Connecticut Drought Conditions Report

Monthly Update for September 2022

Connecticut Water Planning Council
Interagency Drought Workgroup
October 6, 2022 Regular Meeting

CT Interagency Drought Workgroup
Regular Meeting
October 6, 2022
1:00 PM – 3:00 PM

VIA Microsoft Teams
Join on your computer or mobile app
Click here to join the meeting

Meeting ID: 270 339 383 070
Passcode: ev5dVL

Or call in (audio only)
+1 860-840-2075,,177077962# United States, Hartford
Phone Conference ID: 177 077 962#

Agenda

1. Call to order

2. Agency Representation
    a. PURA designation
    b. Seating of voting members

3. Minutes – VOTE
    a. September 8, 2022

4. Business
    a. Review of hydrologic conditions
        i. Review September monthly data
        ii. Review any data available for October month-to-date
    b. Drought stage recommendations – VOTE
    c. Drought Plan
        i. Priority level review
    d. Drought Plan implementation updates
    e. Next regular meeting – November 3, 2022
    f. Other

5. Public Comment

6. Adjourn

Stage 2 Drought Trigger Summary by Region -- October 6, 2022										
	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	81%	107%	98%	159%	134%	116%	130%	137%	9/30/2022
Ground Water (2)	Two out of three months below the 25th percentile	46% stations meet trigger	60% stations meet trigger	80% stations meet trigger	43% stations meet trigger	39% stations meet trigger	60% stations meet trigger	75% stations meet trigger	83% stations meet trigger	9/30/2022
Streamflow (3)	Two out of three months below the 25th percentile	62% stations meet trigger	55% stations meet trigger	70% stations meet trigger	75% stations meet trigger	63% stations meet trigger	86% stations meet trigger	100% stations meet trigger	80% stations meet trigger	9/30/2022
Reservoirs (4)	Average levels less than 80% of normal	84% of normal	88% of normal	80% of normal	98% of normal	90% of normal	93% of normal	105% of normal	100% of normal	9/30/2022
Palmer Drought Severity Index (5)	-2.9 to -2.0	-1.45	-0.57	-1.27	-1.45	-1.45	-1.45	-0.57	-0.57	10/1/2022
Crop Moisture Index (6)	-1.9 to -1.0	0.33	0.62	0.41	0.33	0.33	0.33	0.62	0.62	10/1/2022
VegDRI (seasonal) (7)	Pre-drought stress	Pre-drought stress	Pre-drought stress	Pre-drought stress	Pre-drought stress	Moderate drought	Near normal	Near normal	Near normal	10/2/2022
Fire Danger (8)	Moderate	Low	Low	Low	Low	Low	Low	Low	Low	10/6/2022
U.S. Drought Monitor (9)	Intensity level D1-D2	D1-D2	D0-D2	D1-D2	D0-D1	D0-D1	D0-D1	D0-D1	D0	10/6/2022

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 areas)

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 Litchfield 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 -- October 6, 2022										
	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	73%	92%	84%	113%	104%	89%	112%	107%	9/30/2022
Ground Water (2)	Four consecutive months below the 25th percentile	≤25% stations meet trigger	30% stations meet trigger	60% stations meet trigger	29% stations meet trigger	≤25% stations meet trigger	40% stations meet trigger	33% stations meet trigger	33% stations meet trigger	9/30/2022
Streamflow (3)	Four out of five months below the 25th percentile	≤25% stations meet trigger	≤25% stations meet trigger	30% stations meet trigger	≤25% stations meet trigger	≤25% stations meet trigger	29% stations meet trigger	33% stations meet trigger	40% stations meet trigger	9/30/2022
Reservoirs (4)	Average levels less than 70% of normal	84% of normal	88% of normal	80% of normal	98% of normal	90% of normal	93% of normal	105% of normal	100% of normal	9/30/2022
Palmer Drought Severity Index (5)	-3.0 to -3.99	-1.45	-0.57	-1.27	-1.45	-1.45	-1.45	-0.57	-0.57	10/1/2022
Crop Moisture Index (6)	-2.0 to -2.99	0.33	0.62	0.41	0.33	0.33	0.33	0.62	0.62	10/1/2022
VegDRI (seasonal) (7)	Moderate drought conidtions	Pre-drought stress	Pre-drought stress	Pre-drought stress	Pre-drought stress	Moderate drought	Near normal	Near normal	Near normal	10/2/2022
Fire Danger (8)	High	Low	Low	Low	Low	Low	Low	Low	Low	10/6/2022
U.S. Drought Monitor (9)	Intensity level D2-D3	D1-D2	D0-D2	D1-D2	D0-D1	D0-D1	D0-D1	D0-D1	D0	10/6/2022

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 areas)

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U.S. Geological Survey

Status of streamflow and groundwater levels, as of September 30, 2022

USGS

Provisional Data Subject to Review and Revision

Name	total	Number of wells below normal	Number of wells below normal for >=2 out of the last 3 months	Number of wells below normal for 4 or more consecutive months	Percent below normal	Percent stage 2	Percent stage 3
Fairfield	11	2	5	1	18.2	45.5	9.1
Hartford	10	4	6	3	40	60	30
Litchfield	5	5	4	3	100	80	60
Middlesex	7	3	3	2	42.9	42.9	28.6
New Haven	13	3	5	3	23.1	38.5	23.1
New London	5	2	3	2	40	60	40
Tolland	12	5	9	4	41.7	75	33.3
Windham	6	2	5	2	33.3	83.3	33.3

END OF SEPTEMBER 2022 GROUNDWATER SUMMARY BY COUNTY

USGS

Provisional Data Subject to Review and Revision

Name	total	Number of streamgages below normal	Number of streamgages below normal for >=2 out of the last 3 months	Number of streamgages below normal for >=4 out of the last 5 months	Percent below normal	Percent stage 2	Percent stage 3
Fairfield	13	1	8	1	7.7	61.5	7.7
Hartford	11	2	6	2	18.2	54.5	18.2
Litchfield	10	3	7	3	30	70	30
Middlesex	4	0	3	0	0	75	0
New Haven	8	1	5	1	12.5	62.5	12.5
New London	7	0	6	2	0	85.7	28.6
Tolland	3	0	3	1	0	100	33.3
Windham	10	0	8	4	0	80	40

SEPTEMBER 2022 STREAMFLOW SUMMARY BY COUNTY

USGS

Provisional Data Subject to Review and Revision

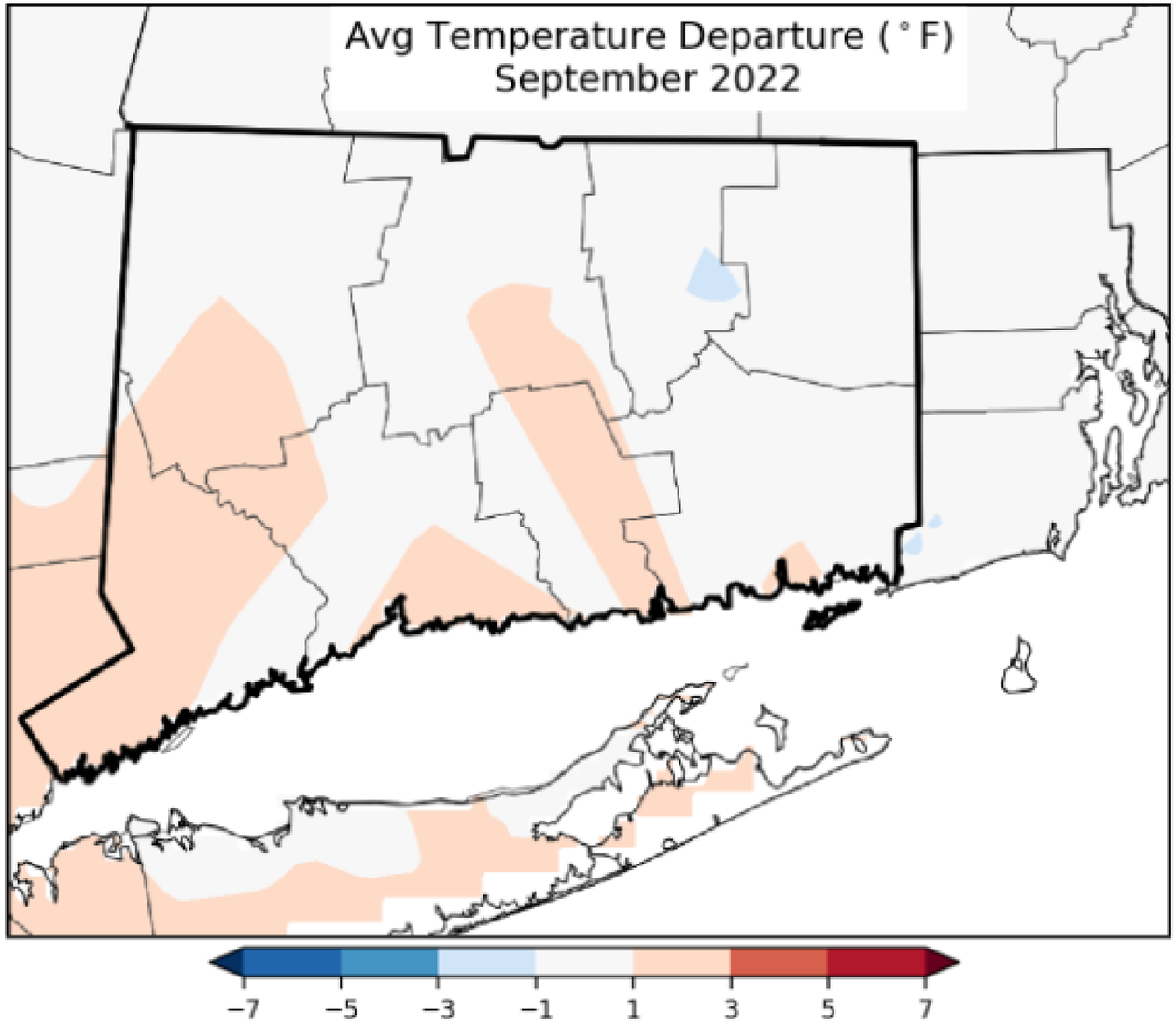
CT Interagency Drought Workgroup
NWS Update

Thursday October 6th 2022

Prepared by: NWS WFO Boston/Norton, MA
& NWS WFO Albany, NY

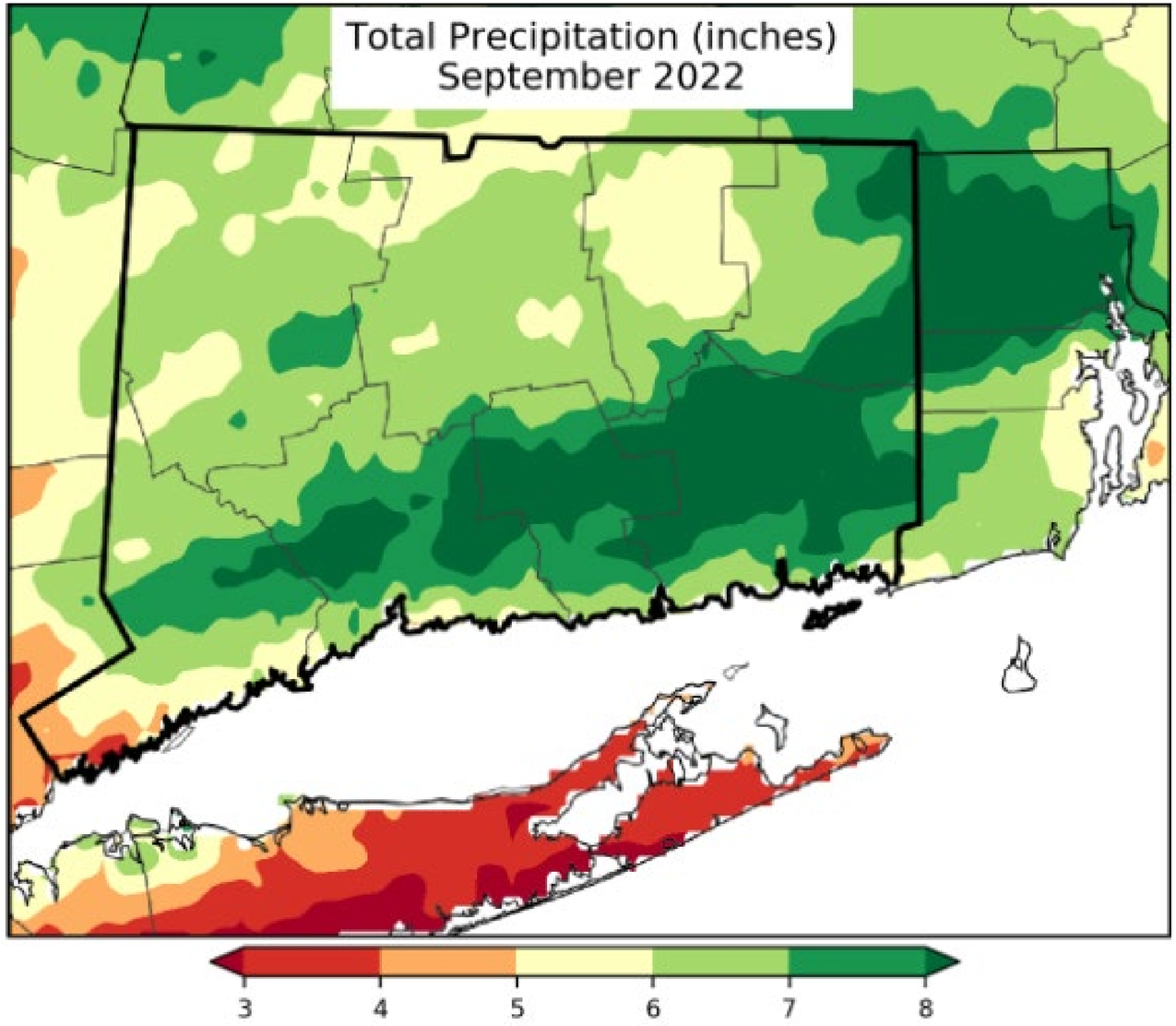
Sep 2022 Temperatures

Boston/Norton MA
WEATHER FORECAST OFFICE



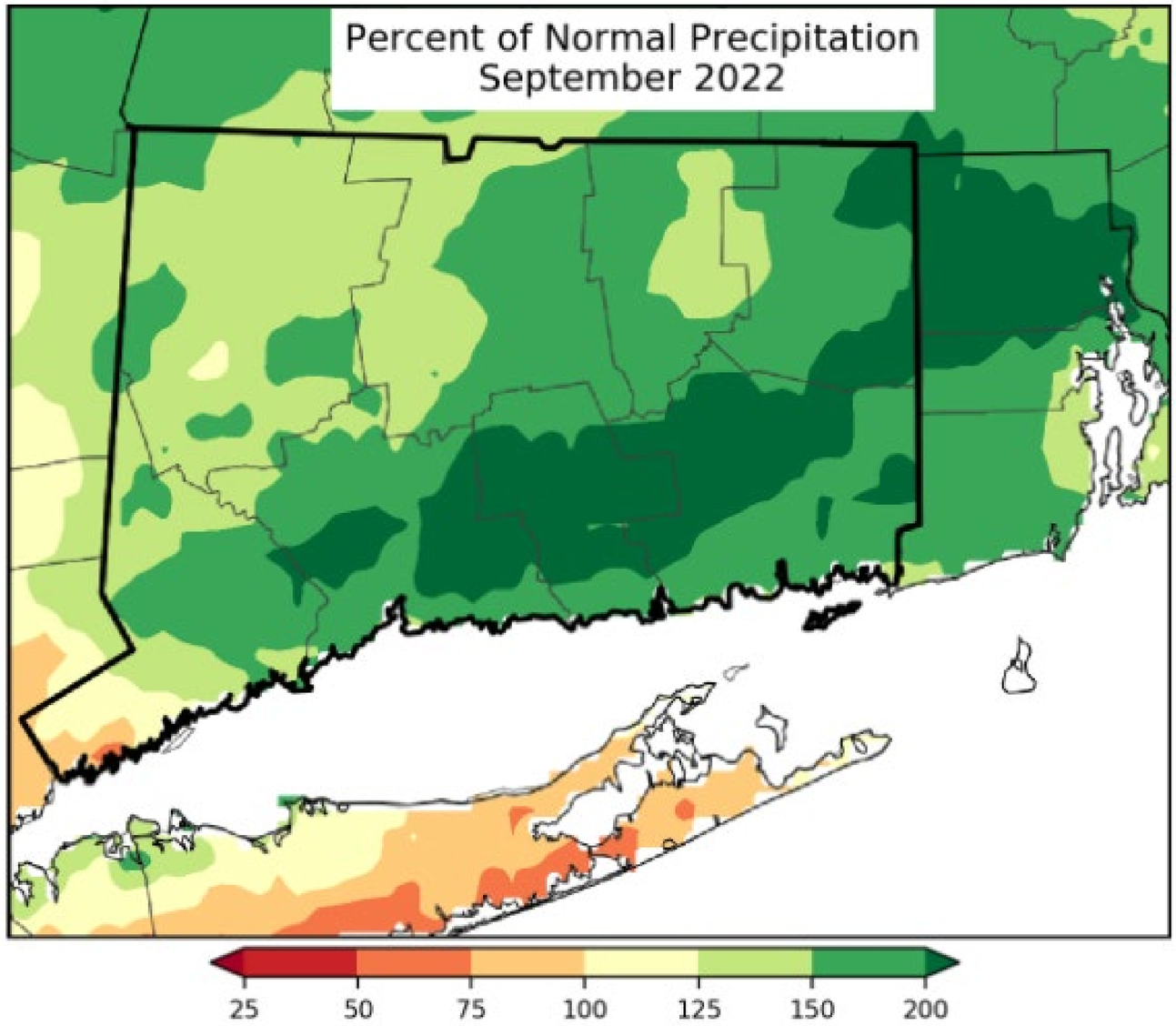
Sep 2022 Rainfall

Boston/Norton MA
WEATHER FORECAST OFFICE



Sep 2022 Rainfall

Boston/Norton MA
WEATHER FORECAST OFFICE



Rainfall Tables for 2 and 3 Months

Boston/Norton MA
WEATHER FORECAST OFFICE

CT 2-month Aug-Sep 22	Rainfall	Departure	Percent	Normal
Litchfield	8.60	-0.18	98	8.78
Hartford	9.33	0.64	107	8.69
Tolland	10.34	2.40	130	7.95
Windham	11.44	3.11	137	8.33
Fairfield	7.21	-1.68	81	8.89
New Haven	10.63	2.73	134	7.90
Middlesex	12.82	4.78	159	8.04
New London	10.34	1.40	116	8.95

CT 3-month Jul-Sep 22	Rainfall	Departure	Percent	Normal
Litchfield	11.26	-2.10	84	13.36
Hartford	12.16	-1.10	92	13.26
Tolland	13.26	1.39	112	11.88
Windham	13.45	0.86	107	12.59
Fairfield	9.64	-3.52	73	13.16
New Haven	12.39	0.45	104	11.94
Middlesex	14.06	1.64	113	12.42
New London	11.32	-1.34	89	12.66

Rainfall Tables for 5 and 6 Months

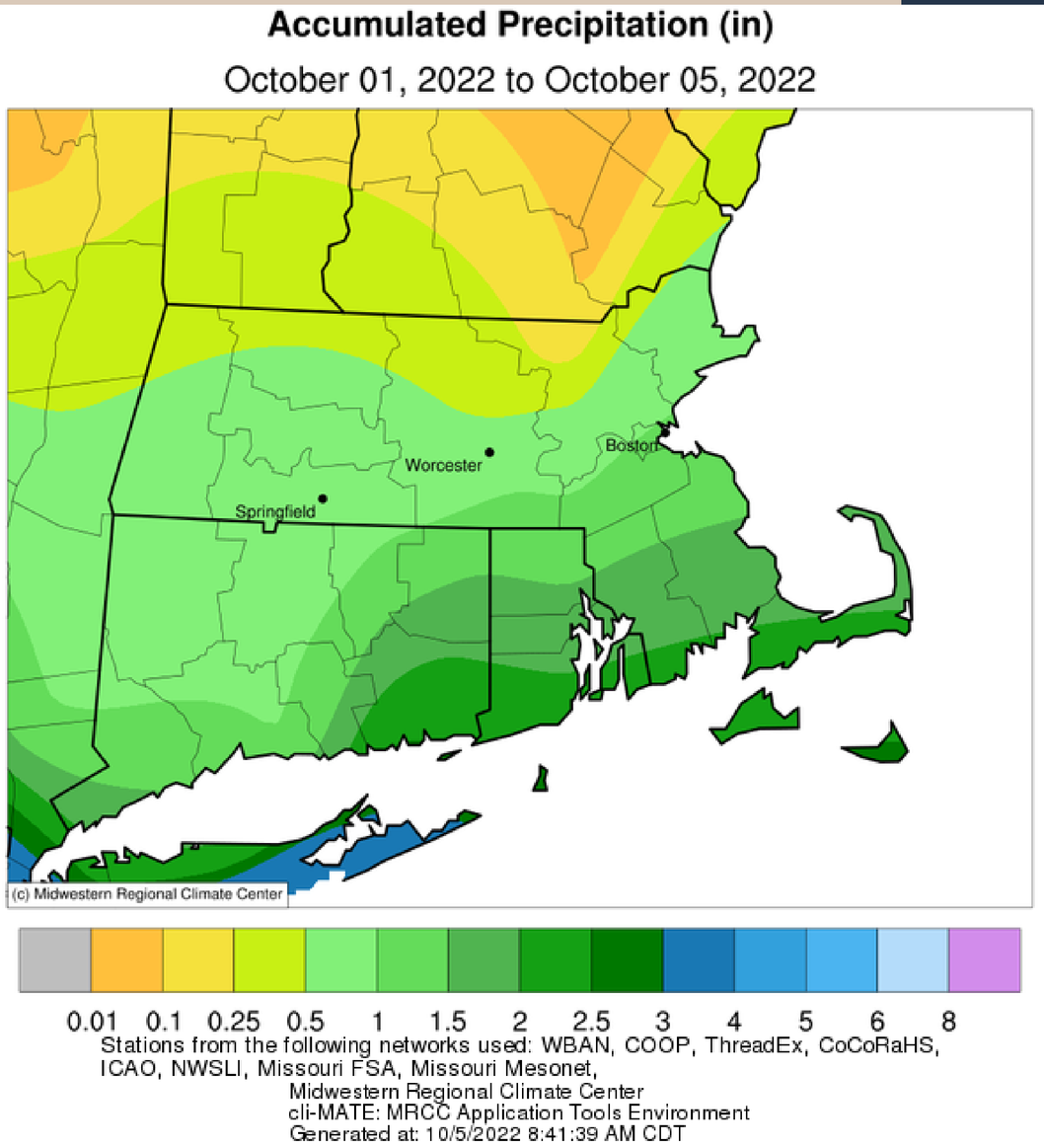
Boston/Norton MA
WEATHER FORECAST OFFICE

CT 5-month May-Sep 22	Rainfall	Departure	Percent	Normal
Litchfield	18.34	-4.04	82	22.38
Hartford	17.99	-4.31	81	22.30
Tolland	18.78	-1.77	91	20.55
Windham	18.91	-2.04	90	20.95
Fairfield	17.06	-4.92	78	21.98
New Haven	18.73	-1.84	91	20.57
Middlesex	20.20	-1.40	94	21.60
New London	17.38	-3.12	85	20.50

CT 6-month Apr-Sep 22	Rainfall	Departure	Percent	Normal
Litchfield	24.62	-1.95	93	26.57
Hartford	23.48	-3.13	88	26.61
Tolland	23.79	-1.37	95	25.16
Windham	22.84	-2.70	89	25.54
Fairfield	22.38	-4.04	85	26.42
New Haven	24.04	-0.91	96	24.95
Middlesex	24.76	-1.26	95	26.02
New London	20.85	-4.21	83	25.06

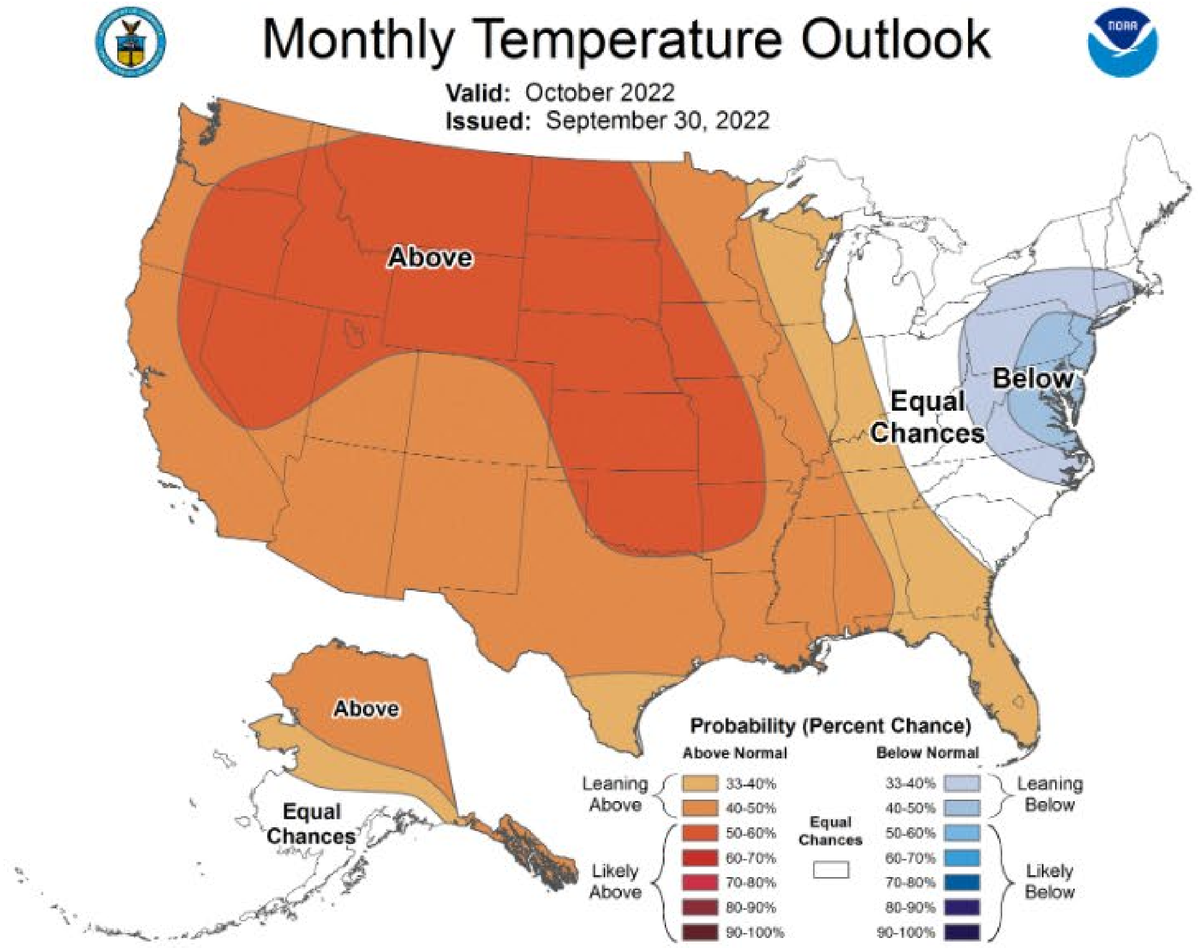
Early October Rainfall

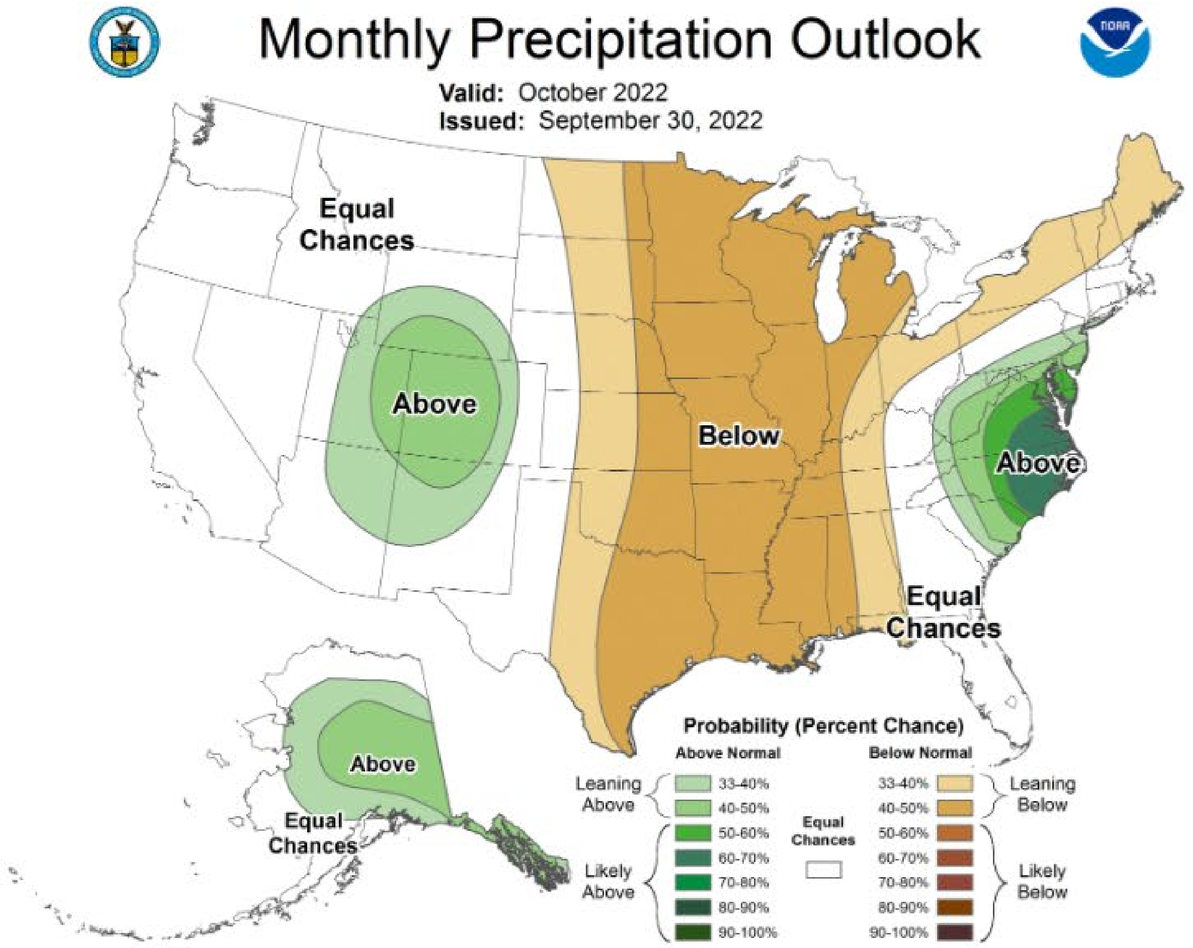
Boston/Norton MA
WEATHER FORECAST OFFICE



CPC Outlook for October

Boston/Norton MA
WEATHER FORECAST OFFICE





Connecticut Precipitation
National Weather Service Offices
Boston/Norton MA, Albany NY, Upton NY
Preliminary Precipitation Data (inches) by County
Precipitation Data through September 2022
Includes CoCoRaHS data

CT 1-Month September 2022	Rainfall	Departure	Percent	Normal
Litchfield	6.59	2.20	150	4.39
Hartford	6.06	1.72	140	4.34
Tolland	6.08	2.11	153	3.97
Windham	7.36	3.20	177	4.17
Fairfield	5.88	1.44	132	4.45
New Haven	7.25	3.30	183	3.95
Middlesex	8.80	4.78	219	4.02
New London	7.09	2.62	159	4.47

CT 2-month Aug-Sep 22	Rainfall	Departure	Percent	Normal
Litchfield	8.60	-0.18	98	8.78
Hartford	9.33	0.64	107	8.69
Tolland	10.34	2.40	130	7.95
Windham	11.44	3.11	137	8.33
Fairfield	7.21	-1.68	81	8.89
New Haven	10.63	2.73	134	7.90
Middlesex	12.82	4.78	159	8.04
New London	10.34	1.40	116	8.95

CT 3-month Jul-Sep 22	Rainfall	Departure	Percent	Normal
Litchfield	11.26	-2.10	84	13.36
Hartford	12.16	-1.10	92	13.26
Tolland	13.26	1.39	112	11.88
Windham	13.45	0.86	107	12.59
Fairfield	9.64	-3.52	73	13.16
New Haven	12.39	0.45	104	11.94
Middlesex	14.06	1.64	113	12.42
New London	11.32	-1.34	89	12.66

CT 4-month Jun-Sep 22	Rainfall	Departure	Percent	Normal
Litchfield	14.25	-3.72	79	17.97
Hartford	15.47	-2.41	87	17.88
Tolland	16.37	-0.08	99	16.45
Windham	17.64	0.71	104	16.93
Fairfield	13.64	-3.96	78	17.60
New Haven	15.94	-0.40	98	16.34
Middlesex	17.75	0.37	102	17.38
New London	15.01	-1.73	90	16.74

CT 5-month May-Sep 22	Rainfall	Departure	Percent	Normal
Litchfield	18.34	-4.04	82	22.38
Hartford	17.99	-4.31	81	22.30
Tolland	18.78	-1.77	91	20.55
Windham	18.91	-2.04	90	20.95
Fairfield	17.06	-4.92	78	21.98
New Haven	18.73	-1.84	91	20.57
Middlesex	20.20	-1.40	94	21.60
New London	17.38	-3.12	85	20.50

CT 6-month Apr-Sep 22	Rainfall	Departure	Percent	Normal
Litchfield	24.62	-1.95	93	26.57
Hartford	23.48	-3.13	88	26.61
Tolland	23.79	-1.37	95	25.16
Windham	22.84	-2.70	89	25.54
Fairfield	22.38	-4.04	85	26.42
New Haven	24.04	-0.91	96	24.95
Middlesex	24.76	-1.26	95	26.02
New London	20.85	-4.21	83	25.06

CT 7-month Mar-Sep 22	Rainfall	Departure	Percent	Normal
Litchfield	27.57	-3.16	90	30.73
Hartford	26.23	-4.48	85	30.71
Tolland	26.77	-2.73	91	29.50
Windham	25.58	-4.41	85	29.99
Fairfield	25.14	-5.64	82	30.78
New Haven	27.10	-2.19	93	29.29
Middlesex	27.86	-2.51	92	30.37
New London	23.92	-6.00	80	29.92

CT 12-month Oct 21-Sep 22	Rainfall	Departure	Percent	Normal
Litchfield	46.18	-4.52	91	50.70
Hartford	43.80	-7.12	86	50.92
Tolland	44.65	-5.46	89	50.11
Windham	45.86	-4.37	91	50.23
Fairfield	41.25	-9.13	82	50.38
New Haven	44.51	-4.19	91	48.70
Middlesex	46.91	-4.58	91	51.49
New London	42.48	-7.65	85	50.13

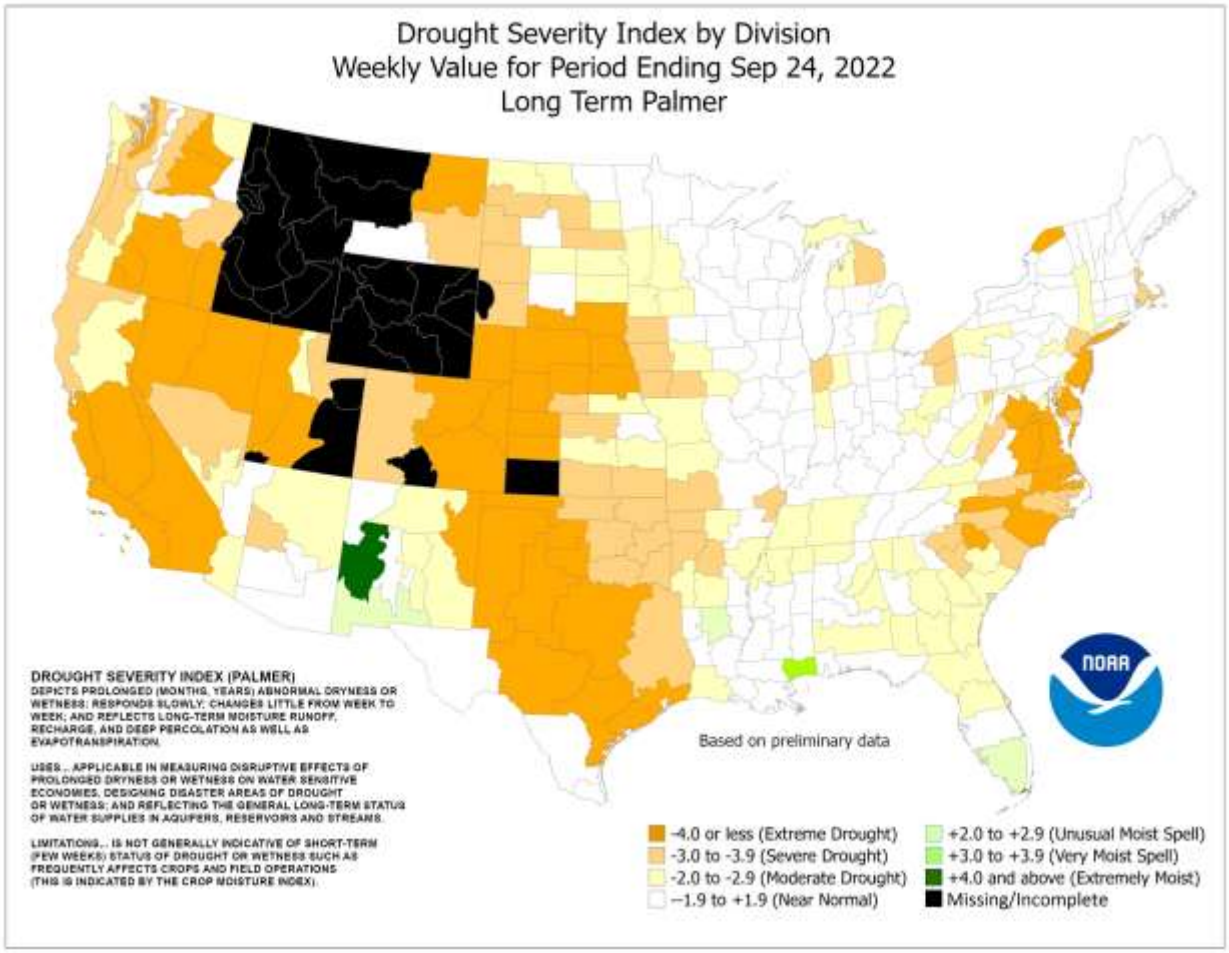
CT 24-month Oct 20-Sep 22	Rainfall	Departure	Percent	Normal
Litchfield	106.72	5.30	105	101.42
Hartford	107.67	5.91	106	101.76
Tolland	112.55	12.39	112	100.17
Windham	109.87	9.47	109	100.40
Fairfield	97.61	-2.98	97	100.59
New Haven	103.04	5.65	106	97.39
Middlesex	107.59	4.94	105	102.65
New London	100.04	0.02	100	100.02

CT 36-month Oct 19-Sep 22	Rainfall	Departure	Percent	Normal
Litchfield	154.51	2.37	102	152.14
Hartford	150.91	-1.69	99	152.61
Tolland	157.41	7.18	105	150.23
Windham	154.53	3.96	103	150.57
Fairfield	146.24	-4.56	97	150.80
New Haven	150.51	4.43	103	146.08
Middlesex	155.06	1.25	101	153.81
New London	145.68	-4.24	97	149.92

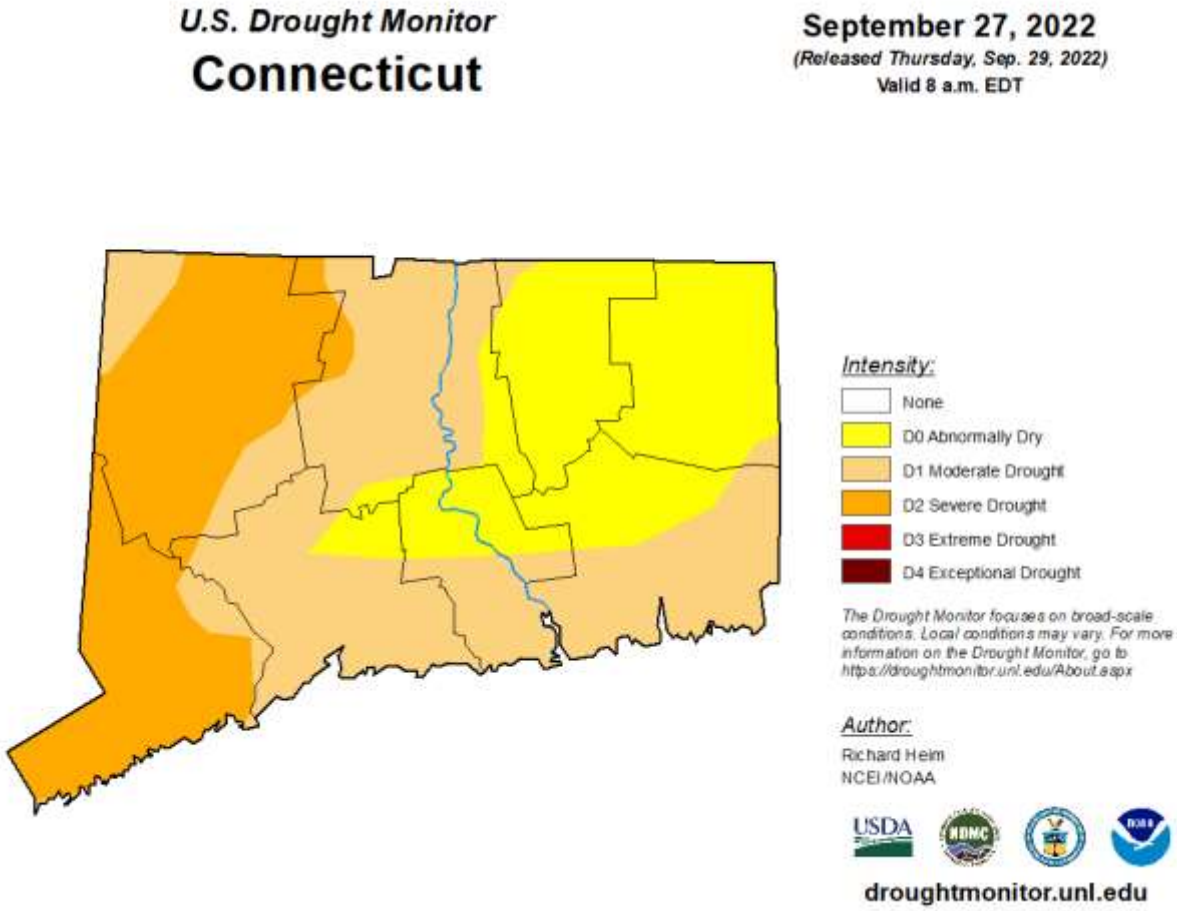
County-based monthly precipitation totals are calculated using an average of all available full-month precipitation totals within that County from the following networks: Community Collaborative Rain, Hail and Snow network (CoCoRaHS), Cooperative Weather Observer Program (Coop), and Automated Surface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

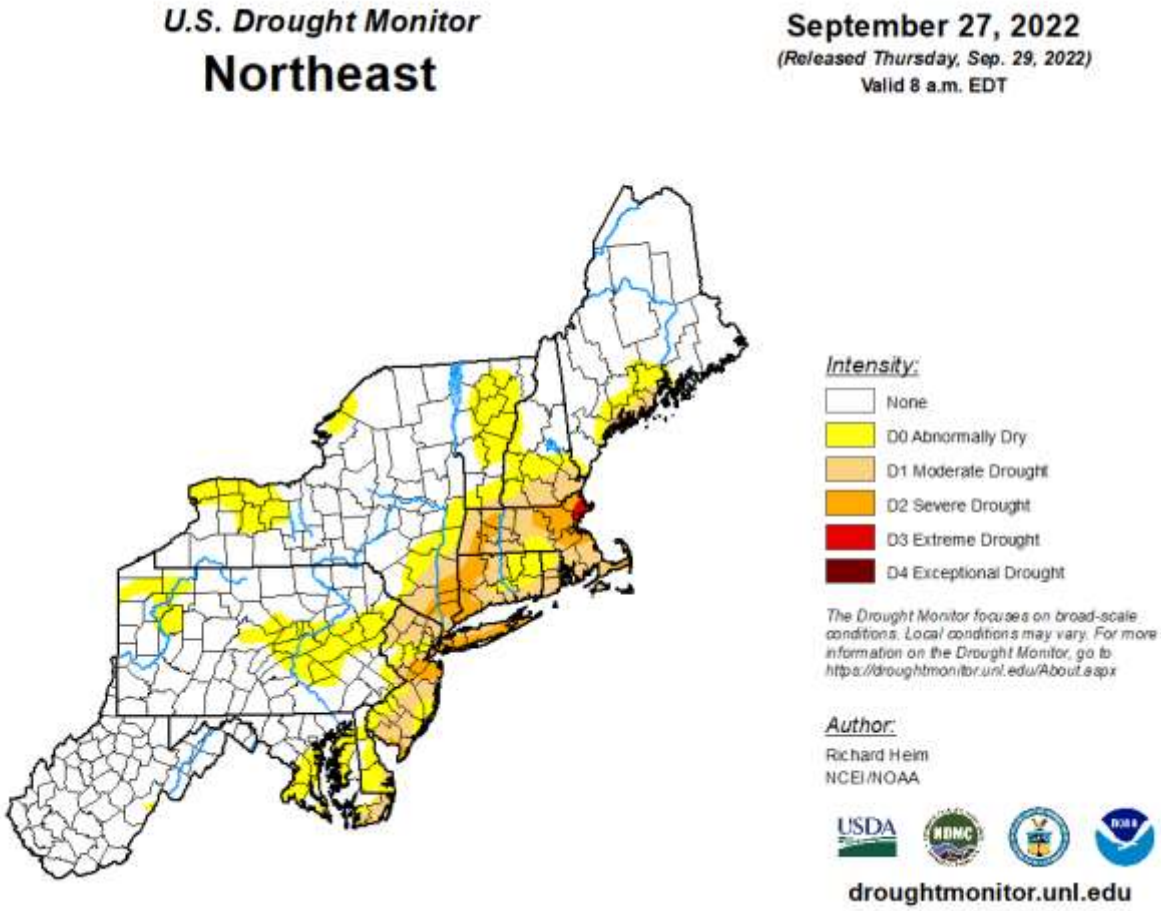
County-based monthly normals were calculated using 30-year precipitation normals from NOAA/National Centers for Environmental Information (NCEI) for the period of 1981-2010. Monthly normals from 42 stations (consisting of Coop and ASOS stations) were grouped by County to calculate a single monthly normal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



Map 1. Palmer Drought Index Map for the Week Ending September 24, 2022. From the Climate Prediction Center. Values for individual climate regions follow: Northwest -1.0, Central -1.0 and Coastal -2.50. Values may not be fully representative.



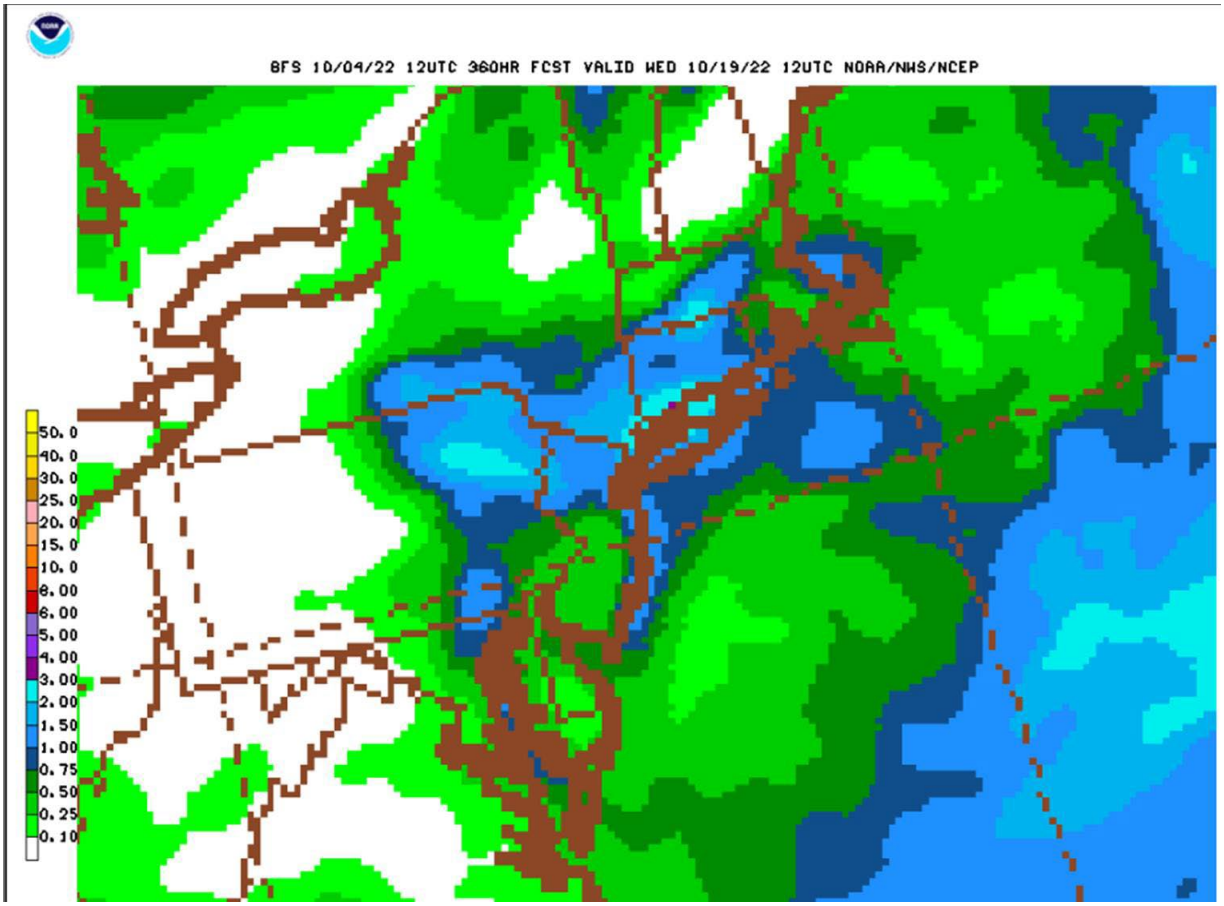
Map 2. U.S. Drought Monitor zoom-in on CT, effective 9/27/2022.



Map 3. U.S. Drought Monitor for Northeast US, effective 9/27/2022.

Division of Emergency Management and Homeland Security: Long-Range Precipitation Outlook
Provided via email on 10/04/2022 by Doug Glowacki, DEMHS

Shown below is the GFS forecast rainfall for the next 14 days. In general, the GFS is forecasting between 1.0" – 2.0" of rainfall which is near normal. Nearly all of the rainfall in the forecast is predicted to occur in the next two days as the remnants of Ian linger south of our area. After that, there is almost no rainfall in the forecast for the following 12 days.



Surface Reservoir Capacity Measurements and Trends

9/30/2022 Update

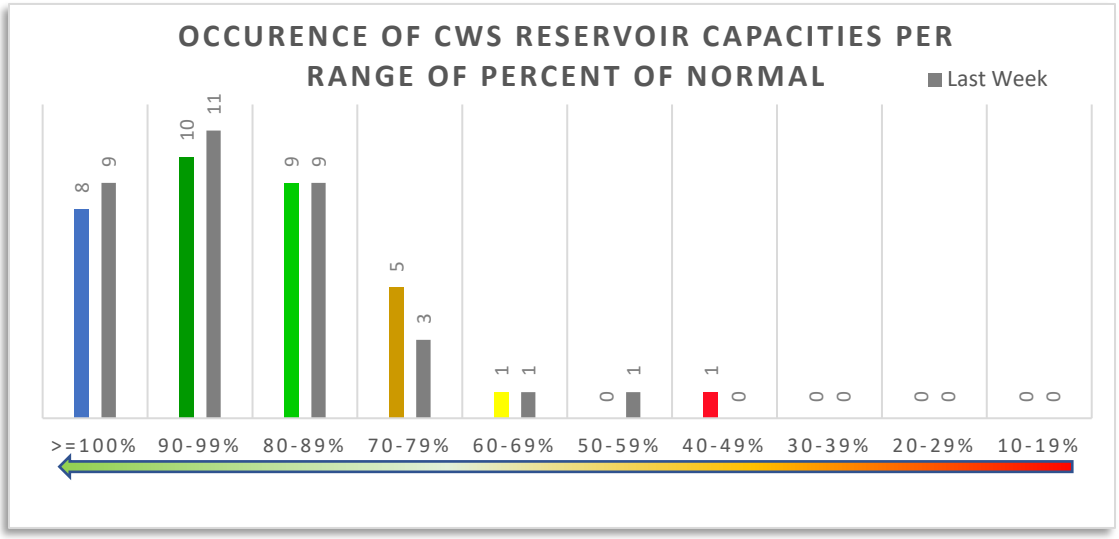
USDM Continues to Make Improvements in Eastern CT!

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.

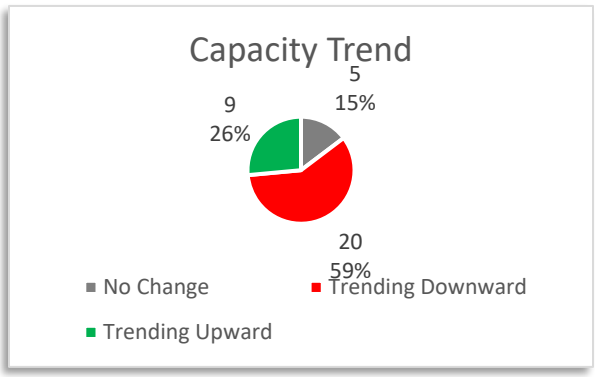
Key takeaways:

>= 100% of Normal n=34	State Average	Average Percent of Normal
8	72.0 % ↓	89.3% ↓
Change since last week: -1	Last week: **73.0%**	Last week: 90.3%

- 2 reservoir systems have reported that they are currently at 100% full (No change since last week).

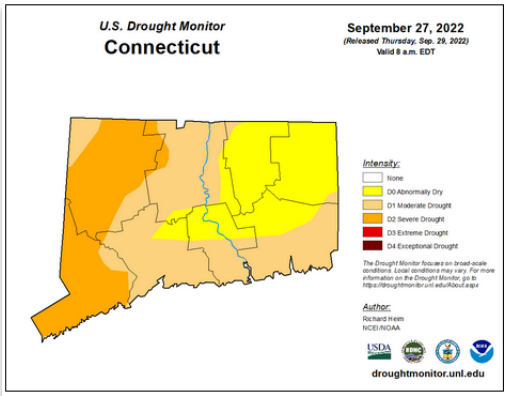


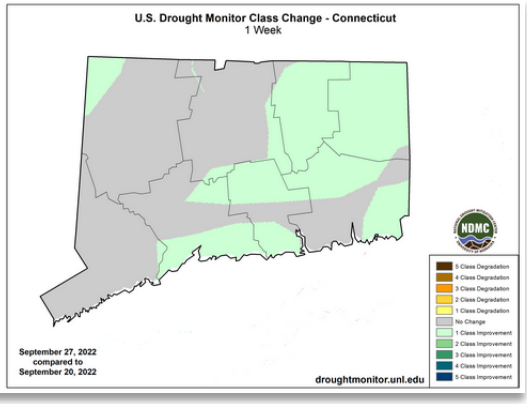
- The gray bars indicate last week's measurements and the colored bar is the current measurement. In non-drought conditions, the graph above would have all of the systems in the >=100% of normal column (n=34).
- **9 system's short-term week to week trend is upward (+1 since last week)**. 20 systems are trending downward in capacity from their previous measurements (**-1** since last week). 5 systems have had no change in capacity (no change since last week).



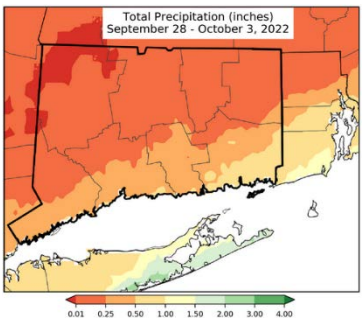
- **Seven systems** have reported they are in the first stage of their drought plan. Several systems are requesting voluntary and mandatory water use conservation.

- US Drought Monitor: – Continues to make improvement in eastern CT. The western part of CT remains relatively unchanged from the previous week.
  https://droughtmonitor.unl.edu/CurrentMap/StateDroughtMonitor.aspx?CT

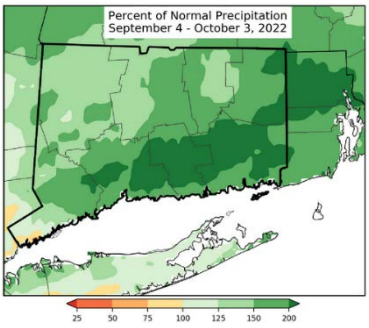




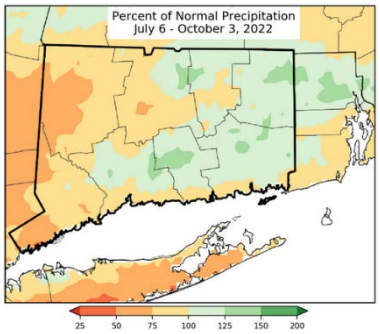
- Between September 28th and October 3rd , the eastern part of the state experienced much needed rain with about 0.5 inches of rain falling in New London County. The rest of the state had from trace amounts to 0.25 inches (Map 1). The 30-day Percent of Normal Precipitation map continues to show positive impacts from the recent rains (Map 2). The long-term trend over the last 90-days still shows some dryness but continues to show improvement with normal to above normal rain in some areas (Map 3). Streamflow continue to show normal levels with some eastern areas seeing below normal levels. Groundwater can be found here. Groundwater still shows some low measurements across the state.



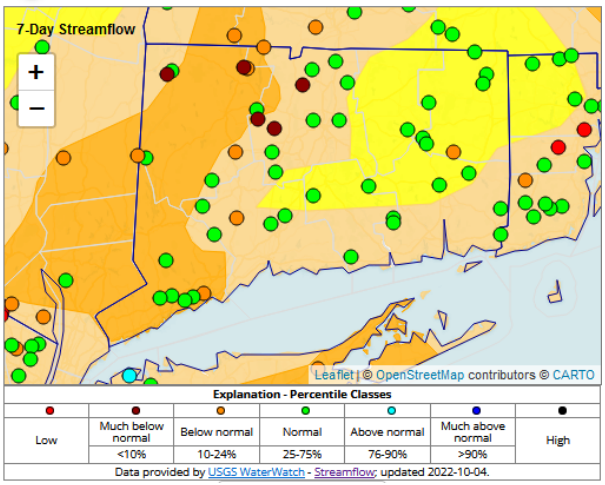
Map 1- 7 Day Total Precipitation

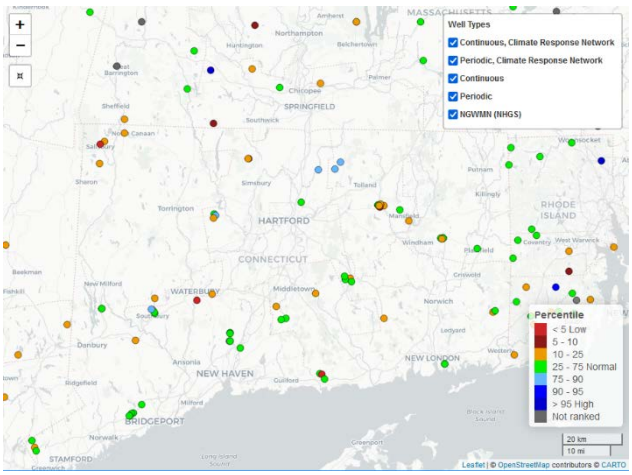


Map 2- 30 Day Percent of Normal Precipitation



Map 3 – 90 Day Percent of Normal Precipitation





PWSID	PWS Name	Most Recent Reading Date	Percent Full	Current Status	Trend	Historical Average	Percent of Normal	Previous Date	Previous Percent Full	County_Served
CT1030011	Norwalk First Taxing District	9/25/2022	43.00	**Drought Alert**	↓	70.90	61	9/18/2022	45.80	FAIRFIELD
CT0570011	Aquarion Water Co of CT-Greenwich Syster	9/18/2022	55.00	No Drought Stage	↓	70.00	79	9/11/2022	56.00	FAIRFIELD
CT1030021	South Norwalk Electric & Water	9/12/2022	51.30	**Approaching Trigger Level**	↓	63.40	81	9/6/2022	53.20	FAIRFIELD
CT0150011	Aquarion Water Co of CT-Main System	9/18/2022	68.60	No Drought Stage	↓	82.30	83	9/11/2022	70.50	FAIRFIELD
CT1350011	Aquarion Water Co of CT-Stamford	9/18/2022	60.30	No Drought Stage	↓	70.80	85	9/11/2022	62.30	FAIRFIELD
CT0340011	Danbury Water Department	9/18/2022	73.70	**Advisory**	↑	78.60	94	9/11/2022	73.50	FAIRFIELD
CT0090011	Bethel Water Dept	9/25/2022	99.60	No Drought Stage	↑	93.70	106	9/18/2022	98.40	FAIRFIELD
CT0473011	CTWC - Northern Reg-Western System	9/22/2022	60.70	No Drought Stage	↓	78.00	78	9/15/2022	62.50	HARTFORD
CT1310011	Southington Water Department	9/24/2022	53.10	No Drought Stage	↓	63.20	84	9/17/2022	59.30	HARTFORD
CT0770021	Manchester Water Department	9/25/2022	68.80	**Drought Alert**	↓	82.10	84	9/18/2022	69.20	HARTFORD
CT0170011	Bristol Water Department	9/25/2022	70.80	**Drought Alert**	↓	79.60	89	9/18/2022	72.60	HARTFORD
CT0890011	New Britain Water Department	9/22/2022	62.70	**Approaching Trigger Level**	↓	66.00	95	9/15/2022	64.60	HARTFORD
CT0640011	Metropolitan District Commission	9/26/2022	86.20	No Drought Stage	↓	86.00	100	9/19/2022	86.90	HARTFORD
CT1220011	Aquarion Water Co of CT-Salisbury Sys	9/18/2022	42.30	No Drought Stage	↓	87.70	48	9/11/2022	42.90	LITCHFIELD
CT1430011	Torrington Water Company	9/23/2022	53.10	No Drought Stage	↑	73.70	72	9/16/2022	52.60	LITCHFIELD
CT0980011	Aquarion Water Co of CT-Norfolk System	9/18/2022	85.40	No Drought Stage	--	97.40	88	9/11/2022	85.40	LITCHFIELD
CT1620011	Winsted Water Works	9/25/2022	86.90	No Drought Stage	--	93.60	93	9/18/2022	86.90	LITCHFIELD
CT1250011	Sharon Water & Sewer Commission	9/3/2022	95.30	**Approaching Trigger Level**	--	95.40	100	8/27/2022	95.30	LITCHFIELD
CT0261031	CTWC - Shoreline Region-Chester System	9/22/2022	80.00	No Drought Stage	↓	86.00	93	9/15/2022	87.40	MIDDLESEX
CT0830011	Middletown Water Department	9/25/2022	73.70	No Drought Stage	↑	75.50	98	9/18/2022	72.60	MIDDLESEX
CT0830021	Connecticut Valley Hospital	9/19/2022	93.80	No Drought Stage	↑	91.00	103	9/12/2022	93.20	MIDDLESEX
CT0608011	CTWC - Shoreline Region-Guilford System	9/22/2022	51.40	**Drought Watch**	↓	73.30	70	9/15/2022	51.60	NEW HAVEN
CT1510011	Waterbury Water Department	9/18/2022	62.60	No Drought Stage	↓	85.00	74	9/11/2022	64.80	NEW HAVEN
CT0880011	CTWC - Naugatuck Region-Central System	9/22/2022	76.60	No Drought Stage	↓	83.80	91	9/15/2022	78.10	NEW HAVEN
CT0800011	Meriden Water Division	9/11/2022	77.50	No Drought Stage	↑	80.80	96	9/4/2022	73.90	NEW HAVEN
CT0930011	Regional Water Authority	9/25/2022	73.10	No Drought Stage	↓	74.30	98	9/18/2022	73.80	NEW HAVEN
CT1480011	Wallingford Water Department	9/23/2022	84.20	No Drought Stage	↑	77.20	109	9/16/2022	83.60	NEW HAVEN
CT0580011	Jewett City Water Company	9/19/2022	66.40	No Drought Stage	↓	79.30	84	9/12/2022	68.20	NEW LONDON
CT1370011	Aquarion Water Co of CT-Mystic	9/18/2022	70.60	No Drought Stage	↑	81.10	87	9/11/2022	68.10	NEW LONDON
CT0950011	New London Dept. of Public Utilities	9/25/2022	57.50	**Drought Advisory**	↓	62.00	93	9/18/2022	58.90	NEW LONDON
CT1040011	Norwich Public Utilities	9/24/2022	76.20	**Water Supply Advisory**	↓	80.30	95	9/17/2022	77.40	NEW LONDON
CT0590011	Groton Utilities	9/19/2022	87.10	No Drought Stage	↑	83.00	105	9/12/2022	86.50	NEW LONDON
CT1340011	CTWC - Northern Reg-Stafford System	9/22/2022	100.00	No Drought Stage	--	95.20	105	9/15/2022	100.00	TOLLAND
CT1630011	Windham Water Works	9/25/2022	100.00	No Drought Stage	--	100.00	100	9/18/2022	100.00	WINDHAM
			71.99			80.59	**89.32**			

↑	-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	8
Between 90% and 99% of Normal	10
Less than 90% of Normal	16
At 100% Full	2

Ave Percent of Normal by County

84.14	FAIRFIELD
88.33	HARTFORD
80.20	LITCHFIELD
98.00	MIDDLESEX
89.67	NEW HAVEN
92.80	NEW LONDON
105.00	TOLLAND

Drought Impact Private Wells and Conservation Requests
September 30, 2022

DROUGHT CONSERVATION REQUESTS

- Norwalk Mayor plans to declared drought emergency citywide on Friday 10/7
    - mandatory conservation will be initiated with WPD enforcing the ordinance.
- Norwalk 1st Taxing District water system has entered their 1st Drought trigger. South Norwalk is near their 1st trigger.
- Danbury has declared a water emergency and is requesting the use of Lake Kenosia diversion. Mandatory conservation requested.
- CTWC requests all customers to conserve water (60 towns, 105,000 customers), in addition to a request for customers in Clinton, Guilford, Old Saybrook, and Westbrook to reduce water use by 15%
- Southeastern CT Water Authority is requesting all customers to voluntarily reduce outdoor water use.
    - https://www.waterauthority.org/
- Windham Water Works, on Aug 18, 2022, has implement 10% conservation measures. Reservoir is still at 100% full. Reporting that they are approaching their 1st drought trigger.
- Hazardville Water Company urges customers to conserve water. Serves Hazardville, East Windsor, and Somers.
    - https://www.hazardvillewater.com/
- Putnam has removed the mandatory conservation and is moving to voluntary conservation.
- East Lyme instituting mandatory conservation.
- Aquarion Water Company instituting mandatory irrigation restrictions for the towns of Darien, Fairfield, Greenwich, New Canaan, Newtown, Stamford, Westport, East Granby, Granby, Simsbury, Groton, Mystic, and Stonington.

Declared Drought Stages

- Norwich • **1st drought stage** – Water Supply Advisory. Requesting 10% voluntary conservation
- UCONN on Sept 23, 2022 • improved to **Stage IA** Water Supply Advisory and requested continued voluntarily conservation.
- CTWC – Guildford System • **1st drought stage** - Drought Watch
- New London • **1st drought stage** – Drought Advisory
    - approaching 2nd drought trigger.
- Manchester Water Dept • **1st drought stage** – Drought Alert
- New Britain • **1st drought stage** – Drought Watch
- Danbury • **1st drought stage** – Drought Advisory
- Bristol • **1st drought stage** – Drought Alert
- Norwalk 1st Taxing District • **1st drought stage –** Drought Alert

25 Permits Reported

Private Wells

Local Health Departments have reported the following well permit totals for the month of July through Sept 2022

Town	Total Permits
Canterbury	**2**
Eastford	**2**
Hampton	**2**
Killingly	**4**
Monroe	**3**
Plainfield	**2**
Pomfret	**1**
Prospect	**2**
Putnam	**1**
Sterling	**1**
Thompson	**1**
Wolcott	**3**
Woodstock	**1**
Total	**25**

Bulk Water Hauling Dry Well Resupply

Town	Total
Chaplin	1
Bolton	1
Wolcott	27
Cheshire	1
Total	30

Supplemental Maps
August 23, 2022 through October 4, 2022

Figure 1- August 23, 2022

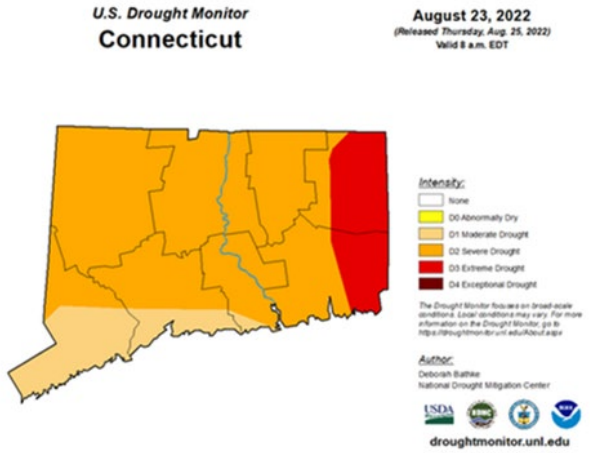


Figure 2- August 30, 2022

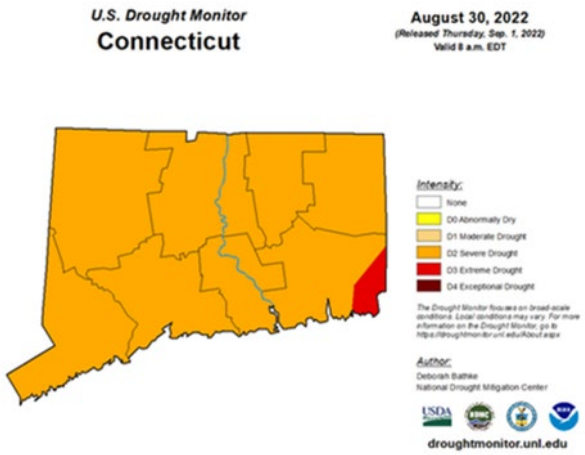


Figure 3- September 6, 2022

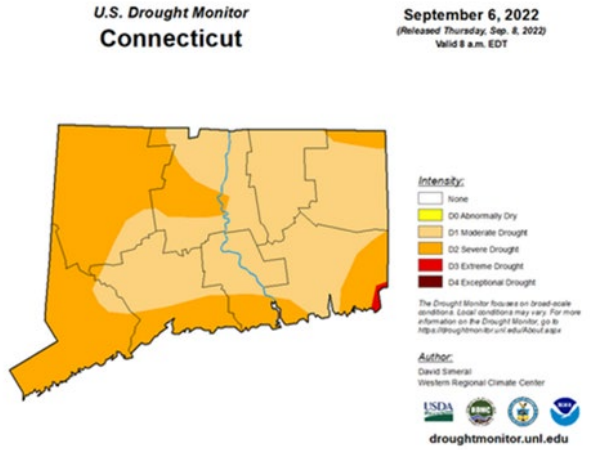


Figure 4- September 13, 2022

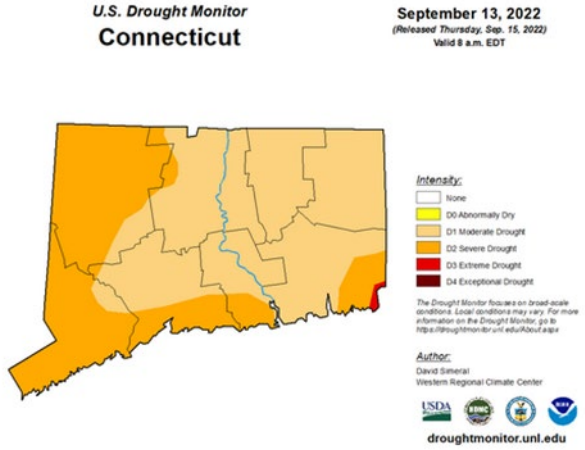


Figure 5 – September 20, 2022

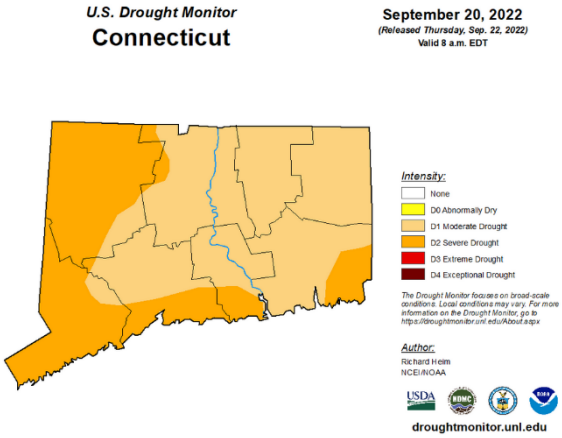


Figure 6– September 27, 2022

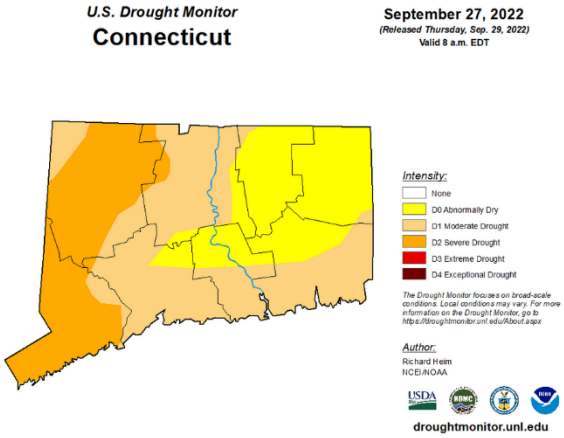
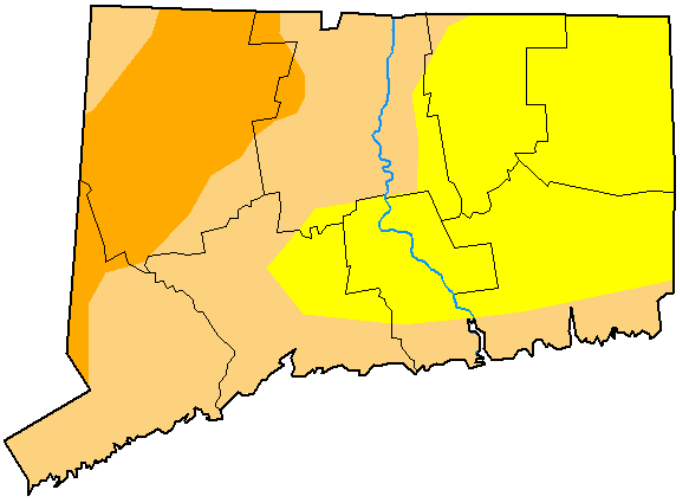


Figure 7 – October 4, 2022

U.S. Drought Monitor

Connecticut



October 4, 2022

(Released Thursday, Oct. 6, 2022)

Valid 8 a.m. EDT

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	0.00	100.00	59.97	17.84	0.00	0.00
Last Week *09-27-2022*	0.00	100.00	70.06	28.07	0.00	0.00
3 Months Ago *07-05-2022*	37.56	62.44	39.48	0.00	0.00	0.00
Start of Calendar Year *01-04-2022*	100.00	0.00	0.00	0.00	0.00	0.00
Start of Water Year *09-27-2022*	0.00	100.00	70.06	28.07	0.00	0.00
One Year Ago *10-05-2021*	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:

Brad Pugh

CPC/NOAA

droughtmonitor.unl.edu

Water Resources, Fisheries, and Forestry Conditions Report
Provided on 10/05/2022 by Doug Hoskins
Department of Energy and Environmental Protection

Water Diversion / Resource Concerns –

- Nothing to report.

Fisheries impacts-

- The drought has affected water levels and flows at all 3 CT DEEP state fish hatcheries
    - Burlington Hatchery lost about 25% of their total in-flow supplied primarily by surface water input with supply wells also impacted at 15% loss
        - This impacted fish growth because they have to be fed less to keep the water clean and avoid disease since there isn't as much water being circulated through
        - Flows haven't recovered yet
    - Quinebaug Hatchery is experiencing similar impact
        - This impacted fish growth significantly with fish showing little to no growth for the last two months due to the reduced flows
    - Kensington Fish hatchery had some flow losses but not significant enough to impact fish growth or fish health

Fire danger-

- Recent rains have kept Connecticut's Fire Danger statewide at Low to Moderate for the last few weeks leading to few fire starts recently
- As vegetation enters the transition stage before dormancy (when trees experience leaf fall and grasses cure) we may see an increase in fire starts due to available fuels especially if we experience longer duration dry periods between rains
- If fires do start, these fires would most likely tend more towards surface fires, and not the deeper ground fires that we were experiencing during the summer

Department of Agriculture – Drought Status Report

Parameter	Reported Conditions			
	As of 9/8/22		As of 10/6/22	
	Report Date	Status	Report Date	Status
Palmer Drought Severity Index (map)	9/3/2022	Entire state in Severe Drought, NW CT and Eastern CT in Extreme Drought	10/1/22	Entire state shows near normal conditions
Palmer drought severity index (data)	9/3/2022	Northwest: -4.18 Central: -3.74 Coastal: -4.98	10/1/22	Northwest: -1.27 Central: -0.57 Coastal: -2.33
Precipitation needed to end drought (in.)	9/3/2022	Northwest: 11.47 in Central: 10.35 in Coastal: 15.18 in	10/1/22	Northwest: 2.93 in Central: 0.75 in Coastal: 6.41 in
Crop Moisture (current map)	9/3/2022	Entire state shows slightly dry, NW CT shows abnormally dry	10/1/22	Entire state shows slightly dry or favorably moist.
Topsoil moisture (current map)	9/4/2022	0%, likely a data error. Entire state should show "very dry"	10/2/22	Data incomplete
Topsoil moisture (current vs. 5 yr. mean)	9/4/2022	5-year mean is 14 (data is incorrect)	10/5/22	Data incomplete
Veg DRI (% of CT land area shown as pre-drought, moderate, severe or extreme)	9/8/2022	Data incomplete, last entry was 7/31/22	10/2/22	Southern New Haven and Fairfield Counties still have areas of moderate and even severe drought. NW CT near Colebrook, Norfolk and Goshen also have small areas of moderate to severe drought.
Drought Monitor Report for CT	9/8/2022	Entire State shows moderate drought, western CT shows Severe Drought extending through the Farmington Valley. SE corner of CT shows Extreme Drought (Stonington)	10/6/22	Western and NW CT still show severe drought. Central and Coastal CT were mostly in moderate drought. Northeast CT, including NE New London have improved to "abnormally dry."
NASS Crop Progress Report (New England)	9/3/22	According to the National Agricultural Statistics Service in New England, there were 5 days suitable for fieldwork for the week ending Sunday, September 4, 2022. **Topsoil moisture** supplies were **4** percent very short, **10** percent short, **80** percent adequate, and **6** percent surplus. Subsoil moisture supplies were **3** percent very short, **22** percent short, **72** percent adequate, and **3** percent surplus.	10/2/22	According to the National Agricultural Statistics Service in New England, there were **6** days suitable for fieldwork for the week ending Sunday, October 2, 2022. **Topsoil moisture** supplies were **0** percent very short, **2** percent short, **87 percent adequate**, and 11 percent surplus. Subsoil moisture supplies were 0 percent very short, 2 percent short, **97 percent adequate**, and 1 percent surplus.

Summary: Data from all of these indicators showed drought conditions have improved across CT heading into October. Dry conditions may still be present in western and coastal CT, however the rain on or after October 2nd (most recent report dates) may have provided relief to those areas affected by the most recent drought. NOAA Climate Prediction Center showed that 6.41 inches and 2.93 inches of rain in Coastal and Northwest CT, respectively, were needed to end the drought.

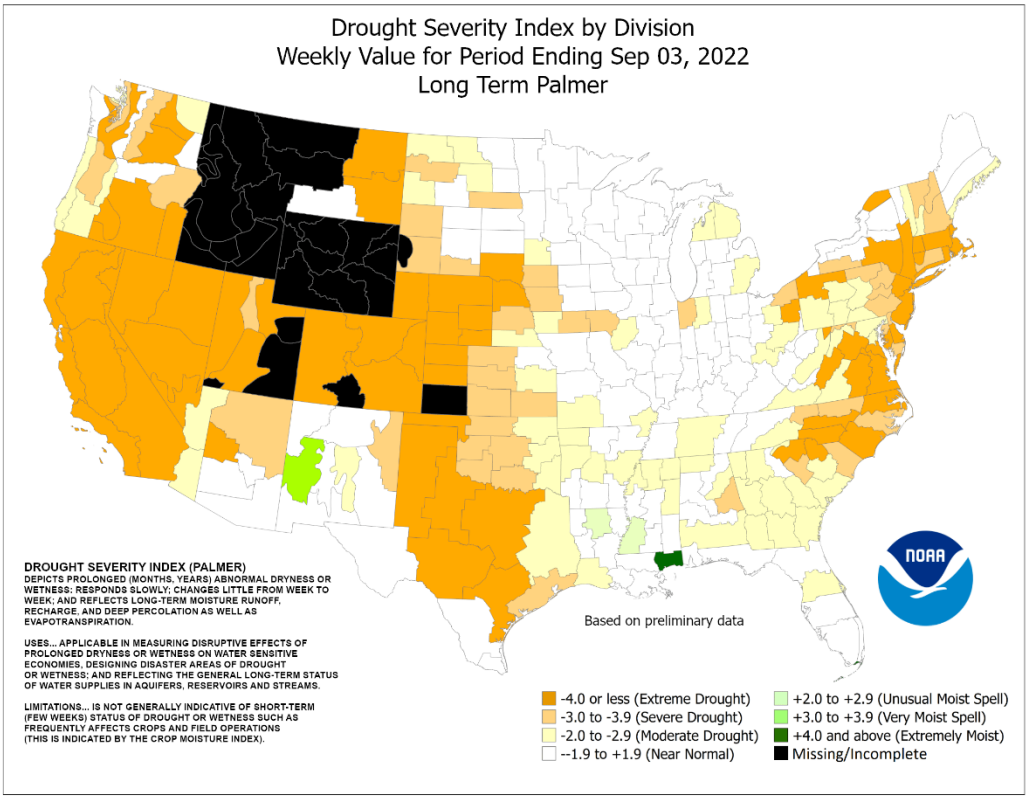
mbExplanatory notes:

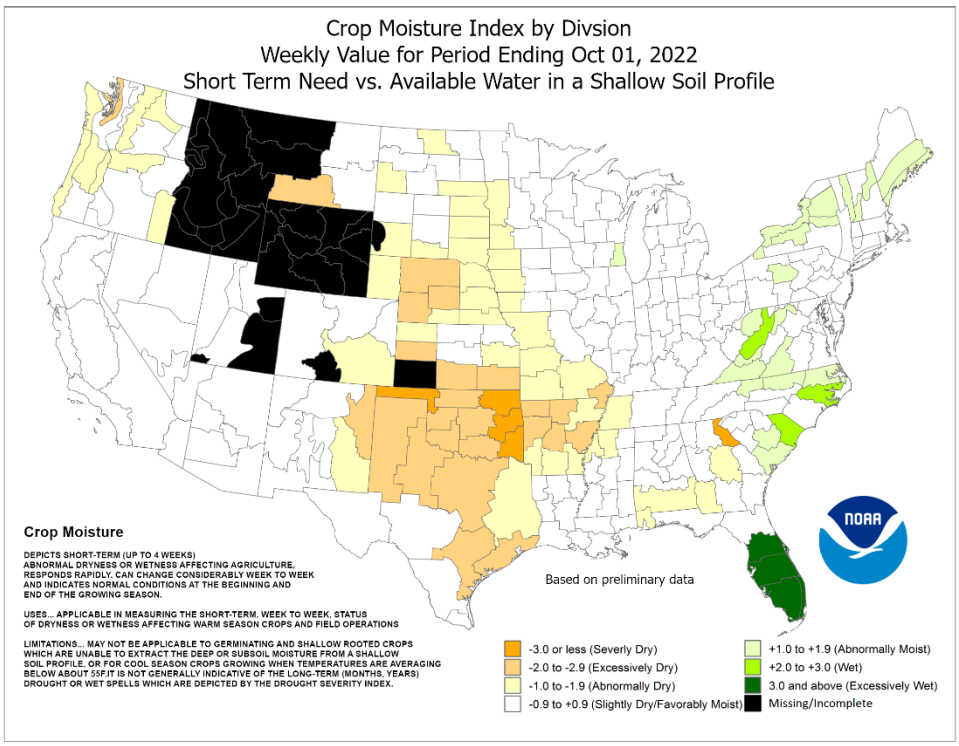
Palmer Drought Severity Index: The Palmer Drought Severity Index (PDSI) uses readily available temperature and precipitation data to estimate relative dryness. It is a standardized index that generally spans -10 (dry) to +10 (wet). Maps of operational agencies like NOAA typically show a range of -4 to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

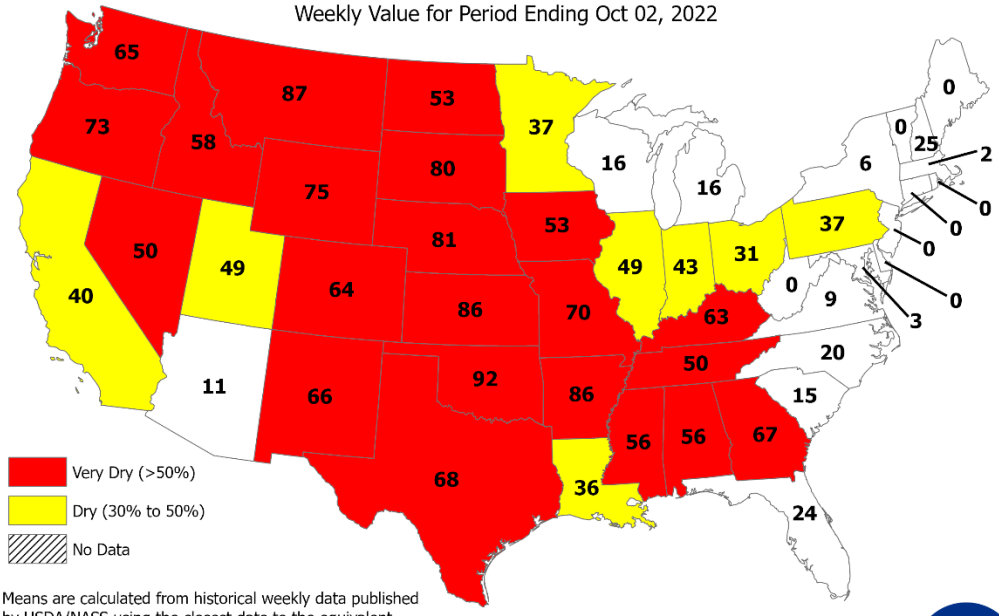

Drought Severity Index by Division
Weekly Value for Period Ending Sep 03, 2022
Long Term Palmer
DROUGHT SEVERITY INDEX (PALMER)
DEPICTS PROLONGED (MONTHS, YEARS) ABNORMAL DRYNESS OR WETNESS; RESPONDS SLOWLY; CHANGES LITTLE FROM WEEK TO WEEK; AND REFLECTS LONG-TERM MOISTURE RUNOFF, RECHARGE, AND DEEP 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 OF SHORT-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
NOAA
-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 Divsion
Weekly Value for Period Ending Oct 01, 2022
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
NOAA
-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 Oct 02, 2022



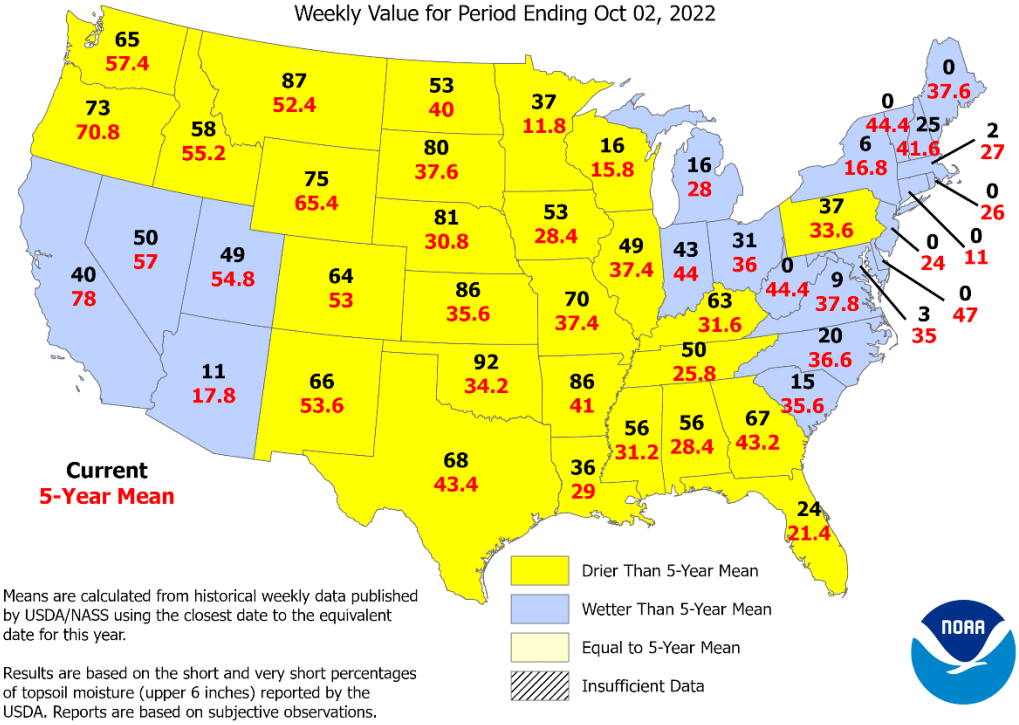
Means are calculated from historical weekly data published by USDA/NASS using the closest date to the equivalent date for this year.

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 Oct 02, 2022



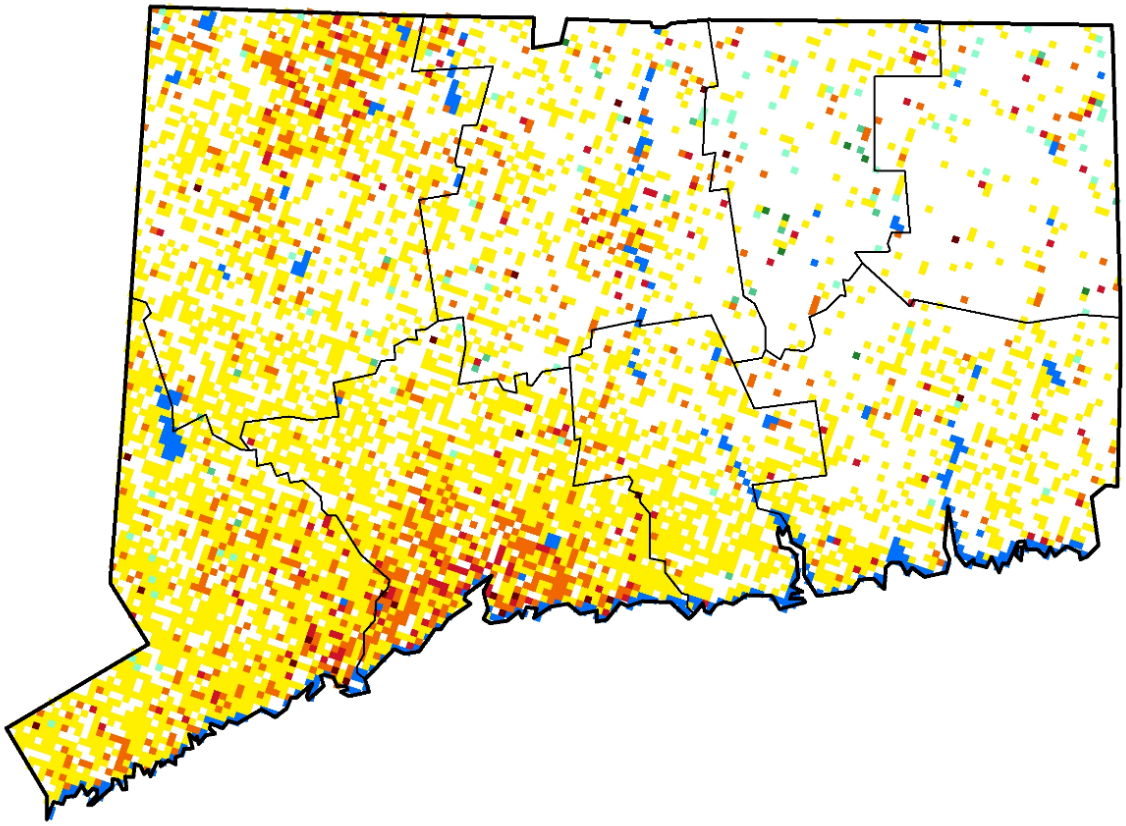
Means are calculated from historical weekly data published by USDA/NASS using the closest date to the equivalent date for this year.

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.

Vegetation Drought Response Index

October 2, 2022

Complete: Connecticut



Vegetation Condition

- Extreme Drought
- Severe Drought
- Moderate Drought
- Pre-drought stress
- Near Normal
- Unusually Moist
- Very Moist
- Extreme Moist
- Out of Season
- Water

NDMC National Drought Mitigation Center University of Nebraska

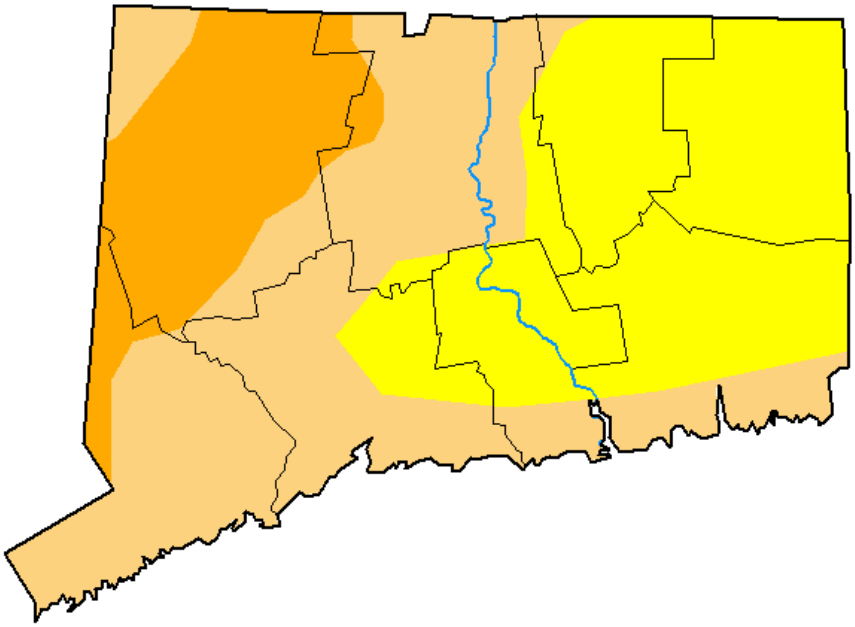
USGS science for a changing world

HPRCC

RMA

U.S. Drought Monitor

Connecticut



October 4, 2022

(Released Thursday, Oct. 6, 2022)

Valid 8 a.m. EDT

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	0.00	100.00	59.97	17.84	0.00	0.00
Last Week *09-27-2022*	0.00	100.00	70.06	28.07	0.00	0.00
3 Months Ago *07-05-2022*	37.56	62.44	39.48	0.00	0.00	0.00
Start of Calendar Year *01-04-2022*	100.00	0.00	0.00	0.00	0.00	0.00
Start of Water Year *09-27-2022*	0.00	100.00	70.06	28.07	0.00	0.00
One Year Ago *10-05-2021*	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

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droughtmonitor.unl.edu