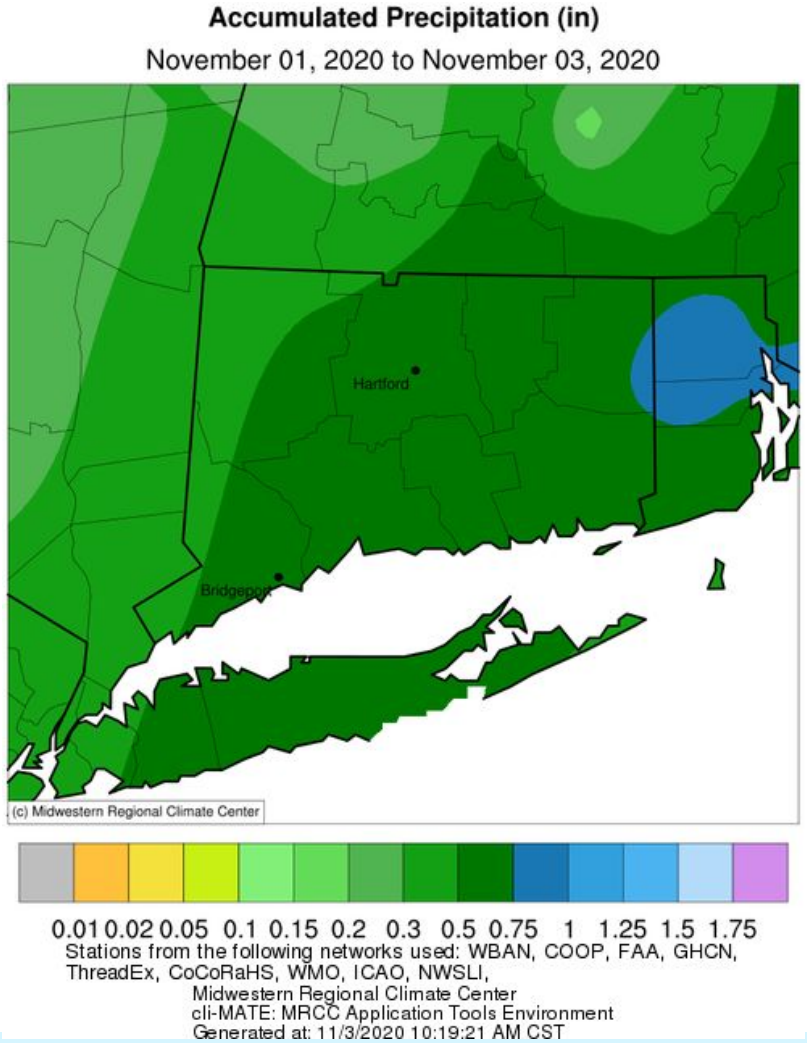


3-Month and 5-Month Precipitation

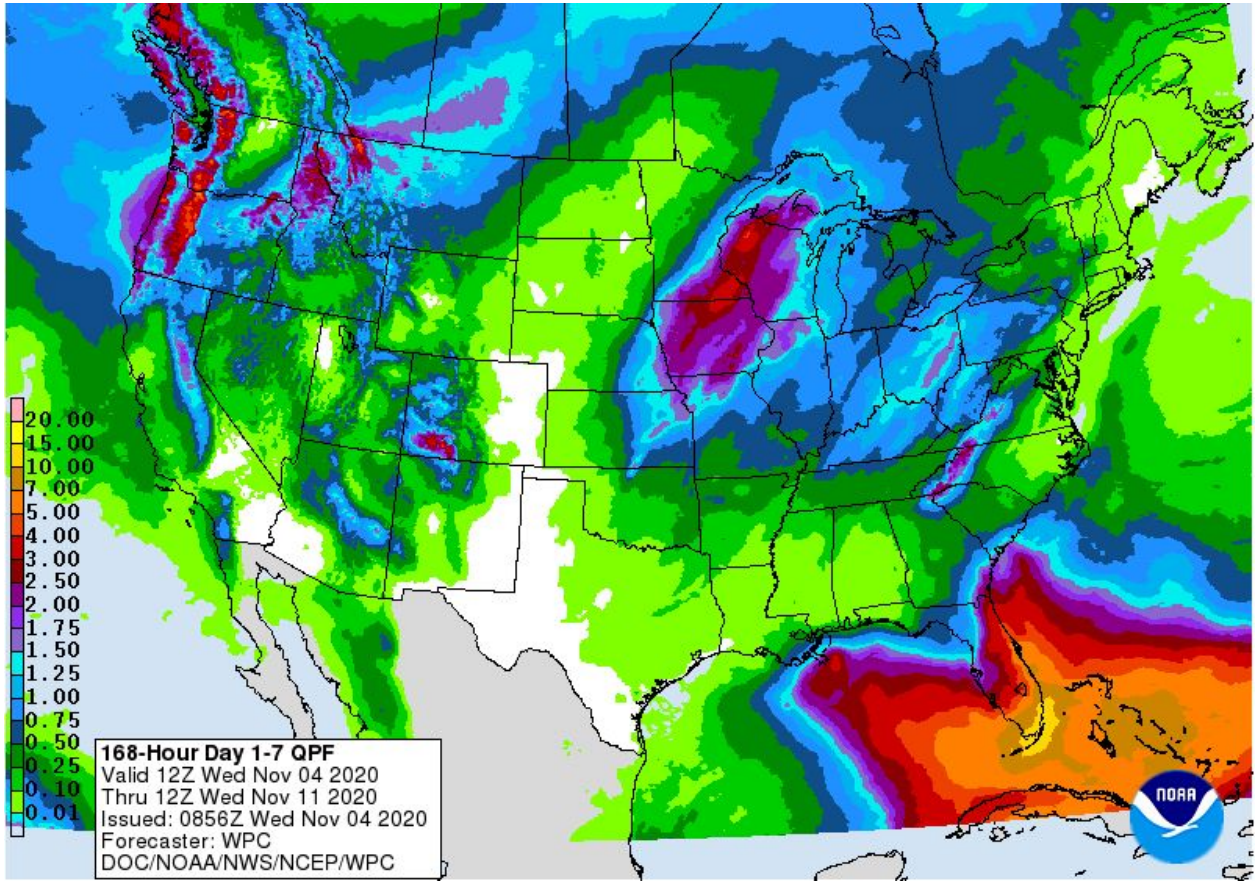
CT 3 month Aug-Oct 20	Rainfall	Departure	Percent	Normal
Litchfield	12.29	-1.34	90	13.63
Hartford	11.19	-2.33	83	13.52
Tolland	10.45	-2.21	83	12.66
Windham	8.52	-4.28	67	12.80
Fairfield	11.83	-1.43	89	13.26
New Haven	11.21	-1.32	89	12.53
Middlesex	10.32	-2.76	79	13.08
New London	8.71	-4.28	67	12.99

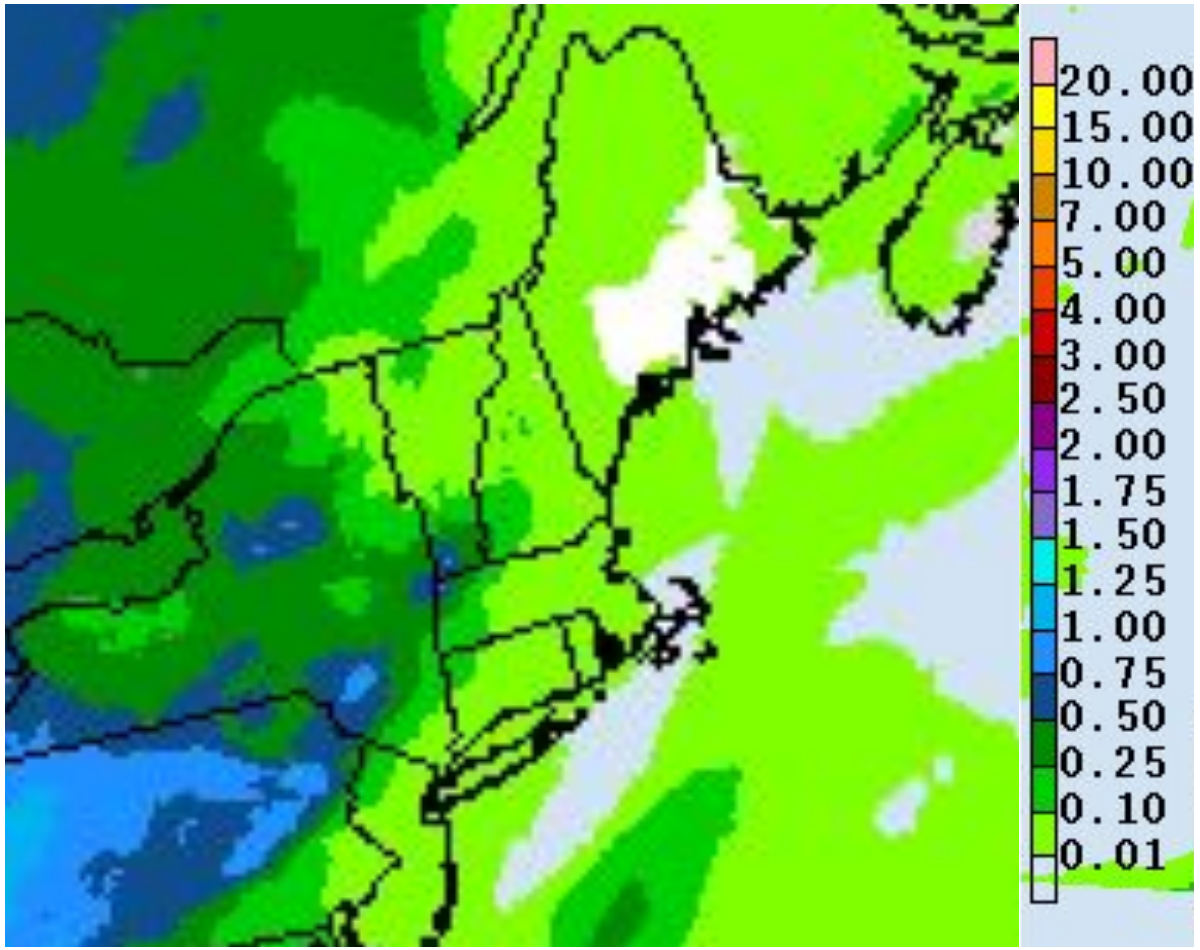
CT 5 month Jun-Oct 20	Rainfall	Departure	Percent	Normal
Litchfield	17.78	-5.04	78	22.82
Hartford	14.83	-7.88	65	22.71
Tolland	15.64	-5.53	74	21.17
Windham	13.99	-7.41	65	21.40
Fairfield	19.61	-2.36	89	21.97
New Haven	17.30	-3.67	83	20.97
Middlesex	15.34	-7.08	68	22.42
New London	13.63	-7.15	66	20.78

November 1-3 2020 Rainfall

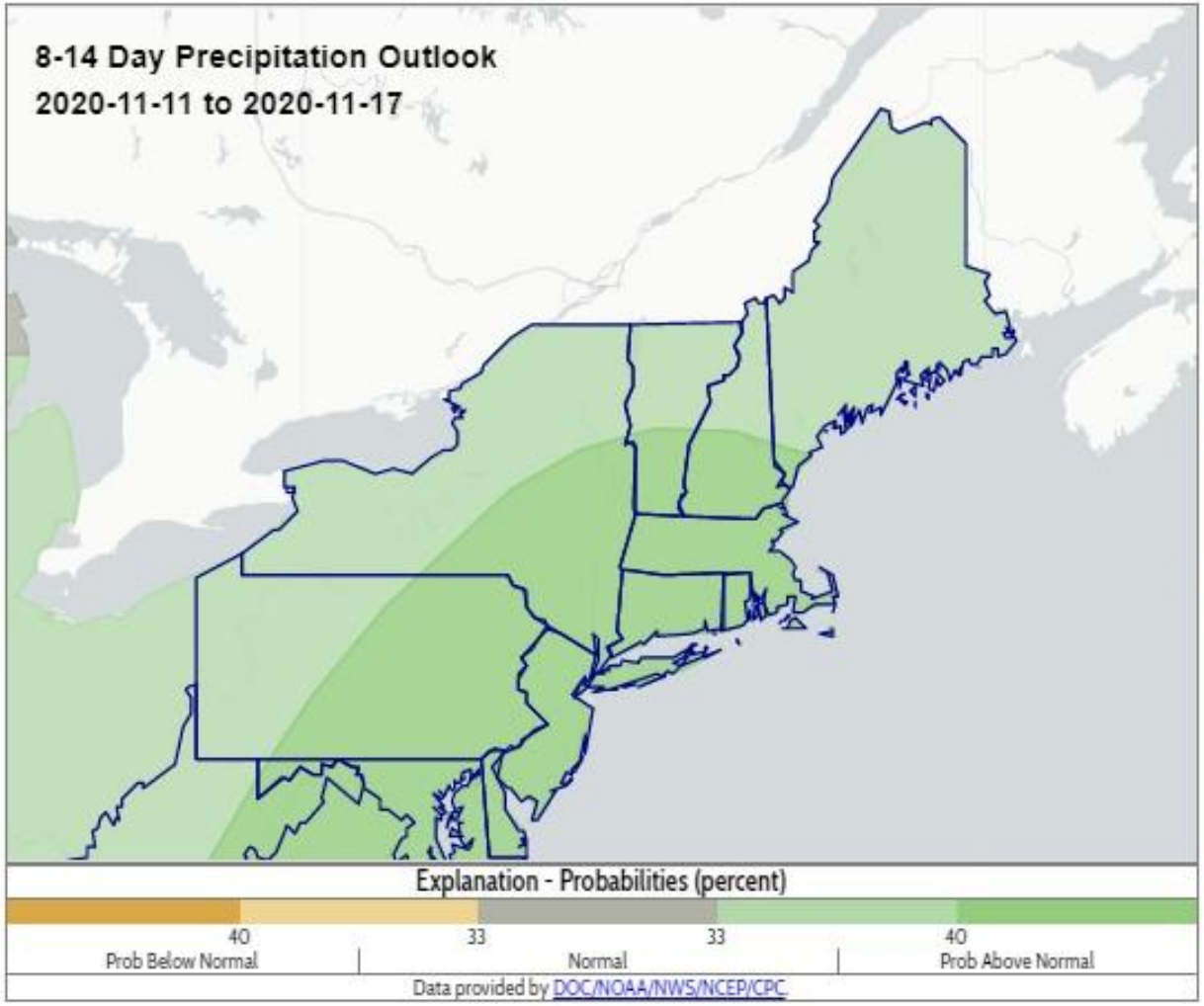


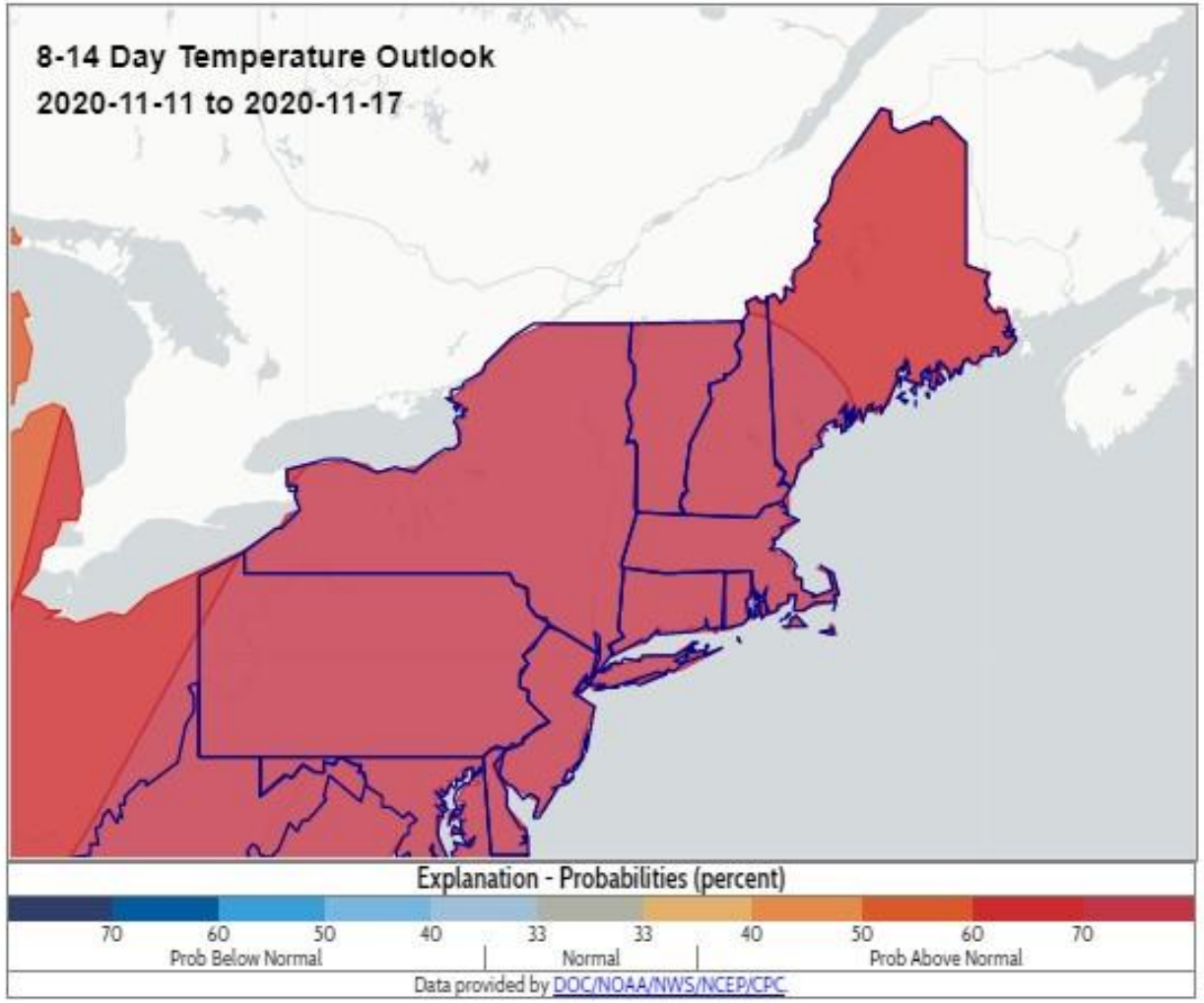
Rainfall Forecast Through 7 am Wed 11/11
Temperatures average well above normal





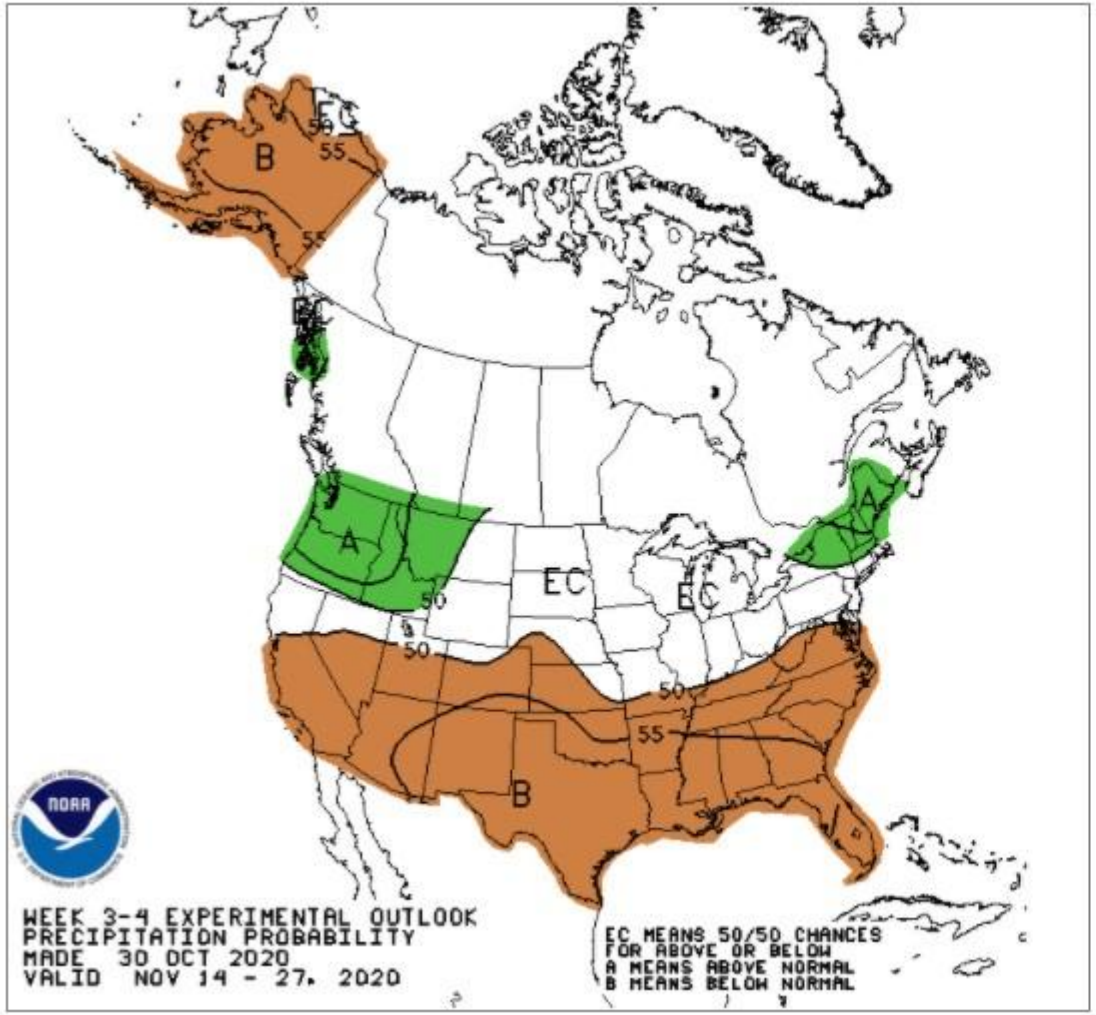
Outlook for Nov 11-17 2020

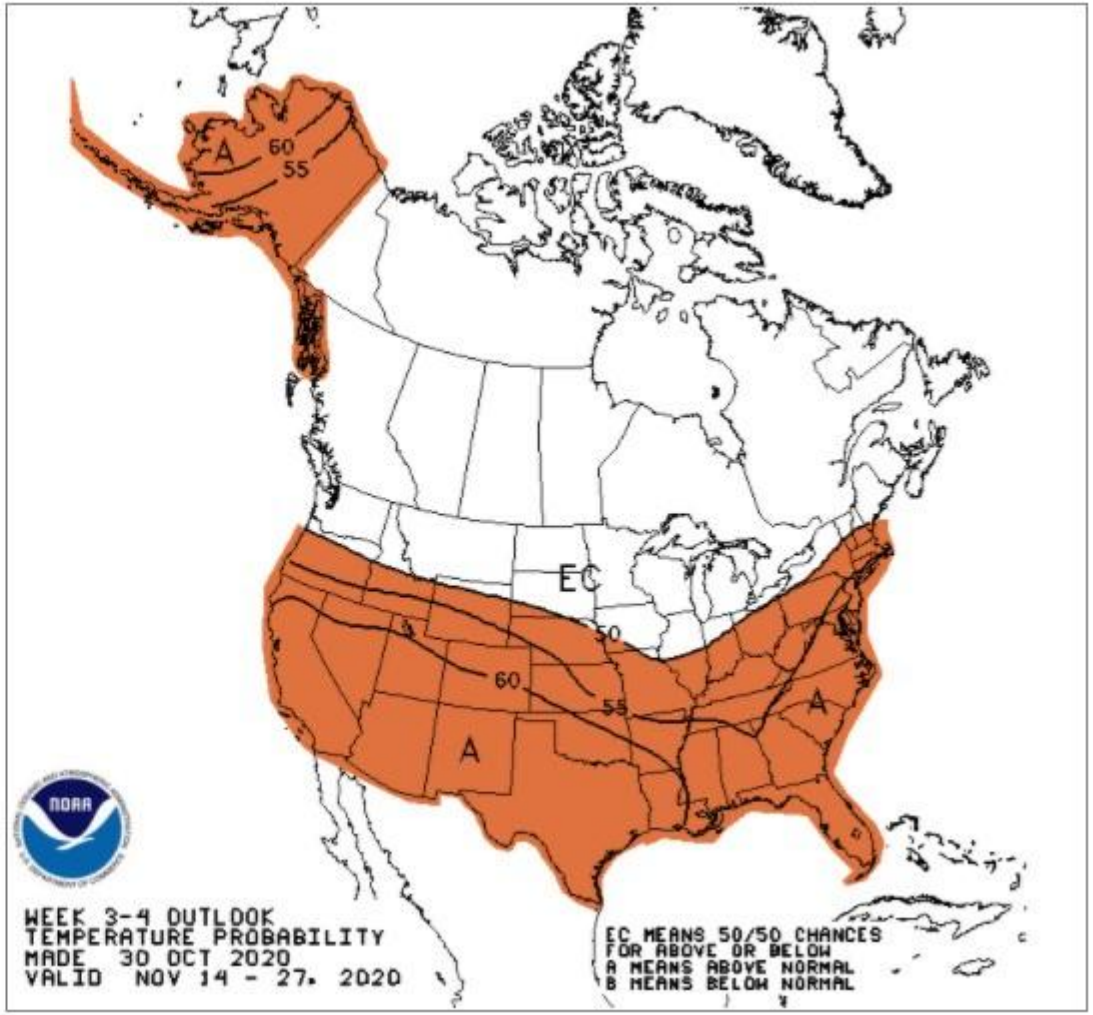




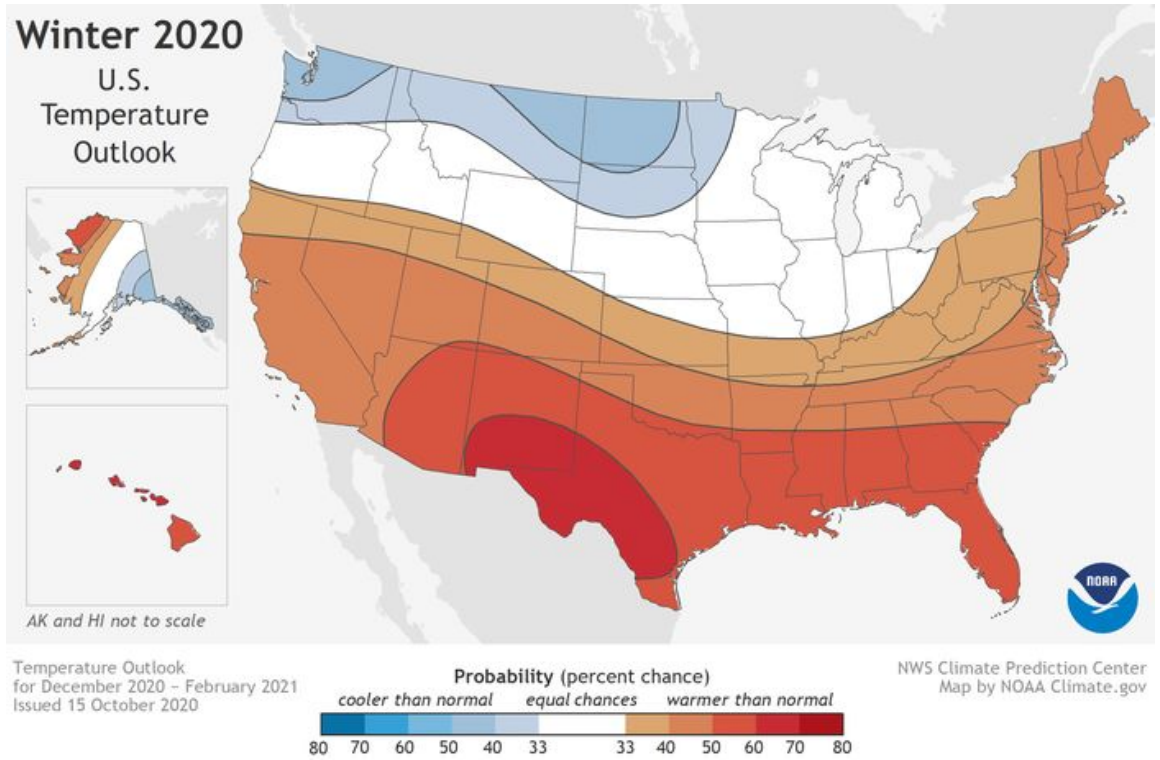
Week 3-4 Outlook*, Nov 14-27

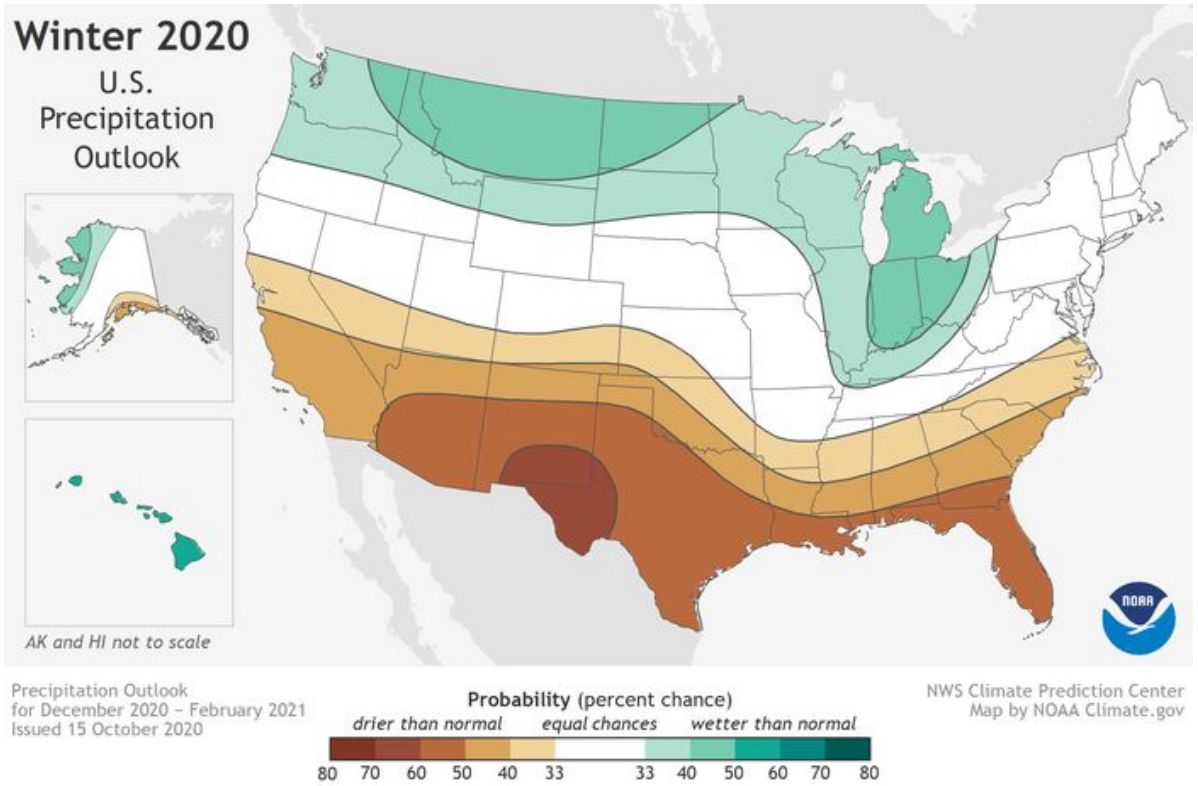
*Outlook updated at 3 pm EDT Friday





Outlook for Dec/Jan/Feb





Provisional Data, subject to review and revision

U.S. Geological Survey

Status of streamflow and groundwater levels, as of October 31, 2020

USGS

Provisional Data, subject to review and revision

County	Number of wells	Number of wells below normal for 2 or more out of 3 consecutive months	Number of wells below normal for 4 or more consecutive months	Percent stage 2	Percent stage 3	Sites back to normal range*
Fairfield	11	2	0	18.1	0	1
Hartford	9	5	2	55.5	22.2	1
Litchfield	5	2	2	40	40	
Middlesex	7	5	4	71.4	57.1	
New Haven	13	5	0	38.4	0	3
New London	5	4	2	80	40	
Tolland	12	4	0	33.3	0	1
Windham	6	5	4	83.3	66.7	

END OF OCTOBER 2020 GROUNDWATER SUMMARY BY COUNTY

USGS

*These are sites that changed from > = 2 consecutive months below normal last month to the normal range for October. Reset to 2/3 months below normal (stage 2) regardless of how many consecutive months they were below normal.

Provisional Data, subject to review and revision

County	Number of gages	Number of gages below normal for 2 or more out of 3 consecutive months	Number of gages below normal for 4 or more out of 5 consecutive months	Percent stage 2	Percent stage 3	Sites back to normal*
Fairfield	14	3	1	21.4	7.1	2
Hartford	11	11	8	100	72.7	4
Litchfield	10	7	5	70	50	6
Middlesex	4	3	1	75	25	1
New Haven	7	6	1	85.7	14.3	5
New London	5	5	1	100	20	0
Tolland	3	3	0	100	0	2
Windham	10	9	4	90	40	4

OCTOBER STREAMFLOW SUMMARY BY COUNTY

*These are sites that changed from > = 2 consecutive months below normal last month to the normal range for October. Not reflected in the percentages above because the standard for stage 2 or 3 is 2/3 months below normal or 4/5 months below normal, therefore for any of these sites, the status was set the same as in September.

USGS

Surface Reservoir Capacity Measurements and Trends

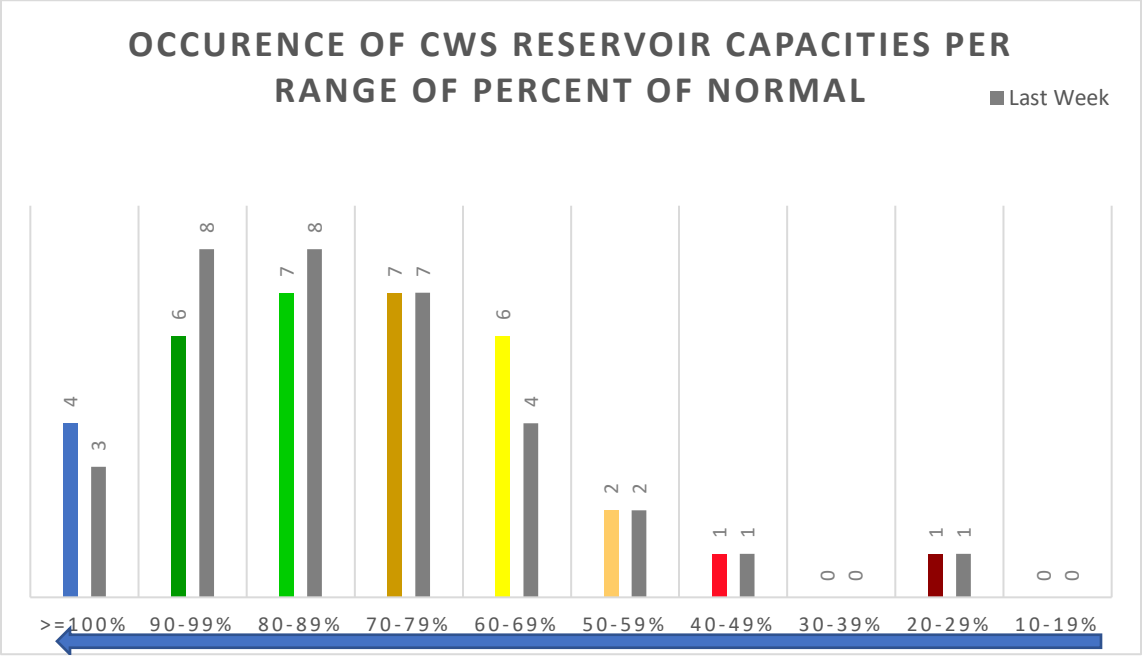
10/30/2020 Update

General take away – There has been some improvement in conditions and reservoirs in many counties but we still have a way to go to get back to normal.

Thirty-four surface water systems measure their reservoir capacities weekly and report the readings to the Drinking Water Section (DWS). The attached table summarizes the most recent measurements in percent full and shows the week to week trend of their capacities.

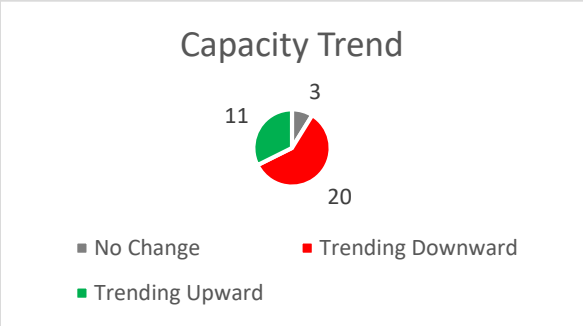
Key takeaways:

- **4** out of 34 reservoir systems are at or above their normal percent full for this time of year. There has been improvement over the last few weeks and it reflected in the information received from the CWSs.
- **There has been slight degradation since last week**. The overall state average is **64.1% full** (Last week – 64.4% full) and the **state average percent of normal is 79.8 %** (last week – 80.1% of Normal). This is less than a 1% decrease from last week from the recent rain events over the past few weeks.
- 6 systems are reporting below normal condition between 90 and 99% of Normal indicated by the red numbers in the attached table. That is a degradation of 2 systems. **24 systems are below 90% of Normal**. Of the 23 systems below 90%, 7 systems are between 80 and 89% of Normal, 7 systems are between 70 and 79% of Normal, 10 systems are below 70% of Normal.
- 3 systems have reported that they are currently at 100% full. No change from last week.

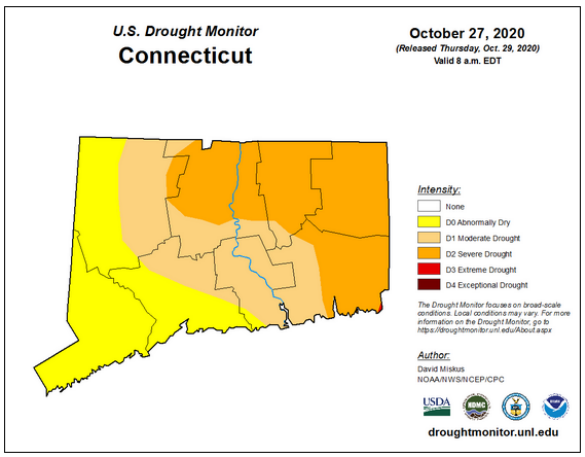


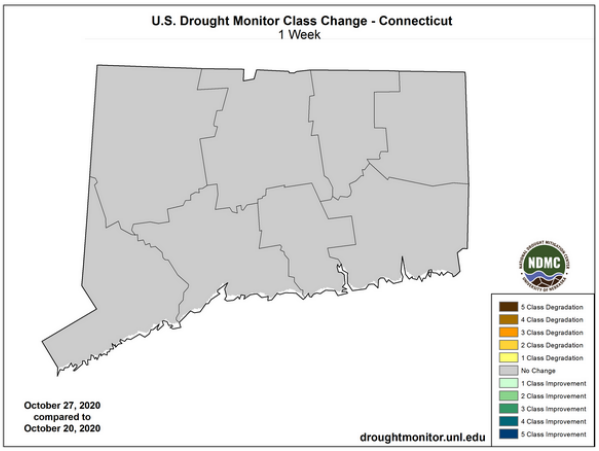
- **The rain events that occurred over the past few weeks has had a positive impact on the many reservoir systems.** The gray bars indicate last week's measurements. However, there has been a slight shift towards the right of the graph indicating capacities decreasing since last week. Under normal capacities, the graph above would have all of the systems in the >=100% of normal column (n-34). The number of systems below normal are shifting to the right in the graph above to more below normal as shown in the percent of normal range columns. As conditions worsen, it will be shown in the graph with the columns getting bigger in the middle to right-hand percent of normal range columns. As conditions improve the columns will grow toward the left.

- Due to the rain received near the end of September, **11 systems' short-term week to week trend is upward**. 1 system had a 10% or greater increase in their percent full. 20 systems are still trending downward in capacity from their previous measurements. 3 systems have no change in capacity.



- Changes in drought status for PWS since last week:
  - No change since last week.
- US Drought Monitor: –No change since last week.
  https://droughtmonitor.unl.edu/CurrentMap/StateDroughtMonitor.aspx?CT





PWSID	PWS Name	Most Recent Reading Date	Percent Full	Current Status	Trend	Historical Average	Percent of Normal	Previous Date	Previous Percent Full	County_Served
CT0570011	Aquarion Water Co of CT-Greenwich System	10/25/2020	33.50	**Drought Warning**	↓	65.20	51	10/11/2020	37.20	FAIRFIELD
CT1030021	South Norwalk Electric & Water	10/19/2020	36.80	**Drought Advisory**	↓	60.60	61	10/13/2020	38.60	FAIRFIELD
CT1030011	Norwalk First Taxing District	10/25/2020	44.00	**Emergency / Drought Watch**	↓	70.80	62	10/18/2020	44.60	FAIRFIELD
CT1350011	Aquarion Water Co of CT-Stamford	10/25/2020	50.30	No Drought Stage	↓	66.80	75	10/11/2020	52.20	FAIRFIELD
CT0150011	Aquarion Water Co of CT-Main System	10/25/2020	63.50	No Drought Stage	↓	81.40	78	10/11/2020	64.20	FAIRFIELD
CT0340011	Danbury Water Department	10/25/2020	66.70	No Drought Stage	↓	77.30	86	10/18/2020	67.00	FAIRFIELD
CT0090011	Bethel Water Dept	10/25/2020	99.40	No Drought Stage	↑	93.60	106	10/18/2020	99.30	FAIRFIELD
CT1310011	Southington Water Department	10/24/2020	17.30	No Drought Stage	↑	63.40	27	10/17/2020	13.60	HARTFORD
CT0170011	Bristol Water Department	10/25/2020	50.30	**Emergency Phase -1**	↓	80.40	63	10/18/2020	51.50	HARTFORD
CT0770021	Manchester Water Department	10/25/2020	63.10	**Drought Advisory**	↓	83.70	75	10/18/2020	63.90	HARTFORD
CT0890011	New Britain Water Department	10/22/2020	55.50	**Drought Watch**	↑	63.20	88	10/15/2020	54.90	HARTFORD
CT0473011	CTWC - Northern Reg-Western System	10/22/2020	69.60	No Drought Stage	↑	78.40	89	10/15/2020	67.20	HARTFORD
CT0640011	Metropolitan District Commission	10/26/2020	81.80	No Drought Stage	↓	84.50	97	10/18/2020	82.30	HARTFORD
CT1220011	Aquarion Water Co of CT-Salisbury Sys	10/11/2020	45.50	No Drought Stage	--	91.10	50	10/4/2020	45.50	LITCHFIELD
CT1620011	Winsted Water Works	10/25/2020	85.20	No Drought Stage	↓	95.70	89	10/18/2020	86.10	LITCHFIELD
CT0980011	Aquarion Water Co of CT-Norfolk System	10/25/2020	90.50	No Drought Stage	↑	98.00	92	10/11/2020	90.10	LITCHFIELD
CT1430011	Torrington Water Company	10/23/2020	70.60	No Drought Stage	↑	72.70	97	10/16/2020	70.50	LITCHFIELD
CT1250011	Sharon Water & Sewer Commission	9/12/2020	100.00	No Drought Stage	--	95.20	105	9/5/2020	100.00	LITCHFIELD
CT0830011	Middletown Water Department	10/25/2020	54.00	**Approaching Trigger Level**	↓	72.70	74	10/18/2020	54.90	MIDDLESEX
CT0261031	CTWC - Shoreline Region-Chester System	10/22/2020	69.60	No Drought Stage	↓	88.40	79	10/15/2020	72.60	MIDDLESEX
CT0830021	Connecticut Valley Hospital	10/19/2020	84.40	No Drought Stage	↓	92.10	92	10/12/2020	84.80	MIDDLESEX
CT1510011	Waterbury Water Department	10/18/2020	55.10	No Drought Stage	↓	85.80	64	10/11/2020	56.00	NEW HAVEN
CT0608011	CTWC - Shoreline Region-Guilford System	10/22/2020	49.00	**Drought Advisory**	↑	74.00	66	10/15/2020	47.80	NEW HAVEN
CT0800011	Meriden Water Division	10/19/2020	56.70	No Drought Stage	↓	82.40	69	10/13/2020	59.70	NEW HAVEN
CT0880011	CTWC - Naugatuck Region-Central System	10/22/2020	73.80	No Drought Stage	↑	84.70	87	10/15/2020	71.50	NEW HAVEN
CT0930011	Regional Water Authority	10/25/2020	64.00	No Drought Stage	↓	71.80	89	10/18/2020	65.20	NEW HAVEN
CT1480011	Wallingford Water Department	10/16/2020	72.60	No Drought Stage	↑	75.70	96	10/9/2020	71.90	NEW HAVEN
CT1370011	Aquarion Water Co of CT-Mystic	10/25/2020	36.50	No Drought Stage	↓	87.80	42	10/11/2020	37.60	NEW LONDON
CT0580011	Jewett City Water Company	10/19/2020	54.50	No Drought Stage	↓	80.10	68	10/12/2020	56.70	NEW LONDON
CT0950011	New London Dept. of Public Utilities	10/25/2020	44.40	**Drought Advisory**	↓	57.30	77	10/18/2020	45.90	NEW LONDON
CT0590011	Groton Utilities	10/19/2020	69.50	No Drought Stage	↑	81.80	85	10/12/2020	68.50	NEW LONDON
CT1040011	Norwich Public Utilities	10/24/2020	73.10	**Water Supply Advisory**	↓	78.90	93	10/17/2020	74.00	NEW LONDON
CT1340011	CTWC - Northern Reg-Stafford System	10/22/2020	100.00	**Drought Advisory**	↑↑	97.40	103	10/15/2020	85.10	TOLLAND
CT1630011	Windham Water Works	10/25/2020	100.00	No Drought Stage	--	100.00	100	10/18/2020	100.00	WINDHAM
			64.14			80.38	**79.80**			

↑	-Increase since last measurement (less than 10% increase)
↑↑	-Increase since last measurement (10% or greater increase)
↓	-Decrease since last measurement (less than 10% decrease)
↓↓	-Decrease since last measurement (10% or greater decrease)
--	- Same measurement as the previous measurement

Number of systems:	
Greater than or equal to 100% of Normal	4
Between 90% and 99% of Normal	6
Less than 90% of Normal	24
At 100% Full	3

Ave Percent of Normal by County

74.14	FAIRFIELD
73.17	HARTFORD
86.60	LITCHFIELD
81.67	MIDDLESEX
78.50	NEW HAVEN
73.00	NEW LONDON
103.00	TOLLAND
100.00	WINDHAM

System Name	Towns Served	Population Served	Conservation Status	Drought Stage	PWSID	Drought Stage Level
Aquarion Water Co of CT-Newtown System	Newtown	4,198	20% reduce in water usage. Mandatory Irrigation Ban		CT0970041	
Aquarion Water Co of CT-Stamford	Stamford	99,415	20% reduce in water usage. Mandatory Irrigation Ban		CT1350011	
Aquarion Water Co of CT-Greenwich System	Greenwich	53,297	20% reduce in water usage. Mandatory Irrigation Ban	Drought Warning	CT0570011	Stage 3
Aquarion Water Co of CT-Noroton System	Darien	18,737	20% reduce in water usage. Mandatory Irrigation Ban		CT0350011	
Aquarion Water Co of CT-New Canaan System	New Canaan		20% reduce in water usage. Mandatory Irrigation Ban		CT0150011	
Aquarion Water Co of CT - Main System	Westport		20% reduce in water usage. Mandatory Irrigation Ban		CT0150011	
Bristol Water Department	Bristol	52,079	Mandatory reduction, Odd/Even watering schedule	Emergency Phase 1	CT0170011	Stage 3
Manchester Water Department	Manchester	51,066	No Restrictions	Drought Advisory	CT0770021	Stage 2
Norwalk First Taxing District	Norwalk	40,256	Mandatory irrigation ban	Emergency\Drought Watch	CT1030011	Stage 3
Norwich Public Utilities	Norwich	36,067	No Restrictions	Water Supply Advisory	CT1040011	Stage 1
UCONN Main Campus	Mansfield	27,199	Mandatory Water Conservation	Water Supply Watch	CT0780021	Stage 2
New Britain Water Department	New Britain	73,534	Voluntary Restrictions	Drought Watch	CT0890011	Stage 2
South Norwalk Electric & Water	Norwalk	42,000	Mandatory irrigation ban	Drought Watch	CT1030021	Stage 2
SCWA Montville Division	Montville		Mandatory water use restrictions	Not indicated	CT0860011	
CTWC - Shoreline Region-Guilford System	Guilford	33,197	Voluntary measures to reduce water usage by 10%.	Drought Advisory	CT0608011	Stage 1
CTWC - Northern Reg-Stafford System	Stafford	2,383	Voluntary measures to reduce water usage by 10%.	Drought Advisory	CT1340011	Stage 1
New London Dept. of Public Utilities	New London	27620	Voluntary measures to reduce water usage by 10%.	Drought Advisory	CT0950011	Stage 1
Aquarion Water Co of CT-Simsbury System	Simsbury	14,691	Voluntary Restriction- Reduce irrigation	NA	CT1280021	
Middletown Water Department	Middletown	41,019	No Restrictions	Approaching 1st Trigger Level	CT0830011	
Southington Water Department	Southington	43,069	Mandatory odd/even watering, limit outside water use	NA	CT1310011	
CTWC - Spice Hill Division	East Hampton	712	Voluntary water conservation	NA	CT0428031	
CTWC - Rivercrest Diviaion	Portland	88	Voluntary water conservation	NA	CT1130021	
Bethel Water Dept	Bethel	9,507	No Restrictions	NA	CT0090011	
CTWC - Shoreline Region-Chester System	Chester	5,030	No Restrictions	NA	CT0261031	
Danbury Water Department	Danbury	62,055	No Restrictions	NA	CT0340011	
CTWC - Northern Reg-Western System	East Windsor	98,390	No Restrictions	NA	CT0473011	
Jewett City Water Company	Griswold	6,840	No Restrictions	NA	CT0580011	
Groton Utilities	Groton	30,200	No Restrictions	NA	CT0590011	
Metropolitan District Commission	Hartford	390,887	No Restrictions	NA	CT0640011	
Meriden Water Division	Meriden	58,441	No Restrictions	NA	CT0800011	
Connecticut Valley Hospital	Middletown	2,928	No Restrictions	NA	CT0830021	
CTWC - Naugatuck Region-Central System	Naugatuck	22,615	No Restrictions	NA	CT0880011	
Regional Water Authority	New Haven	418,900	No Restrictions	NA	CT0930011	
Putnam Water Pollution Control Authority	Putnam	7300	No Restrictions	NA	CT1160011	
Aquarion Water Co of CT-Salisbury Sys	Salisbury	1,932	No Restrictions	NA	CT1220011	
Sharon Water & Sewer Commission	Sharon	803	No Restrictions	NA	CT1250011	
Aquarion Water Co of CT-Mystic	Stonington	10,784	No Restrictions	NA	CT1370011	
Torrington Water Company	Torrington	37,915	No Restrictions	NA	CT1430011	
Wallingford Water Department	Wallingford	37,267	No Restrictions	NA	CT1480011	
Waterbury Water Department	Waterbury	107,271	No Restrictions	NA	CT1510011	
Winsted Water Works	Winsted	7,784	No Restrictions	NA	CT1620011	
Windham Water Works	Windham	21,214	No Restrictions	NA	CT1630011	

Department of Agriculture – Drought Status Report

Parameter	Reported Conditions			
	As of 10/8/20		Current Conditions (11/5/2020)	
	Report Date	Status	Report Date	Status
Palmer Drought Severity Index (map)	10/3/2020	Improved, entire state now shown as moderate drought	10/31/2020	Now reporting normal for the entire state
Palmer drought severity index (data)	10/3/2020	Northwest: -2.74 Central: -2.88 Coastal: -2.78	10/31/2020	Northwest: -1.18 Central: -1.07 Coastal: -1.44
Precipitation needed to end drought (in.)	10/3/2020	Northwest: 7.99 Central: 8.88 Coastal: 8.20	10/31/2020	Northwest: 2.74 Central: 2.48 Coastal: 3.66
Crop Moisture (current map)	10/3/2020	Northwest is now normal, rest of the state showing abnormally dry	10/31/2020	Northwest is now abnormally moist, rest of the state showing normal
Topsoil moisture (current map)	10/4/2020	Improved, now showing 20% of the state as short-very short on moisture in top 6 inches of soil	11/1/2020	Improved, now showing 3% of the state as short-very short on moisture in top 6 inches of soil
Topsoil moisture (current vs. 5 yr. mean)	10/4/2020	Improved, now shows 20% short-very short, compared to a 5 year mean of 36% - this says we are wetter than the 5 yr mean	11/1/2020	Improved, now shows 3% short-very short, compared to a 5 year mean of 30% - this says we are wetter than the 5 yr mean
Veg DRI (% of CT land area shown as pre-drought, moderate, severe or extreme)	10/4/2020	No significant change in VegDRI, % of land mass shown as near normal is still only about 13.2%.	11/1/2020	Improved, % of land mass shown as near normal is now 42.3%.
Drought Monitor Report for CT	10/6/2020	The drought monitor continues to show degradation. Over the last couple weeks, the % of the state in extreme drought has gone from 14.68% to what it is today at 38.39%.	11/3/2020	The drought monitor shows marked improvement over the last month, with the % of the state in extreme drought now at 0%, and the % of the state showing no drought conditions now at 31.3% (this was 0% as of October 6th).
NASS Crop Progress Report (New England)	10/4/2020	Shows no significant change regionally, with 49% adequate for topsoil, 50% adequate for subsoil.	11/1/2020	Shows marked improvement, with 77% adequate for topsoil, 68% adequate for subsoil.

Summary: Data from all of these indicators shows improved conditions throughout the state over the last month.

Explanatory notes:

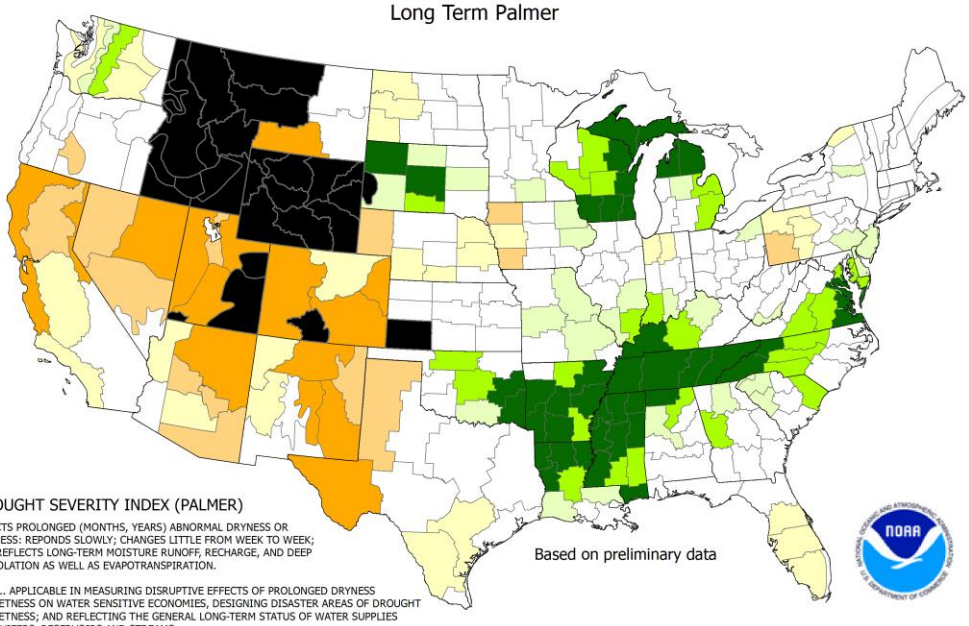
Palmer Drought Severity Index: The Palmer Drought Severity Index (PDSI) uses readily available temperature and precipitation data to estimate relative dryness. It is a standardized index that generally spans -10 (dry) to +10 (wet). Maps of operational agencies like NOAA typically show a range of -4 to +4, but more extreme values are possible.

Crop moisture index: The CMI gives the short-term or current status of purely agricultural drought or moisture surplus and can change rapidly from week to week. The CMI index indicates general conditions and not local variations caused by isolated rain. Input to the calculations include the weekly precipitation total and average temperature, division constants (water capacity of the soil, etc.) and previous history of the indices.

Topsoil moisture: Topsoil Moisture Monitoring maps are based on United States Department of Agriculture state reports of topsoil moisture conditions. Means are calculated from historical weekly data published by USDA/NASS using the closest date to the equivalent date for the year. Results are based on the short and very short percentages of topsoil moisture (upper 6 inches) reported by the USDA. Reports are based on subjective observations.

Vegetation Drought Response Index: VegDRI calculations integrate satellite-based observations of vegetation conditions, climate data, and other biophysical information such as land cover/land use type, soil characteristics, and ecological setting. The VegDRI maps that are produced deliver continuous geographic coverage over large areas, and have inherently finer spatial detail (1-km2 resolution) than other commonly available drought indicators such as the U.S. Drought Monitor. The state statistics table is located here: https://vegdri.unl.edu/Home/VegDRITables.aspx?CT.

Drought Severity Index by Division
Weekly Value for Period Ending Oct 31, 2020
Long Term Palmer



DROUGHT SEVERITY INDEX (PALMER)

DEPICTS PROLONGED (MONTHS, YEARS) ABNORMAL DRYNESS OR WETNESS: REPONDS SLOWLY; CHANGES LITTLE FROM WEEK TO WEEK; AND REFLECTS LONG-TERM MOISTURE RUNOFF, RECHARGE, AND DEEP PERCOLATION AS WELL AS EVAPOTRANSPIRATION.

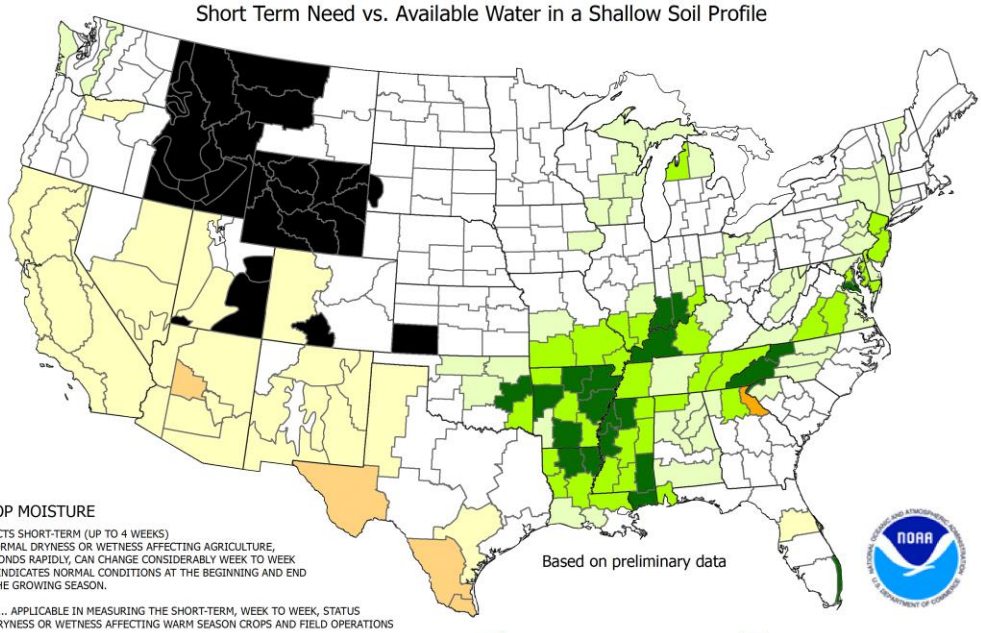
USES... APPLICABLE IN MEASURING DISRUPTIVE EFFECTS OF PROLONGED DRYNESS OR WETNESS ON WATER SENSITIVE ECONOMIES, DESIGNING DISASTER AREAS OF DROUGHT OR WETNESS; AND REFLECTING THE GENERAL LONG-TERM STATUS OF WATER SUPPLIES IN AQUIFERS, RESERVOIRS AND STREAMS.

LIMITATIONS... IS NOT GENERALLY INDICATIVE OFFSHORT-TERM (FEW WEEKS) STATUS OF DROUGHT OR WETNESS SUCH AS FREQUENTLY AFFECTS CROPS AND FIELD OPERATIONS (THIS IS INDICATED BY THE CROP MOISTURE INDEX).

Based on preliminary data

- -4.0 or less (Extreme Drought)
- -3.0 to -3.9 (Severe Drought)
- -2.0 to -2.9 (Moderate Drought)
- --1.9 to +1.9 (Near Normal)
- +2.0 to +2.9 (Unusual Moist Spell)
- +3.0 to +3.9 (Very Moist Spell)
- +4.0 and above (Extremely Moist)
- Missing/Incomplete

Crop Moisture Index by Division
Weekly Value for Period Ending Oct 31, 2020
Short Term Need vs. Available Water in a Shallow Soil Profile



CROP MOISTURE

DEPICTS SHORT-TERM (UP TO 4 WEEKS) ABNORMAL DRYNESS OR WETNESS AFFECTING AGRICULTURE, RESPONDS RAPIDLY, CAN CHANGE CONSIDERABLY WEEK TO WEEK AND INDICATES NORMAL CONDITIONS AT THE BEGINNING AND END OF THE GROWING SEASON.

USES... APPLICABLE IN MEASURING THE SHORT-TERM, WEEK TO WEEK, STATUS OF DRYNESS OR WETNESS AFFECTING WARM SEASON CROPS AND FIELD OPERATIONS

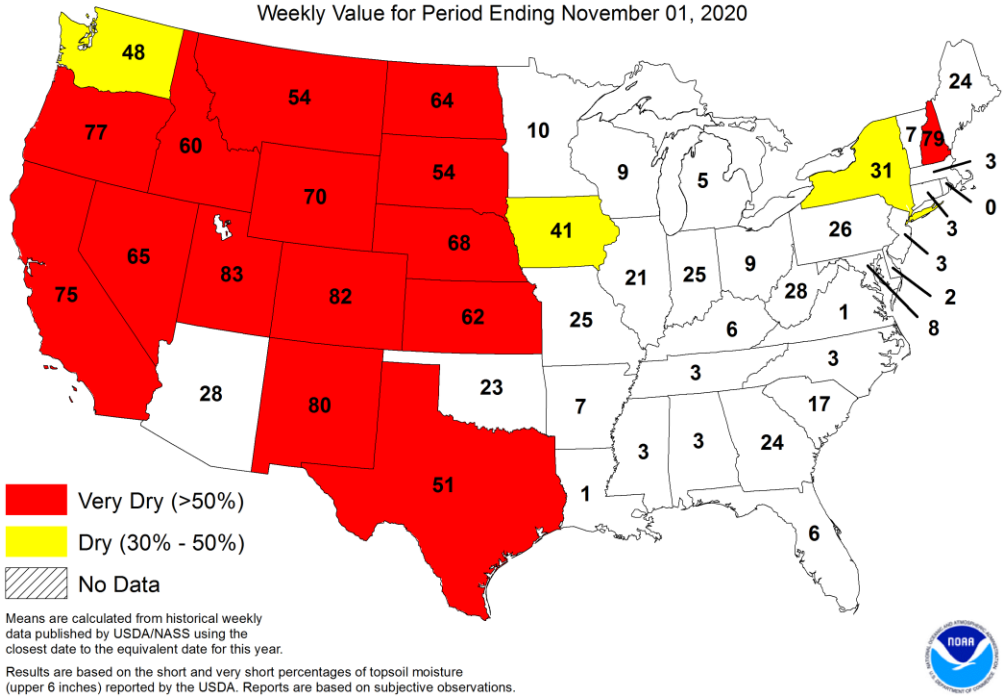
LIMITATIONS... MAY NOT BE APPLICABLE TO GERMINATING AND SHALLOW ROOTED CROPS WHICH ARE UNABLE TO EXTRACT THE DEEP OR SUBSOIL MOISTURE FROM A SHALLOW SOIL PROFILE,OR FOR COOL SEASON CROPS GROWING WHEN TEMPERATURES ARE AVERAGING BELOW ABOUT 55F.IT IS NOT GENERALLY INDICATIVE OF THE LONG-TERM (MONTHS, YEARS) DROUGHT OR WET SPELLS WHICH ARE DEPICTED BY THE DROUGHT SEVERITY INDEX.

Based on preliminary data

- -3.0 or less (Severly Dry)
- -2.0 to -2.9 (Excessively Dry)
- -1.0 to -1.9 (Abnormally Dry)
- -0.9 to +0.9 (Slightly Dry/Favorably Moist)
- +1.0 to +1.9 (Abnormally Moist)
- +2.0 to +3.0 (Wet)
- 3.0 and above (Excessively Wet)
- Missing/Incomplete

USDA Topsoil Moisture by Short-Very Short
Percent of State Area

Weekly Value for Period Ending November 01, 2020

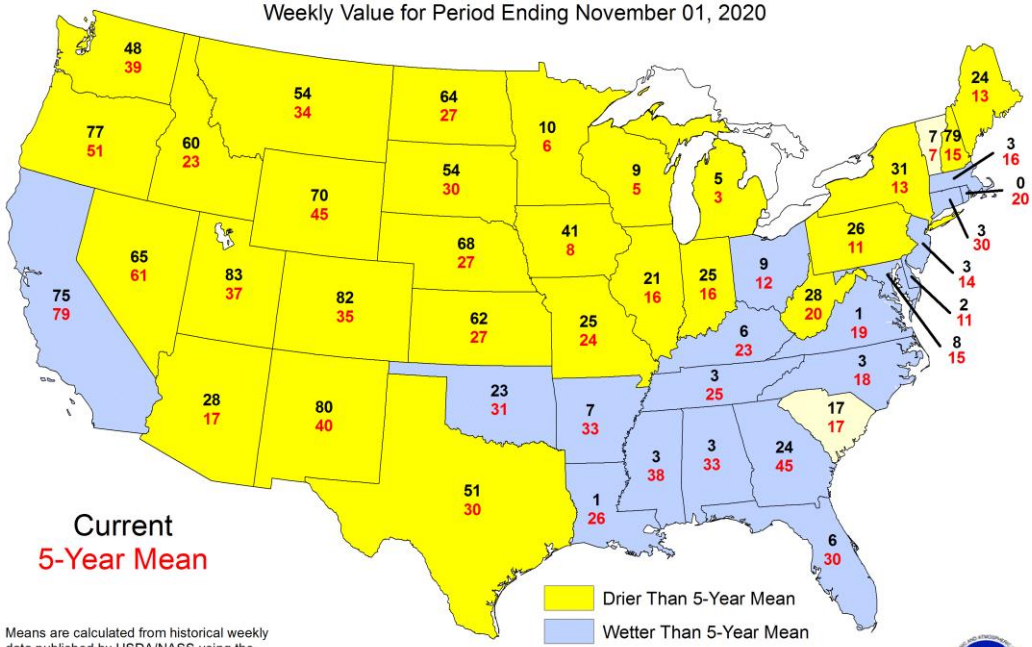


Means are calculated from historical weekly data published by USDA/NASS using the closest date to the equivalent date for this year.

Results are based on the short and very short percentages of topsoil moisture (upper 6 inches) reported by the USDA. Reports are based on subjective observations.

USDA Topsoil Moisture by Short-Very Short
Current Vs. 5-Year mean

Weekly Value for Period Ending November 01, 2020



Means are calculated from historical weekly data published by USDA/NASS using the closest date to the equivalent date for this year.

Results are based on the short and very short percentages of topsoil moisture (upper 6 inches) reported by the USDA. Reports are based on subjective observations.

Lindquist, Eric

From: Trowbridge, Philip
Sent: Tuesday, November 3, 2020 3:44 PM
To: Lindquist, Eric; Wittchen, Bruce
Cc: Bellucci, Christopher; Fitting, Corinne; Hochholzer, Helene; Foreman, William; Hoskins, Douglas; Perry, Jennifer
Subject: Re: Interagency Drought Workgroup Meeting 11/5

Hi Eric and Bruce,

Here is an update on DEEP's indicators for the IDW. Thank you.

Quantitative Indicators
Fire Danger

- Fire danger low, all fires that DEEP was monitoring in October were declared extinguished approximately a week ago

Qualitative/Auxiliary Indicators
Fisheries Issues

- Nothing to report

Water Diversions/Well-Field Pumping Issues

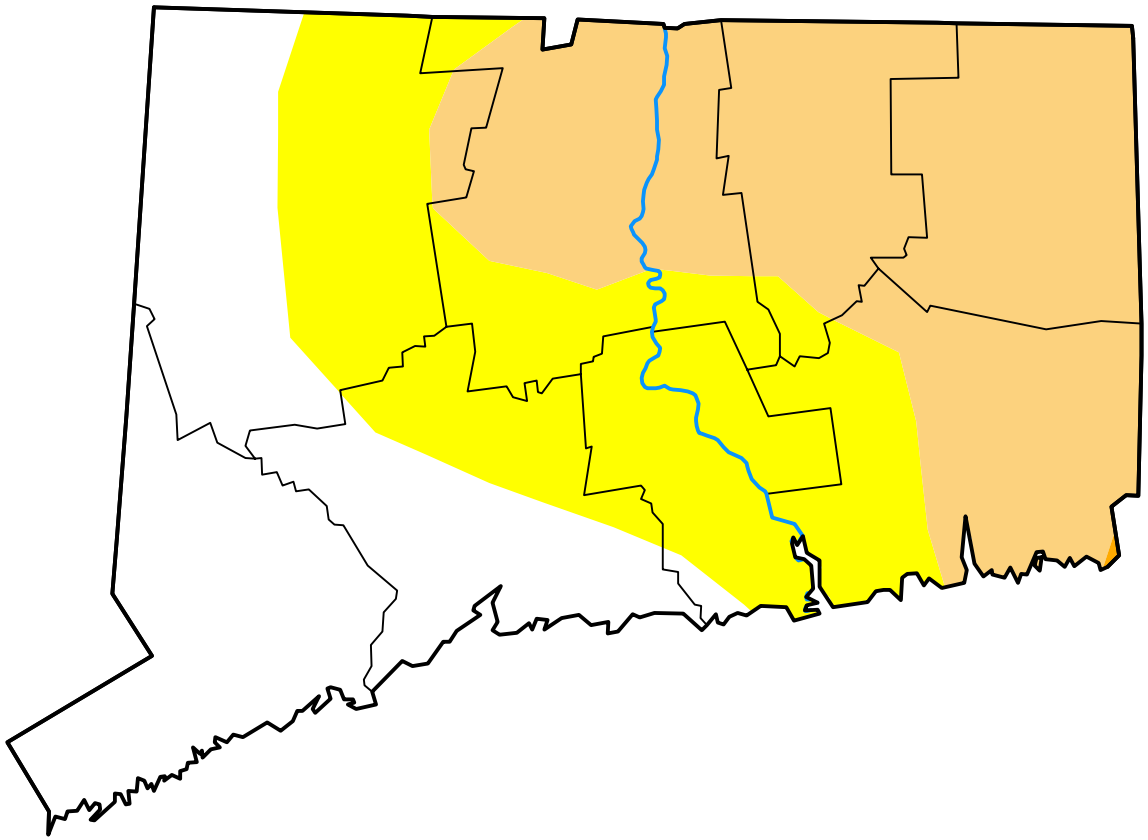
- Nothing to report

From: Lindquist, Eric <Eric.K.Lindquist@ct.gov>
Sent: Tuesday, November 3, 2020 10:44 AM
To: Aarrestad, Peter <Peter.Aarrestad@ct.gov>; Anderson, Stephen <Stephen.Anderson@ct.gov>; Baran, Robert <Robert.Baran@ct.gov>; Belk, Nicole <nicole.belk@noaa.gov>; Bellucci, Christopher <Christopher.Bellucci@ct.gov>; Bergeron, Brenda <Brenda.Bergeron@ct.gov>; Betkoski, John <John.Betkoski@ct.gov>; Cohen, Jason <Jason.Cohen@ct.gov>; Dumais, Kenneth <Kenneth.Dumais@ct.gov>; Dunham, Alan <alan.dunham@noaa.gov>; Fitting, Corinne <Corinne.Fitting@ct.gov>; Foreman, William <William.Foreman@ct.gov>; Furbush, Nancy <Nancy.Furbush@noaa.gov>; Glowacki, Douglas <Douglas.Glowacki@ct.gov>; Grady, Kevin <Kevin.Grady@ct.gov>; Harkey, Steven <Steven.Harkey@ct.gov>; Heft, Martin <Martin.Heft@ct.gov>; Hochholzer, Helene <Helene.Hochholzer@ct.gov>; Hoskins, Douglas <Douglas.Hoskins@ct.gov>; Hurlburt, Bryan <Bryan.Hurlburt@ct.gov>; jmullane@usgs.gov <jmullane@usgs.gov>; Kenny, Robert <Robert.Kenny@ct.gov>; King-Corbin, Linda <Linda.King-Corbin@ct.gov>; Lindquist, Eric <Eric.K.Lindquist@ct.gov>; Lucchina, Gail <Gail.Lucchina@ct.gov>; Mathieu, Lori <Lori.Mathieu@ct.gov>; Mcauliffe, Elizabeth <Elizabeth.Mcauliffe@ct.gov>; Morley, Dan D. <Daniel.Morley@ct.gov>; Morrison, Jon <jmorriso@usgs.gov>; Nguyen, Quat <Quat.Nguyen@ct.gov>; Pafford, Matthew <Matthew.Pafford@ct.gov>; Pedemonti, Cathy <Cathy.Pedemonti@ct.gov>; Perry, Jennifer <Jennifer.Perry@ct.gov>; Reeves, Sylvia <Sylvia.Reeves@ct.gov>; Sargent, Timothy <tcsargen@usgs.gov>; Smith, Jaime <Jaime.Smith@ct.gov>; Smith, Laverne <Laverne.Smith@ct.gov>; Starn, Jeffrey <jjstarn@usgs.gov>; Stevens, Graham <Graham.Stevens@ct.gov>; Stewart, Rita <Rita.Stewart@ct.gov>; Szul, Maria <Maria.Szul@ct.gov>; Tetreault, Ryan <Ryan.Tetreault@ct.gov>; Trowbridge, Philip <Philip.Trowbridge@ct.gov>; Westergard, Britt <Britt.Westergard@noaa.gov>; Wingfield, Betsey <Betsey.Wingfield@ct.gov>; Wittchen, Bruce <Bruce.Wittchen@ct.gov>
Cc: Crawley, Kathleen (DOA) <Kathleen.Crawley@wrb.ri.gov>; Rao, Vandana (EEA) <vandana.rao@mass.gov>
Subject: Interagency Drought Workgroup Meeting 11/5

Good morning,

U.S. Drought Monitor

Connecticut



November 3, 2020

(Released Thursday, Nov. 5, 2020)

Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	31.30	68.70	38.35	0.04	0.00	0.00
Last Week *10-27-2020*	0.00	100.00	68.70	38.35	0.04	0.00
3 Months Ago *08-04-2020*	23.12	76.88	39.53	0.00	0.00	0.00
Start of Calendar Year *12-31-2019*	100.00	0.00	0.00	0.00	0.00	0.00
Start of Water Year *09-29-2020*	0.00	100.00	70.03	57.60	24.09	0.00
One Year Ago *11-05-2019*	100.00	0.00	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

Author:
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NOAA/NWS/NCEP/CPC

droughtmonitor.unl.edu