Drought Conditions Report

May 6, 2021

Connecticut Water Planning Council Interagency Drought Workgroup

CT Interagency Drought Workgroup

May 6, 2021

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

Join Zoom Meeting

https://uso2web.zoom.us/j/81173849764?pwd=TGk5SGNhbVFwbE1ZU2JRbGNQTmdZZzo9

Meeting ID: 811 7384 9764

Passcode: nWkqu9

Agenda

1. Call to order

2. Seating of voting members

3. Approval of minutes: March 4, 2021

4. Business:

- a. DPH presentation of pilot Drought Data Portal (SharePoint site)
- b. Current conditions review and course of action
 - i. Month-end summary table for April 2021
 - ii. Agency reports/updates on conditions & forecast
 - iii. Discussion
 - iv. Recommend course of action (voting item)
- c. DEMHS update on municipal drought liaison (MDL) outreach plan
- d. Report on recommendations for edits to CT Drought Preparedness and Response Plan
- e. Other
- 5. Next meeting June 3, 2021
- 6. Adjourn

	Stage 2 Drought Trigger Summary by Region May 6, 2021									
	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	69% of normal	69% of normal	67% of normal	76% of normal	76% of normal	79% of normal	65% of normal	70% of normal	4/30/2021
Ground Water (2)	Two out of three months below the 25th percentile	≤25% stations meet trigger	≤25% stations meet trigger	40% stations meet trigger	≤25% stations meet trigger	≤25% stations meet trigger	≤25% stations meet trigger	≤25% stations meet trigger	≤25% stations meet trigger	4/30/2021
Streamflow (3)	Two out of three months below the 25th percentile	≤25% stations meet trigger	100% stations meet trigger	30% stations meet trigger	4/30/2021					
Reservoirs (4)	Average levels less than 80% of normal	99% of normal	102% of normal	103% of normal	103% of normal	101% of normal	101% of normal	100% of normal	100% of normal	4/26/2021
Palmer Drought Severity Index (5)	-2.0 to -2.99	-1.26	-1.07	-1.25	-1.26	-1.26	-1.26	-1.07	-1.07	5/1/2021
Crop Moisture Index (6)	-1.0 to -1.99	0.42	0.29	0.23	0.42	0.42	0.42	0.29	0.29	5/1/2021
VegDRI (seasonal) (7)	Pre-drought stress	Pre-drought stress	Partially meets threshold	Pre-drought stress	Does not meet threshold	Pre-drought stress	Partially meets threshold	Does not meet threshold	Does not meet threshold	5/2/2021
Fire Danger (8)	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	5/6/2021
U.S. Drought Monitor (9)	Intensity level D1-D2	D0	5/6/2021							

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

Connecticut Precipitation National Weather Service Offices Boston/Norton MA, Albany NY, Upton NY

Preliminary Precipitation Data (inches) by County
Precipitation Data Through April 2021

Includes CoCoRaHS data

CT 1 Month April 2021	Rainfall	Departure	Percent	Normal
Litchfield	3.20	-1.00	76	4.20
Hartford	3.25	-1.06	75	4.31
Tolland	3.30	-1.31	72	4.61
Windham	3.74	-0.85	82	4.59
Fairfield	3.40	-1.05	76	4.44
New Haven	3.59	-0.79	82	4.37
Middlesex	3.33	-1.09	75	4.42
New London	4.22	-0.34	93	4.56

CT 2 month Mar-Apr 21	Rainfall	Departure	Percent	Normal
Litchfield	5.59	-2.76	67	8.35
Hartford	5.80	-2.62	69	8.42
Tolland	5.77	-3.18	65	8.95
Windham	6.33	-2.71	70	9.04
Fairfield	6.12	-2.69	69	8.80
New Haven	6.63	-2.10	76	8.72
Middlesex	6.63	-2.14	76	8.77
New London	7.49	-1.93	79	9.42

CT 3 month Feb-Apr 21	Rainfall	Departure	Percent	Normal
Litchfield	9.10	-2.58	78	11.68
Hartford	9.07	-2.62	78	11.69
Tolland	8.88	-3.41	72	12.30
Windham	9.73	-2.60	79	12.33
Fairfield	10.06	-1.84	85	11.90
New Haven	10.76	-1.12	91	11.88
Middlesex	11.08	-1.03	92	12.11
New London	11.03	-1.80	86	12.83

CT 4 month Jan-Apr 21	Rainfall	Departure	Percent	Normal
Litchfield	10.98	-4.26	72	15.24
Hartford	11.42	-3.90	75	15.31
Tolland	11.20	-4.93	69	16.13
Windham	12.44	-3.63	77	16.07
Fairfield	11.84	-3.64	76	15.48
New Haven	12.34	-3.09	80	15.43
Middlesex	13.45	-2.41	85	15.86
New London	14.02	-2.54	85	16.56

CT 5 month Dec 20-Apr 21	Rainfall	Departure	Percent	Normal
Litchfield	18.16	-1.07	94	19.23
Hartford	19.31	0.06	100	19.25
Tolland	19.10	-1.19	94	20.30
Windham	21.93	1.61	108	20.32
Fairfield	17.90	-1.66	91	19.56
New Haven	19.98	0.65	103	19.33
Middlesex	21.74	1.56	108	20.18
New London	21.44	0.59	103	20.85

CT 6 month Nov 20-Apr 21	Rainfall	Departure	Percent	Normal
Litchfield	22.02	-1.48	94	23.49
Hartford	22.87	-0.85	96	23.72
Tolland	22.99	-1.80	93	24.80
Windham	26.35	1.60	106	24.76
Fairfield	21.89	-1.97	92	23.86
New Haven	24.15	0.66	103	23.49
Middlesex	26.03	1.51	106	24.52
New London	26.17	0.82	103	25.35

CT 7 month Oct 20-Apr 21	Rainfall	Departure	Percent	Normal
Litchfield	27.25	-1.08	96	28.32
Hartford	29.28	0.66	102	28.62
Tolland	28.99	-0.56	98	29.56
Windham	31.13	1.86	106	29.27
Fairfield	27.22	-1.18	96	28.40
New Haven	29.64	1.51	105	28.13
Middlesex	31.03	1.14	104	29.89
New London	31.36	1.73	106	29.63

CT 12 month May 20-Apr 21	Rainfall	Departure	Percent	Normal
Litchfield	43.06	-7.66	85	50.72
Hartford	40.56	-10.28	80	50.84
Tolland	41.76	-8.30	83	50.06
Windham	44.05	-6.12	88	50.17
Fairfield	43.96	-6.25	88	50.21
New Haven	44.34	-4.35	91	48.69
Middlesex	44.77	-6.39	88	51.16
New London	43.50	-6.39	87	49.89

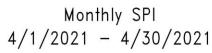
CT 24 month May 19-Apr 21	Rainfall	Departure	Percent	Normal
Litchfield	91.91	-9.53	91	101.44
Hartford	90.51	-11.18	89	101.69
Tolland	94.50	-5.62	94	100.13
Windham	95.61	-4.74	95	100.35
Fairfield	96.60	-3.82	96	100.42
New Haven	97.36	-0.02	100	97.38
Middlesex	99.05	-3.27	97	102.32
New London	99.17	-0.61	99	99.79

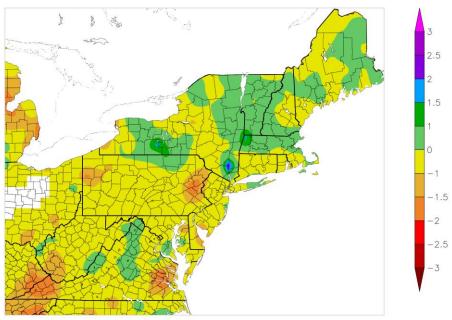
CT 36 month May 18-Apr 21	Rainfall	Departure	Percent	Normal
Litchfield	158.97	6.81	104	152.16
Hartford	155.85	3.32	102	152.53
Tolland	159.42	9.23	106	150.19
Windham	161.77	11.25	107	150.52
Fairfield	163.09	12.46	108	150.63
New Haven	161.41	15.34	111	146.06
Middlesex	164.75	11.27	107	153.48
New London	161.00	11.32	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.



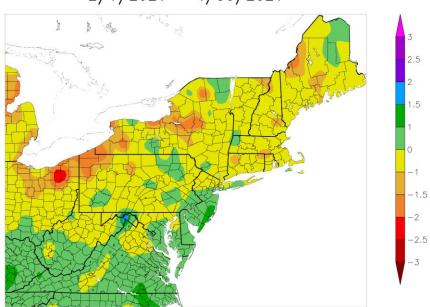


Generated 5/5/2021 at HPRCC using provisional data.

NOAA Regional Climate Centers

Map 1. April 2021 SPI, from NOAA Regional Climate Centers.\

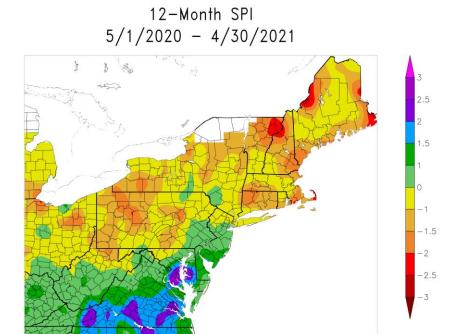
3-Month SPI 2/1/2021 - 4/30/2021



Generated 5/5/2021 at HPRCC using provisional data.

NOAA Regional Climate Centers

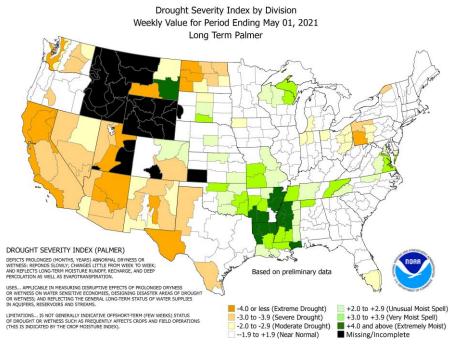
Map 2. Three month SPI ending April 2021, from the NOAA Regional Climate Centers.



Generated 5/5/2021 at HPRCC using provisional data.

NOAA Regional Climate Centers

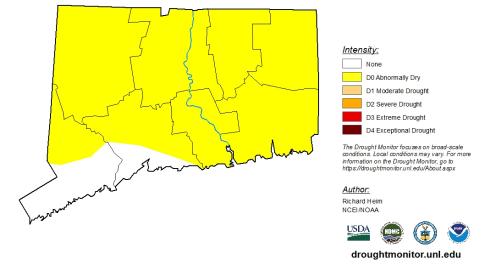
Map 3. Twelve month SPI ending April 2021, from the NOAA Regional Climate Centers.



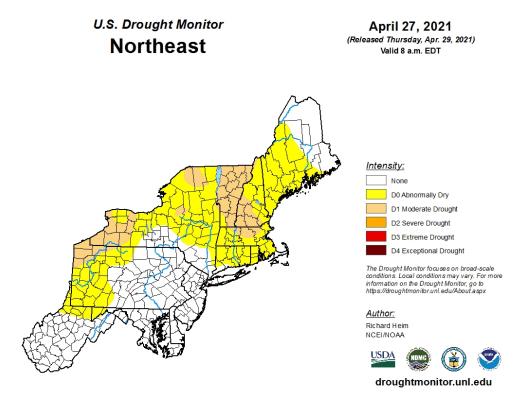
Map 4. Palmer Drought Index from the Climate Prediction Center as of 5/1/21. CT Palmer Drought Index values: Northwest -1.25 (Near Normal), Central -1.07 (Near Normal), Coastal -1.45 (Near Normal).

U.S. Drought Monitor Connecticut

April 27, 2021 (Released Thursday, Apr. 29, 2021) Valid 8 a.m. EDT



Map 5. U.S. Drought Monitor zoom-in on CT, effective 4/27/2021.



Map 6. U.S. Drought Monitor for Northeast US, effective 4/27/2021.

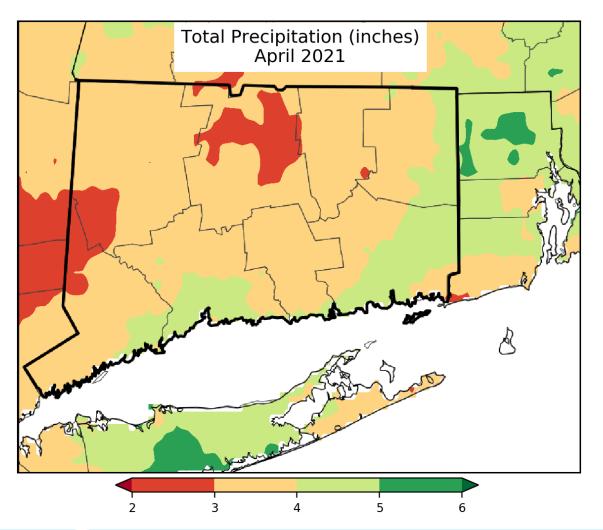
NWS Conditions Update

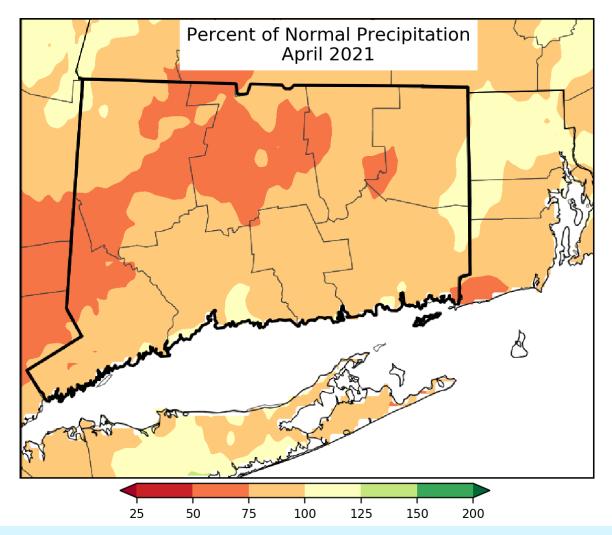
Connecticut Interagency Drought Workgroup Meeting
National Weather Service Boston MA
May 6 2021





April 2020 Rainfall





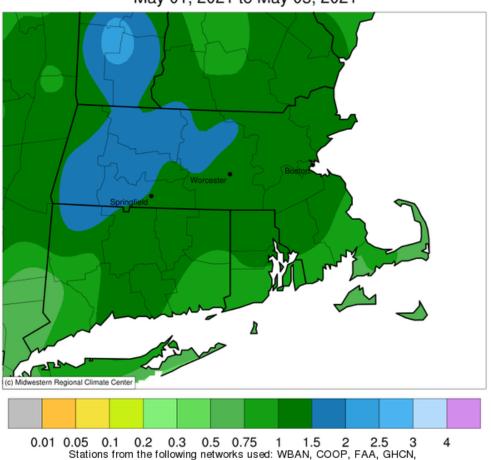




Rainfall in May so far...

Accumulated Precipitation (in)

May 01, 2021 to May 05, 2021

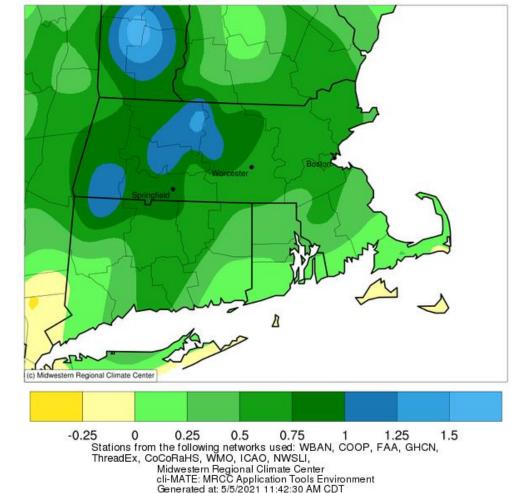


Midwestern Regional Climate Center cli-MATE: MRCC Application Tools Environment Generated at: 5/5/2021 11:35:57 AM CDT

ThreadEx, CoCoRaHS, WMO, ICAO, NWSLI,

Accumulated Precipitation (in): Departure from 1981-2010 Normals

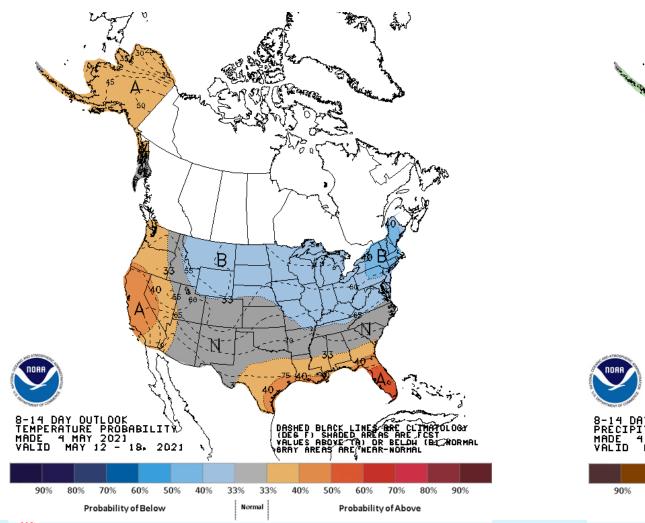
May 01, 2021 to May 05, 2021

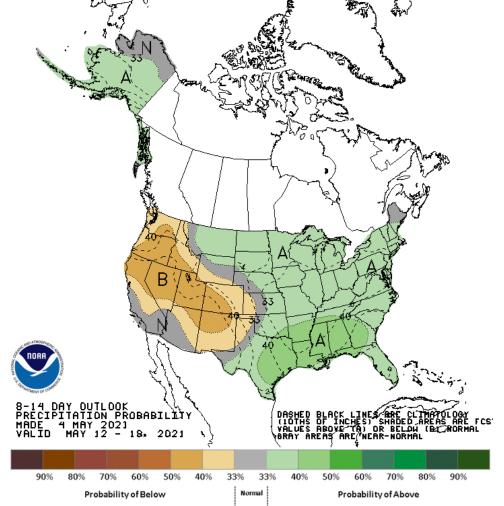






Outlook for May 12-18



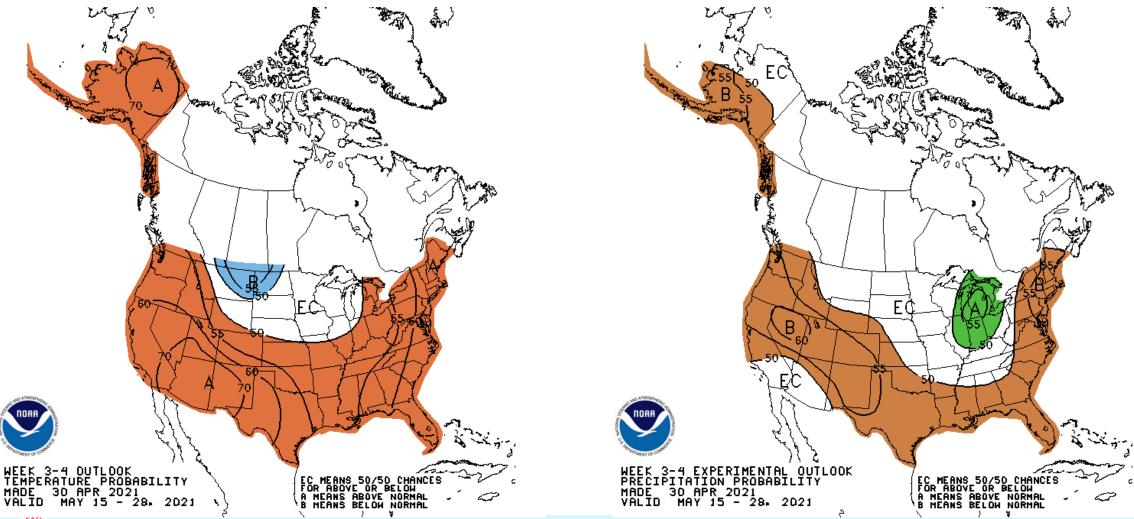






Outlook for May 15-29

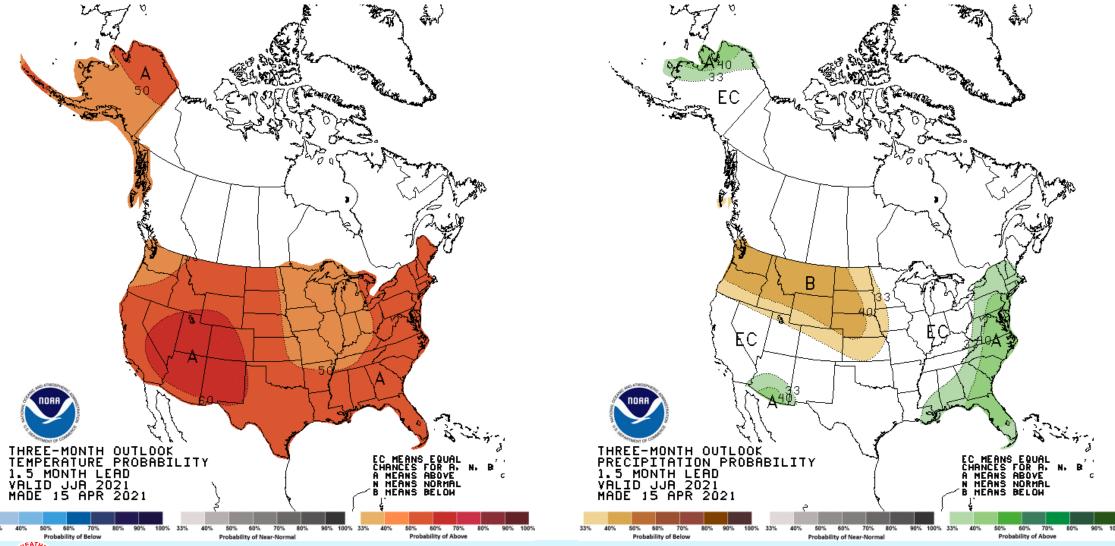
This Week 3-4 Outlook is issued weekly on Fridays







Outlook for June/July/August











Provisional data, subject to review and revision

	Number of wells
Number of wells	below normal for 4

		below normal for 2	or more			
	Number of	or more	consecutive	Percent	Percent	
County	wells	consecutive months	months	stage 2	stage 3	
Fairfield	11	1	0	9.1	0	
Hartford	10	1	0	10	0	
Litchfield	5	2	1	40	20	
Middlesex	7	0	0	0	0	
New Haven	13	2	0	15.4	0	
New London	5	0	0	0	0	
Tolland	12	2	0	16.7	0	
Windham	6	1	0	16.7	0	

END OF APRIL 2021 GROUNDWATER SUMMARY BY COUNTY



Provisional data, subject to review and revision

		Number of gages below normal for 2	Number of gages below normal for 4			
	Number of	or more	or more out of 5	Percent	Percent	
County	gages	consecutive months	consecutive months	stage 2	stage 3	
Fairfield	14	0	0	0	0	
Hartford	11	0	0	0	0	
Litchfield	10	0	0	0	0	
Middlesex	4	1	0	25	0	
New Haven	8	2	0	25	0	
New London	6	0	0	0	0	
Tolland	3	3	0	100	0	
Windham	10	3	0	30	0	

APRIL 2021 STREAMFLOW SUMMARY BY COUNTY



Department of Agriculture – Drought Status Report

	Reported Conditions				
Parameter		As of 1/6/21	ı	Current Conditions (5/6/2021)	
	Report Date	Status	Report Date	Status	
Palmer Drought Severity Index (map)	1/2/2021	Most of the state (all except coastal portions) shows unusually moist	5/1/21	Entire state shows normal	
Palmer drought severity index (data)	1/2/2021	Northwest: 2.11 Central: 1.94 Coastal: 1.42	5/1/21	Northwest: -1.25 Central: -1.07 Coastal: -1.45	
Precipitation needed to end drought (in.)	1/2/2021	Not reported	5/1/21	Northwest: 3.02 Central: 2.67 Coastal: 3.25	
Crop Moisture (current map)	1/2/2021	Now showing entire state as wet.	5/1/21	Entire state shows normal	
Topsoil moisture (current map)	1/3/2021	No data reported	5/2/21	Shows 23% of land area as short-very short in topsoil	
Topsoil moisture (current vs. 5 yr. mean)	1/3/2021	No data reported	5/2/21	Shows that we are drier than the 5 yr. mean of 9% of land area short-very short	
Veg DRI (% of CT land area shown as pre-drought, moderate, severe or extreme)	1/3/2021	Out of season, no VegDRI data reported outside of growing season.	5/2/21	Shows about 39% of the state in pre-drought or higher	
Drought Monitor Report for CT	1/5/2021	The drought monitor continues to show improvement over the last month, with the % of the state showing no drought conditions now at 100%.	5/4/21	The drought monitor shows about 89% of the state in abnormally dry conditions	
NASS Crop Progress Report (New England)	1/6/2021	No report, last report was 11/29/2020.	5/2/21	Shows 58% of New England as adequate moisture in topsoil, 63% in 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.

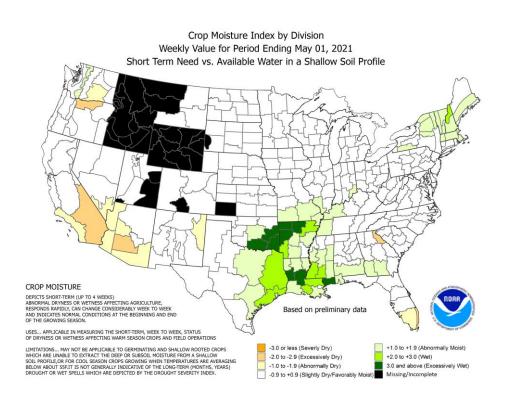
Vegetation Drought Response Index: VegDRI calculations integrate satellite-based observations of vegetation conditions, climate data, and other biophysical information such as land cover/land use type, soil characteristics, and ecological setting. The VegDRI maps that are produced deliver continuous 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.

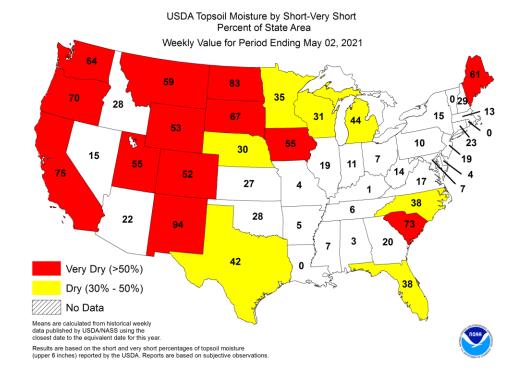
Drought Severity Index by Division Weekly Value for Period Ending May 01, 2021 Long Term Palmer DROUGHT SEVERITY INDEX (PALMER) DEPICTS PROLONGED (MONTHS, YEARS) ABNORMAL DRYNESS OR WETNESS: REPONDS SLOWLY; CHANGES LITTLE FROM WEEK TO WEEK; AND REFLECTS LONG-TERM MOISTURE RUNOF, RECHARGE, AND DEEP PERCOLATION AS WELL AS EVAPOTRANSPIRATION. Based on preliminary data 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. -4.0 or less (Extreme Drought) -3.0 to -3.9 (Severe Drought) -2.0 to -2.9 (Moderate Drought) -4.0 and above (Extremely Moist) -4.0 or less (Extreme Drought)

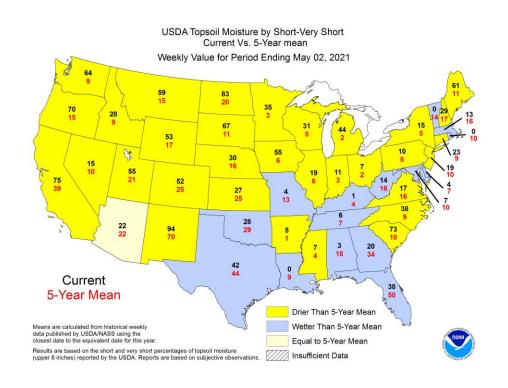
--1.9 to +1.9 (Near Normal)

■ Missing/Incomplete

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).

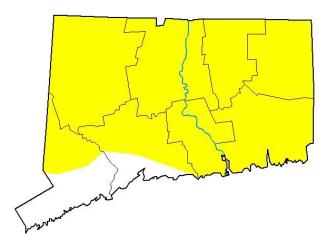






Vegetation Drought Response Index May 2, 2021 Complete: Connecticut Vegetation Condition Extreme Drought Severe Drought Moderate Drought Pre-drought stress Near Normal Unusually Moist Very Moist Extreme Moist Out of Season RMA

U.S. Drought Monitor Connecticut



May 4, 2021 (Released Thursday, May. 6, 2021) Valid 8 a.m. EDT

5	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	11.33	88.67	0.00	0.00	0.00	0.00
Last Week 04-27-2021	11.43	88.57	0.00	0.00	0.00	0.00
3 Month's Ago 02-02-2021	100.00	0.00	0.00	0.00	0.00	0.00
Start of Calendar Year 12-29-2020	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 05-05-2020	100.00	0.00	0.00	0.00	0.00	0.00
ntensity:						
None			[02 Seve	re Drou	ght
D0 Abnor	mally D	rv.		3 Extra	eme Dro	waht

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

David Simeral

Western Regional Climate Center









droughtmonitor.unl.edu

Lindquist, Eric

From: Fitting, Corinne

Sent: Wednesday, May 5, 2021 1:55 PM

To: Lindquist, Eric

Subject: RE: CT Interagency Drought Workgroup -- 5/6/2021 Agenda

Eric, I apologize for not getting info to you earlier, but forest fire danger is currently low (so grateful for the rain!) and we've got no adverse reports regarding fisheries nor diversions. I will be sitting in for Doug at tomorrow's meeting. Corinne

Corinne Fitting
Supervising Environmental Analyst
Water Planning & Management Division
Bureau of Water Protection & Land Reuse
Connecticut Department of Energy and Environmental Protection
79 Elm Street, Hartford, CT 06106-5127
P: 860.424.3724 | E: corinne.fitting@ct.gov



www.ct.gov/deep

Conserving, improving and protecting our natural resources and environment; Ensuring a clean, affordable, reliable, and sustainable energy supply.

From: Lindquist, Eric <Eric.K.Lindquist@ct.gov> Sent: Wednesday, May 5, 2021 10:32 AM

To: Aarrestad, Peter <Peter.Aarrestad@ct.gov>; Anderson, Stephen <Stephen.Anderson@ct.gov>; Ayotte, Alyson <Alyson.Ayotte@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>; Crawley, Kathleen (DOA <Kathleen.Crawley@doa.ri.gov>; Dumais, Kenneth <Kenneth.Dumais@ct.gov>; Dunham, Alan <alan.dunham@noaa.gov>; Fitting, Corinne <Corinne.Fitting@ct.gov>; Foreman, 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; 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>; Mccarthy, Dee-Ann <dmccarthy@usgs.gov>; McMann, Austin <Austin.McMann@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>; Quansah, Isaac

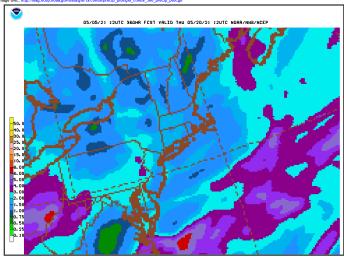
The GFS model is indicating near normal rainfall (see map below) for our area for the next 14 days. Total rainfall is forecast by the GFS model to range between 1.5" – 2.0". Most of the rainfall will be the result of a ½ dozen fast moving low pressure systems moving across the country and thru New England during the next 14 days.

- o × 16 16 18 ... Back **Model Guidance** Home

Un-Zoom Page Help Product Description

Forecast Hour: 360 Image URL: http://mag

<< Prev



Next >>

<< Prev Next >>

Sincerely,

Douglas W. Glowacki
Emergency Management Program Specialist
DESPP / DEMHS
1111 Country Club Road, Middletown CT
Cell: 860-250-2358

From: Lindquist, Eric «Eric K. Lindquist@ct.gov»
Sent: Wednesday, May (D. 2021 10.23 AM
To: American Feed et an extraction of the Control of

Good morning.

Attached is the agenda for tomorrow's meeting of the Interagency Drought Workgroup. —Eric