

Hydrologic Conditions in Massachusetts for *August 2025*

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DCR Office of Water Resources

Drought Management Task Force

September 8, 2025

Meeting Co-Chairs: EOEEA, MEMA



MA Drought Management Plan Indices

Numbers in parentheses indicate number of data points across the state



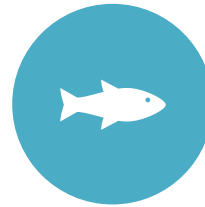
Precipitation (93)



Streamflow (75)



Groundwater (63)



Lakes and
Impoundments (20)



KBDI - Fire Danger
(36)



Evapotranspiration
(national map)

MA Drought Management Plan

Index Severity Levels

Index Severity Level	Percentiles for: Precipitation, Streamflow, Lakes and Impoundments, Groundwater, and Evapotranspiration	Keetch-Byram Drought Index
0	>30 th percentile	< 200
1	≤30 and >20	200-400
2	≤20 and >10	400-600
3	≤10 and >2	600-700
4	≤2	700-800

MA Drought Management Plan

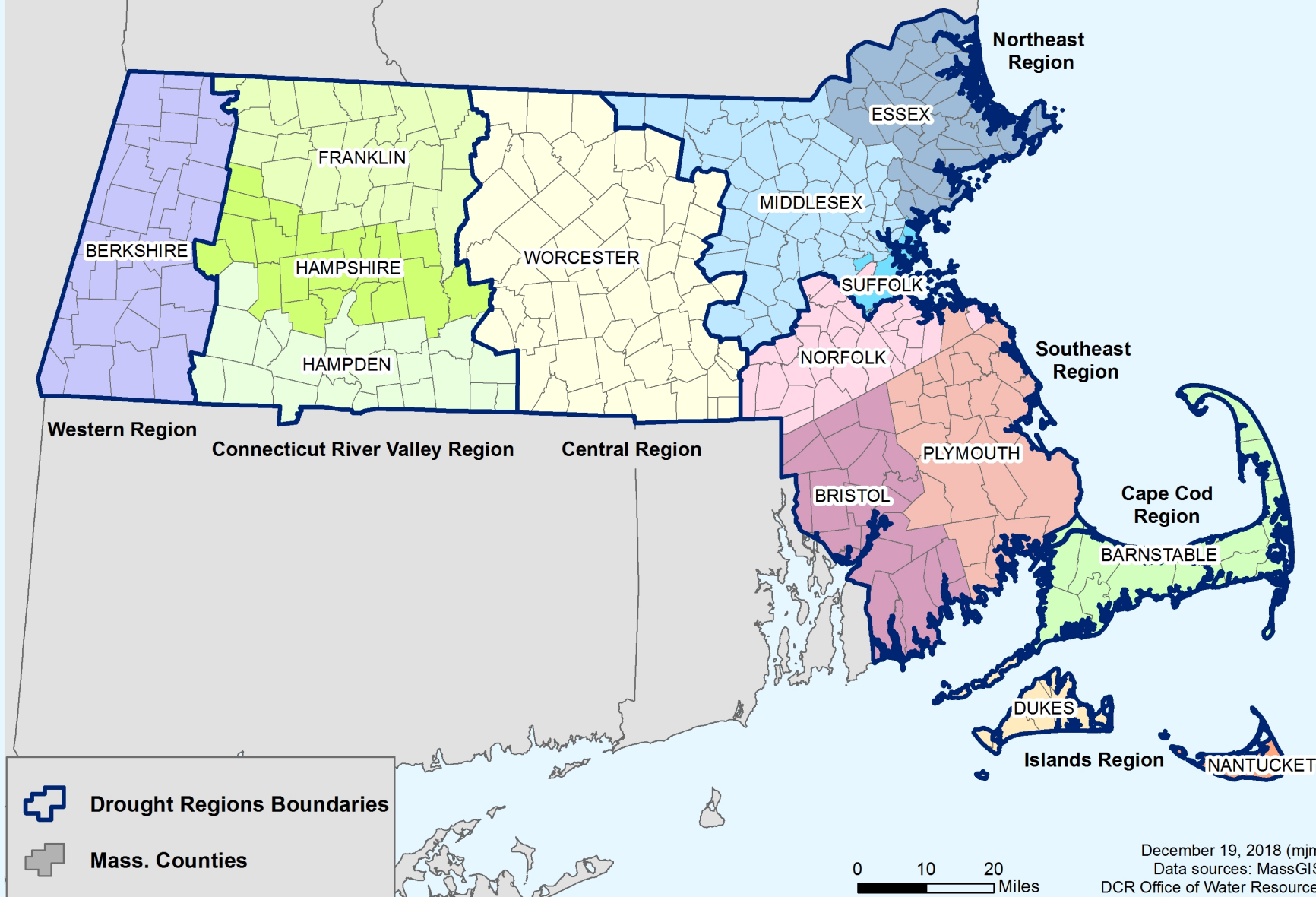
Drought Levels





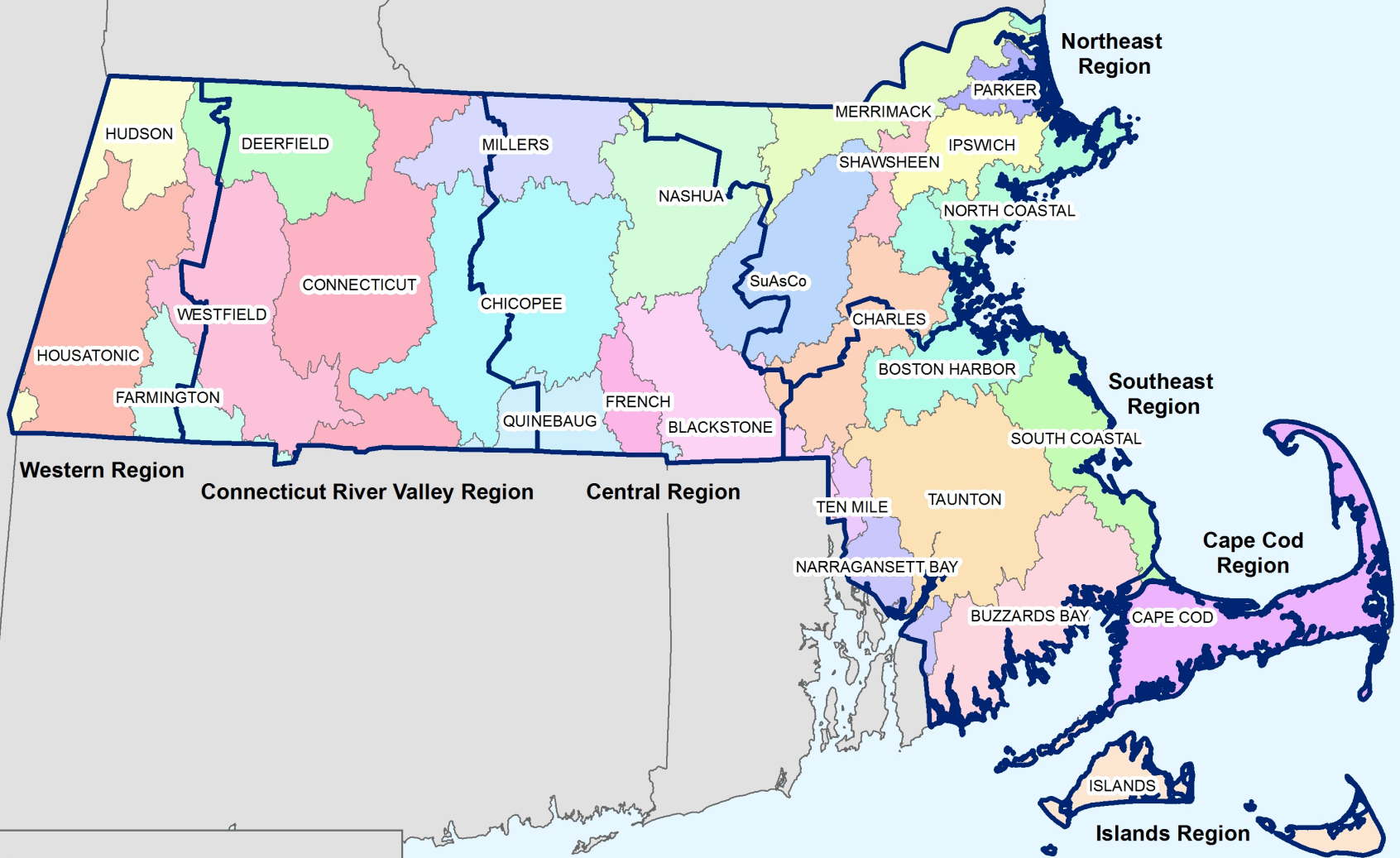
MASSACHUSETTS DROUGHT REGIONS

with Counties





MASSACHUSETTS DROUGHT REGIONS with Watersheds



Drought Regions Boundaries



Mass. Counties

0 10 20
Miles

October 11, 2019 (mjm)
Data sources: MassGIS,
DCR Office of Water Resources

Task Force Member Updates



Hydrologic
Conditions



Weather &
Forecast



Water Supply
Impacts



Environmental
Impacts



Agricultural
Impacts



Fire Danger



Engineering/
Infrastructure
Impacts

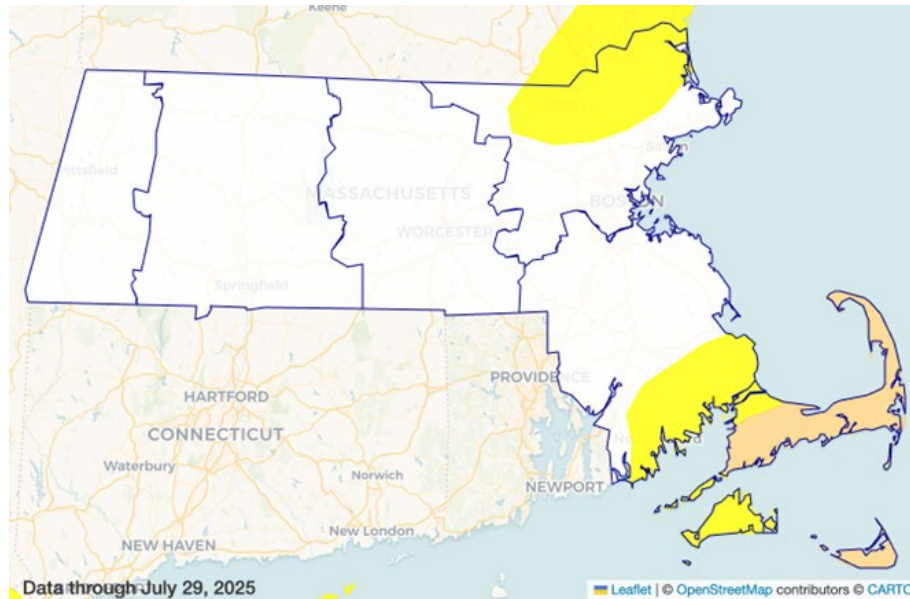


Public Health
Impacts

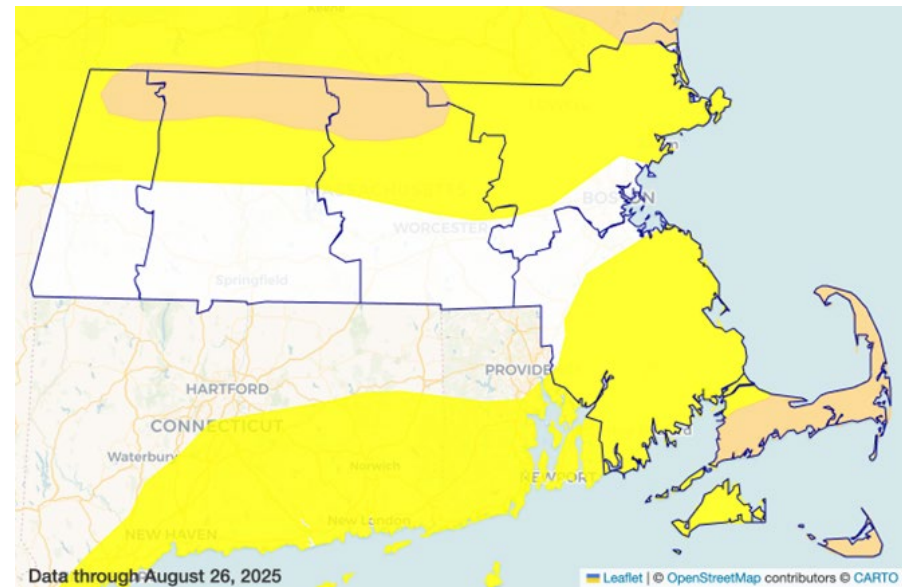
Recent Hydrologic History

- **Mid-August through February – onset and variable conditions**
 - Impacts to streamflow and groundwater develop and persist
- **March through May – recovery except Cape and Islands**
 - Improvements to streamflow and groundwater except in the Cape Cod and Islands Regions
- **June and July – mixed conditions**
 - Mixed precipitation across the state with some areas drying out
 - Groundwater remains below normal in the Cape Cod, Nantucket, and southern part of the Southeast Regions
 - Scattered below normal streamflow and groundwater rest of the state
- **August – significantly below normal streamflow emerging**
 - Precipitation mostly below normal
 - Streamflow, especially in the northern 2/3rd of state, below normal
 - Groundwater low but remains above 30th percentile except Cape and Nantucket







US Drought Monitor



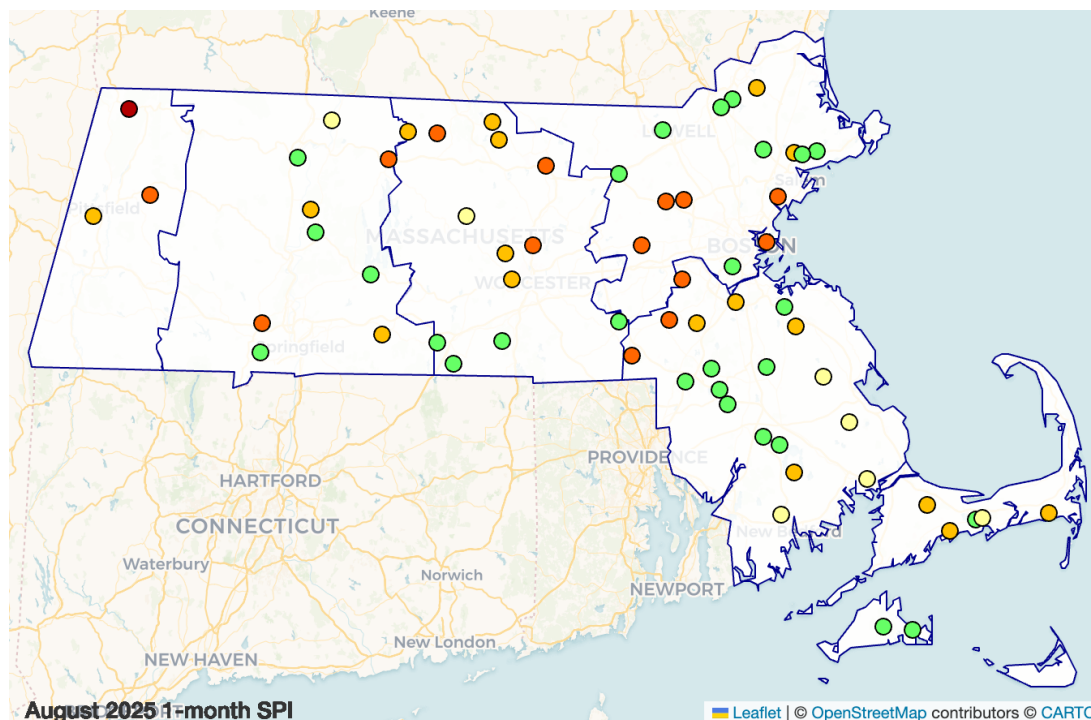
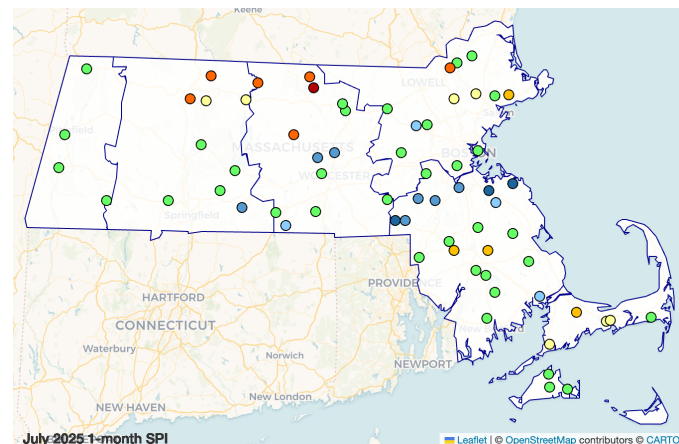
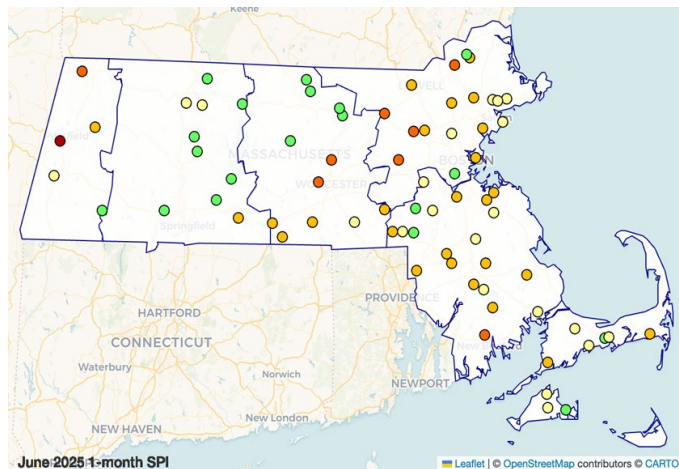
Data through July 29, 2025



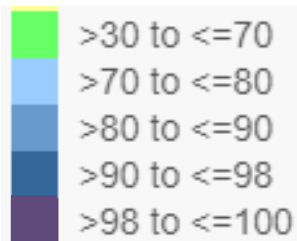
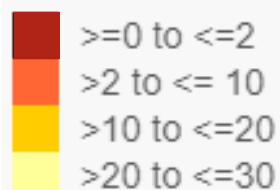
Data through August 26, 2025

	None			
	D0 (Abnormally Dry)	USDM		MA DMP
		0	=	1
	D1 (Moderate Drought)	1	=	2
	D2 (Severe Drought)	2,3	=	3
	D3 (Extreme Drought)	4	=	4
	D4 (Exceptional Drought)			

Standardized Precipitation Index



Percentiles



Index Severity Levels

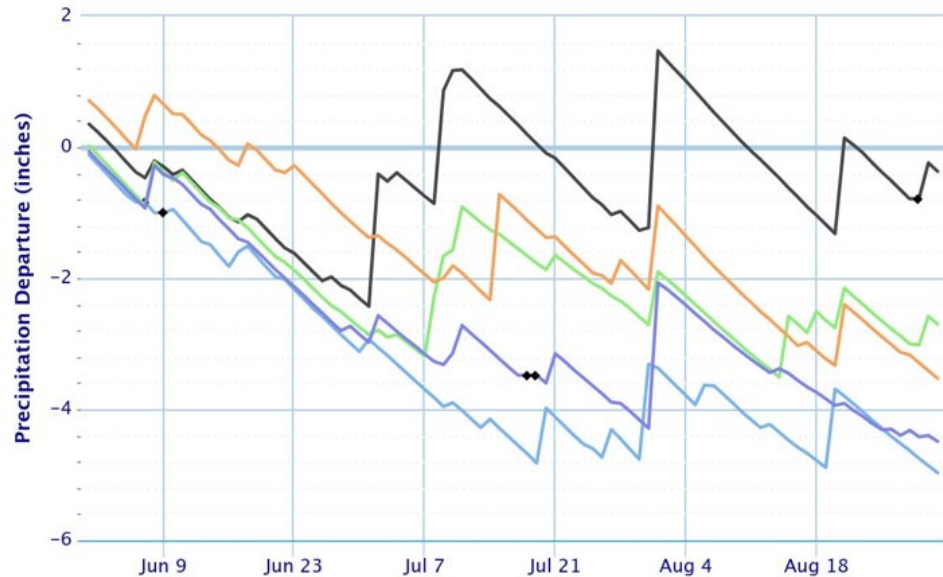


Up to 4" of Precipitation Deficit

<https://xmacis.rcc-acis.org/>

Accumulated Precipitation Departure from Normal

Green/black diamonds represent subsequent/missing values



(Click to hide/show lines)

PITTSFIELD MUNICIPAL AP, MA:Precip Dprt — SOUTHBRIDGE 3 SW, MA:Precip Dprt
NORTON WEST, MA:Precip Dprt — AMHERST, MA:Precip Dprt
MIDDLETON, MA:Precip Dprt

Powered by ACIS

Accumulated Precipitation Departure from Normal

Green/black diamonds represent subsequent/missing values



(Click to hide/show lines)

HYANNIS, MA:Precip Dprt — EDGARTOWN, MA:Precip Dprt

Powered by ACIS

Standardized Precipitation Index as Percentile

REGION	NUMBER OF SITES	1-mo *	2-mo	3-mo	6-mo	9-mo	12-mo	24-mo	36-mo *
WESTERN	3	9	9	5	24	28	6	25	49
CTRV	9	27	19	20	69	57	16	51	76
CENTRAL	13	15	36	11	59	52	20	70	89
NORTHEAST	15	33	31	15	41	32	10	44	72
SOUTHEAST	19	26	47	28	55	54	28	67	76
CAPE COD	5	20	19	12	29	15	15	16	45
ISLANDS	2	56	50	35	59	47	26	42	64

Index Severity Levels

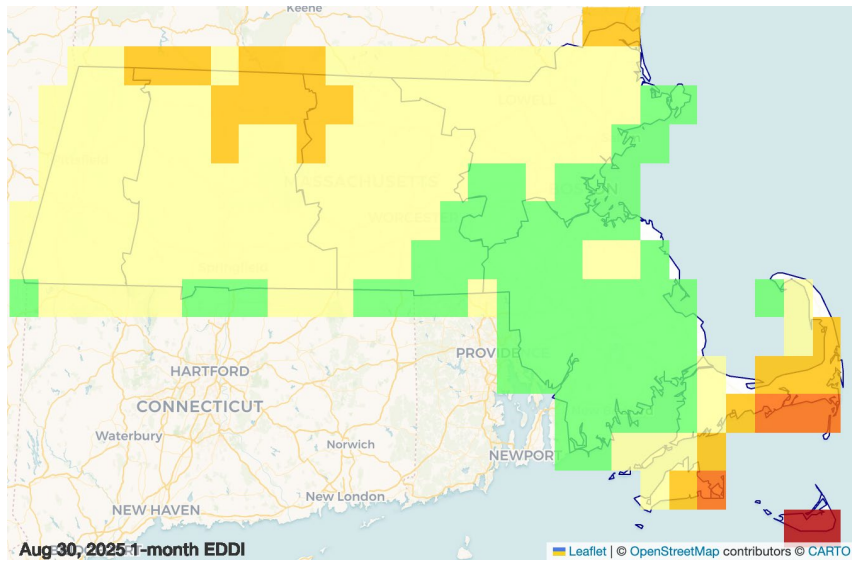
Level 0	Level 1	Level 2	Level 3	Level 4
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* 1- and 36-month SPI is for informational purposes only, not for drought determination. Of the 2- to 24-month look-back periods, the most relevant is selected each month depending on the phase of the drought - onset, during or recovery.

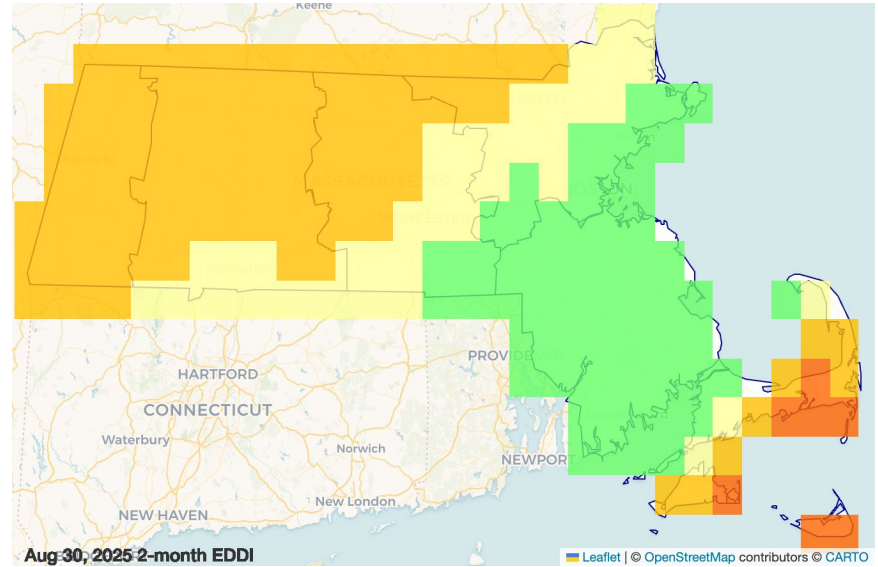
N/A: Not Available

Evapotranspiration

1-month

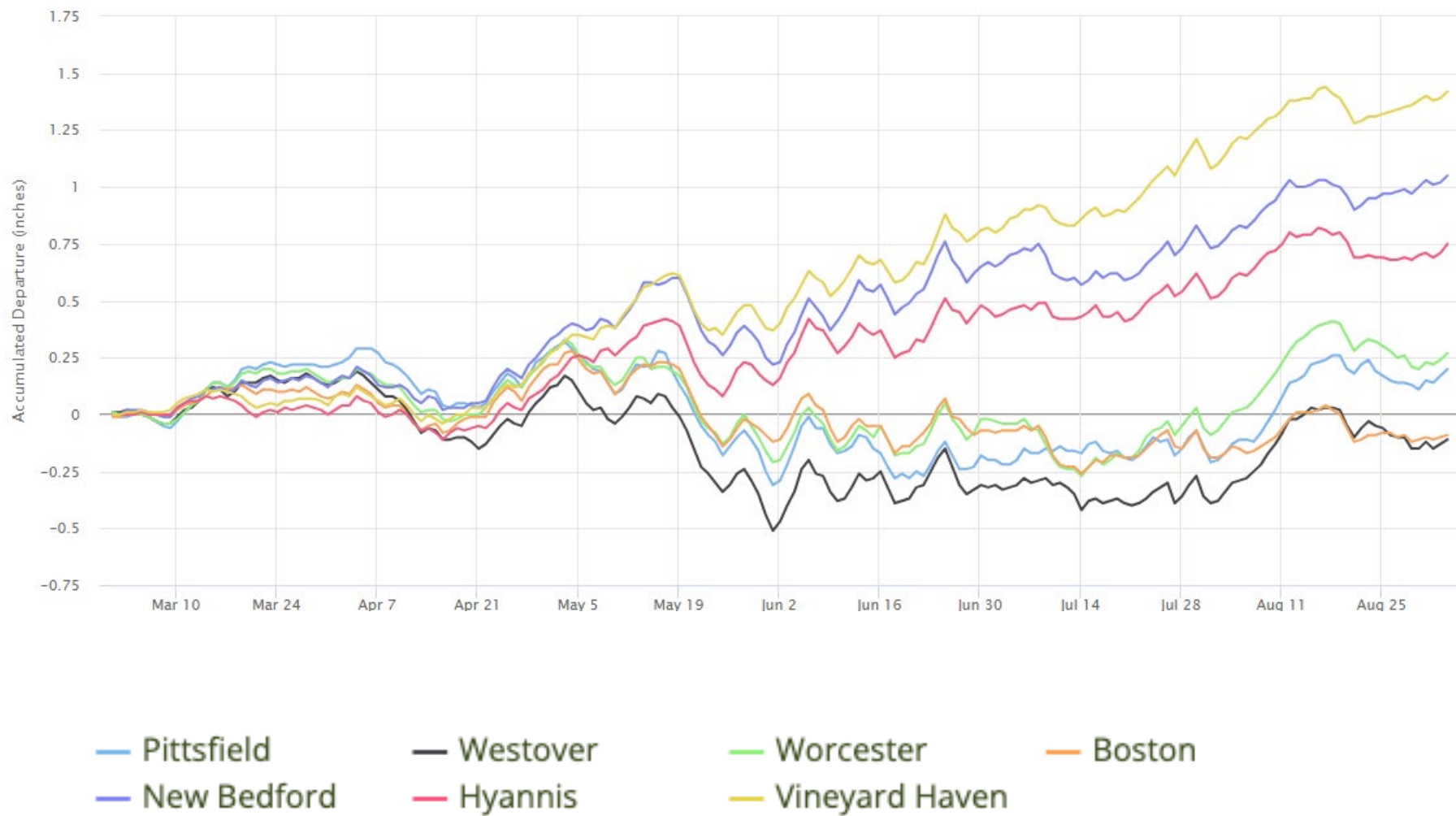


2-month



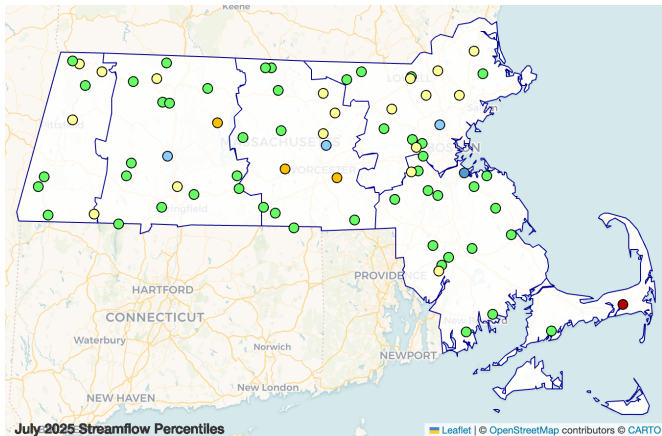
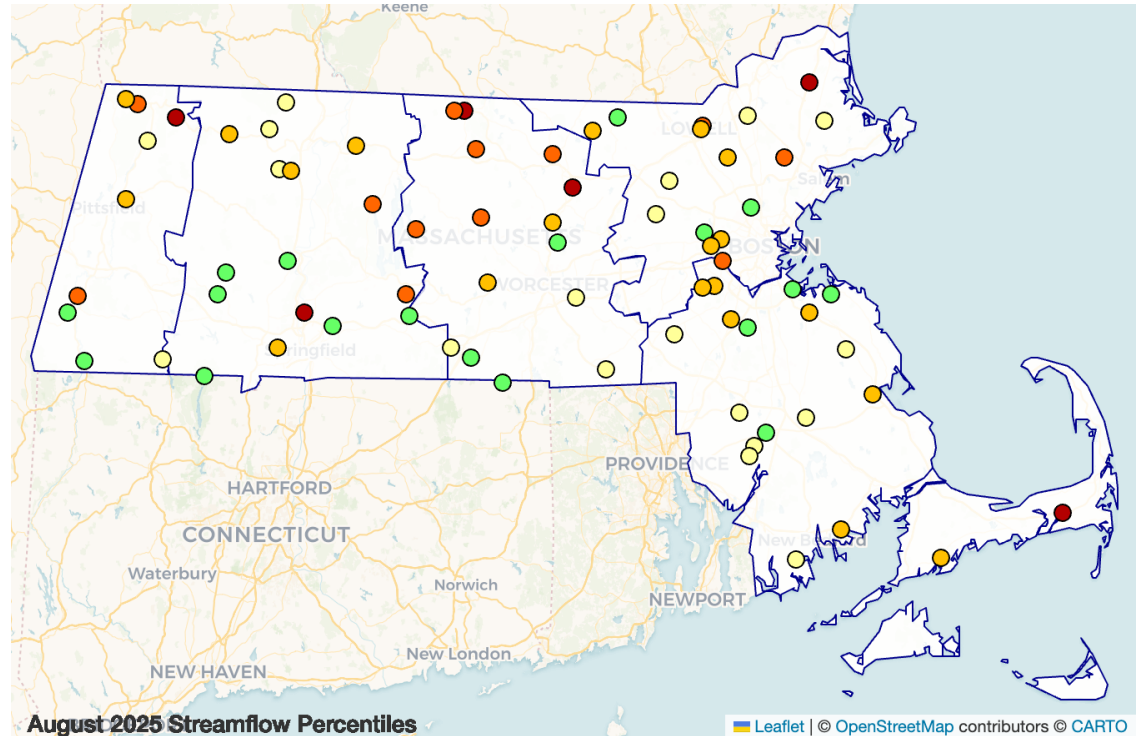
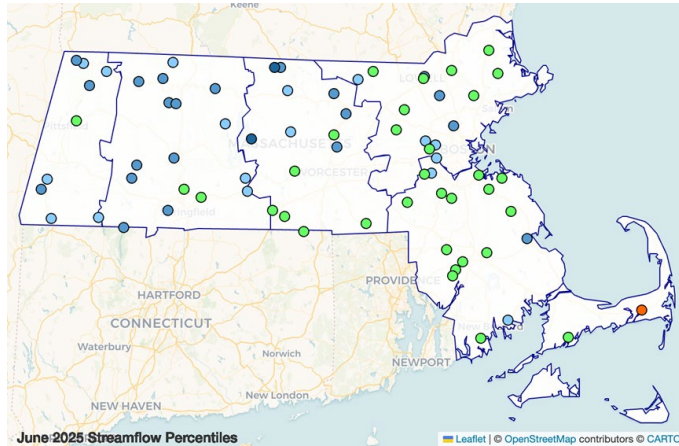
REGION	MEDIAN 2-MONTH EDDI (2025-08-30)
WESTERN	14
CTRV	16
CENTRAL	22
NORTHEAST	27
SOUTHEAST	41
CAPE COD	19
ISLANDS	14

Accumulated Potential Evapotranspiration Departure from 30-Year Average in inches

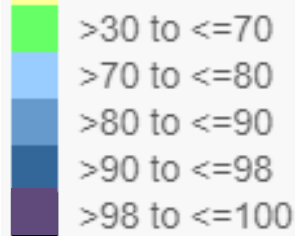
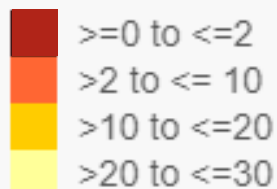


Streamflow

Percentiles of Monthly Median



Percentiles



Index Severity Levels



Streamflow Index

REGION	NUMBER OF GAGES REPORTING	≥0 TO ≤2 PERCENTILE	>2 TO ≤10 PERCENTILE	>10 TO ≤20 PERCENTILE	>20 TO ≤30 PERCENTILE	>90 PERCENTILE	MEDIAN OF INDIVIDUAL GAGE PERCENTILES
WESTERN	9	1	2	2	2	0	20
CTRV	16	1	2	4	3	0	26
CENTRAL	15	2	5	2	3	0	16
NORTHEAST	16	1	3	5	4	0	14
SOUTHEAST	17	0	0	6	7	0	23
CAPE COD	2	1	0	1	0	0	9

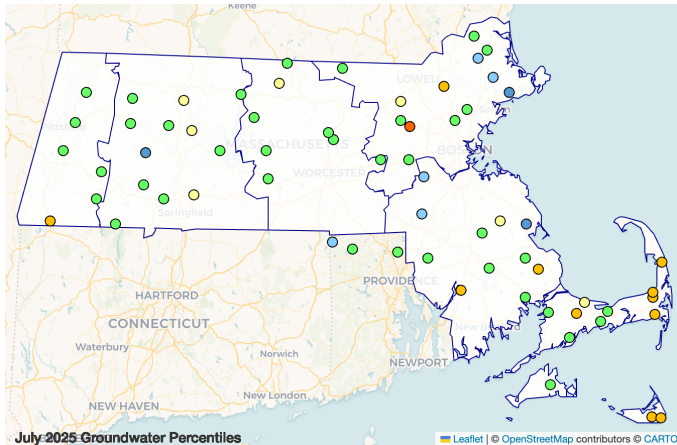
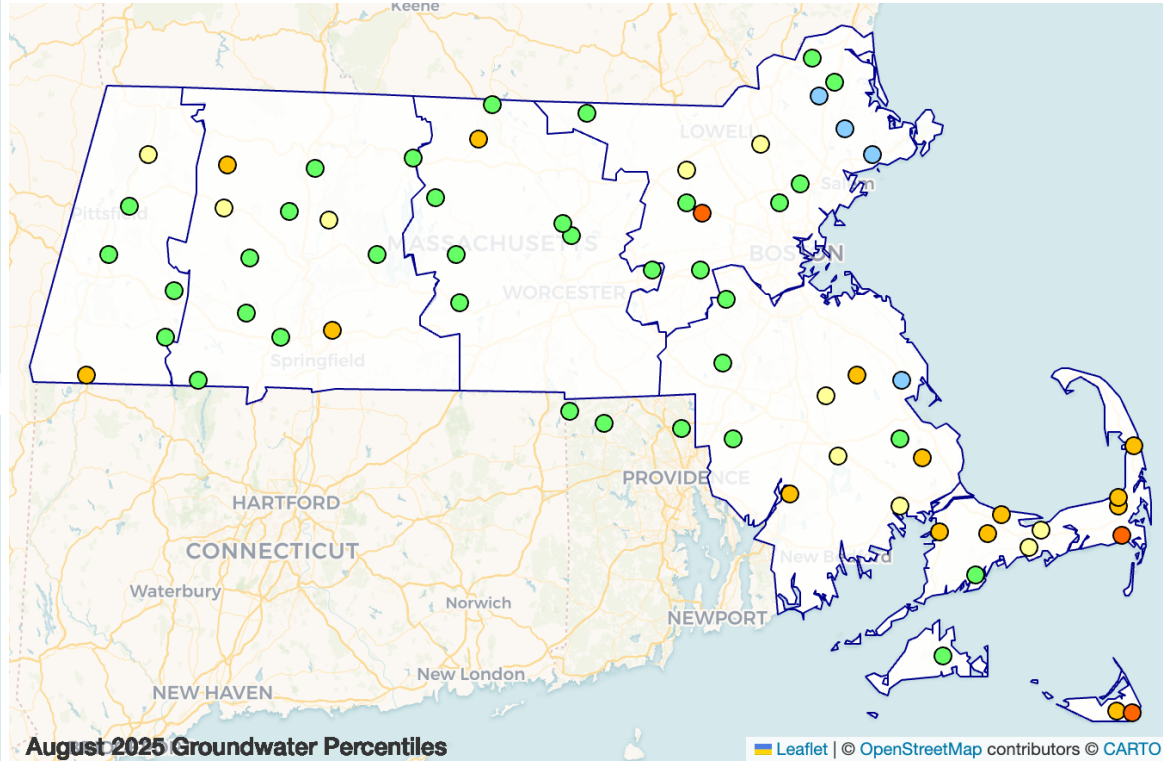
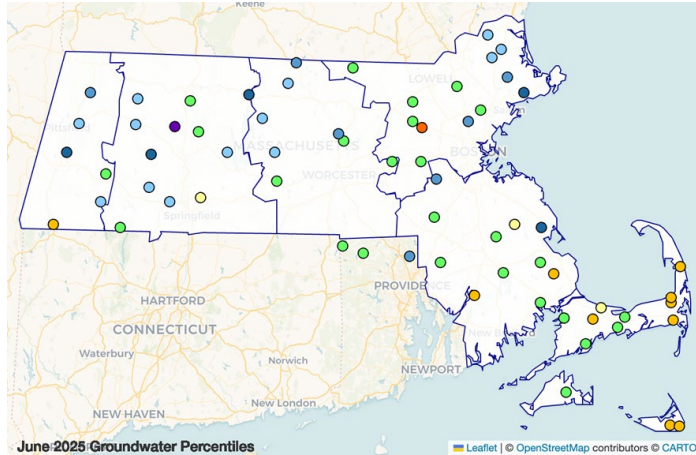
REGION	NUMBER OF GAGES IN NETWORK
WESTERN	9
CTRV	16
CENTRAL	15
NORTHEAST	16
SOUTHEAST	17
CAPE COD	2

Index Severity Levels

Level 0	Level 1	Level 2	Level 3	Level 4
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Notes: Not all gages report in all months due to ice, beaver dams, or other conditions. The Islands Region does not have any streamflow gages.

Groundwater Percentiles



Percentiles



Index Severity Levels



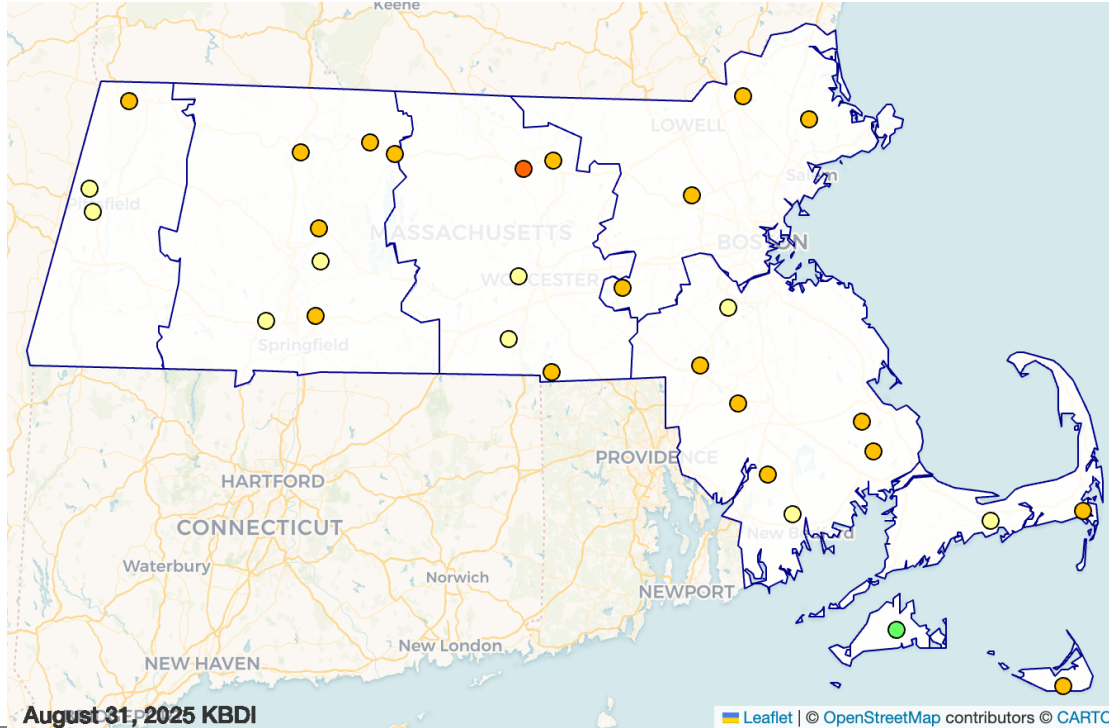
Groundwater Index

REGION	NUMBER OF WELLS REPORTING	≥0 TO ≤2 PERCENTILE	>2 TO ≤10 PERCENTILE	>10 TO ≤20 PERCENTILE	>20 TO ≤30 PERCENTILE	>90 PERCENTILE	MEDIAN OF INDIVIDUAL WELL PERCENTILES
WESTERN	6	0	0	1	1	0	41
CTRV	12	0	0	2	2	0	38
CENTRAL	10	0	0	1	0	0	39
NORTHEAST	13	0	1	0	2	0	46
SOUTHEAST	13	0	0	3	3	0	32
CAPE COD	10	0	1	6	2	0	15
ISLANDS	3	0	1	1	0	0	13

Index Severity Levels

Level 0	Level 1	Level 2	Level 3	Level 4
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KBDI - Top 8 inches of soil moisture



Point Values - KBDI Range

● ≥700 to ≤800	● ≥600 to <700	● ≥400 to <600	● ≥200 to <400	● ≥0 to <200
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REGION	NUMBER OF SITES REPORTING	HIGHEST OF SITE VALUES
WESTERN	3	463
CTRV	7	572
CENTRAL	5	600
NORTHEAST	4	532
SOUTHEAST	7	513
CAPE COD	2	493
ISLANDS	2	450

Index Severity Levels

Level 0	Level 1	Level 2	Level 3	Level 4
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Lakes & Impoundments

REGION	NUMBER OF SITES REPORTING	MEDIAN OF INDIVIDUAL PERCENTILES OR PERCENT FULL
WESTERN	2	40th
CTRV	2	44th
CENTRAL	5	26th
NORTHEAST	5	23rd
SOUTHEAST	1	35th
CAPE COD	1	19th

Notes:

DMP index severity levels do not necessarily reflect water supply status.

ID = insufficient data

ND = data unavailable

Index Severity Levels

Level 0	Level 1	Level 2	Level 3	Level 4
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National Drought Mitigation Center (NDMC)

Condition Monitoring Observer Reports (CMOR)

Reports for Massachusetts for the Month of August 2025

County	Dryness Level	Date	Impact
Worcester	Moderately Dry	8/9/2025	Wilting on annual flowers/crops/vegetables;Leaf scorch on annual flowers/crops/vegetables;Wilting on perennial flowers/shrubs;Leaf scorch on perennial flowers/shrubs;Dusty/cracked soil;
Franklin	Severely Dry	8/14/2025	Reduced pasture, forage;Feeding hay early;Supplemental feed;Purchased hay;Animal stress;Less water in ponds, creeks, etc.;Hauled water;
Franklin	Moderately Dry	8/25/2025	Wilting on annual flowers/crops/vegetables;Wilting on perennial flowers/shrubs;Leaves discolored, shriveled, burnt;Leaf drop or sparse canopy;Poor - Pastures are providing marginal feed; supplemental feeding required.
Plymouth	Severely Dry	8/20/2025	Great Sandy Bottom Pond is the lowest I have seen it since I moved to this location in 1978

<https://droughtimpacts.unl.edu/tools/conditionmonitoringobservations.aspx>

Drought Indices by Region - July 2025

Drought Index	Western	CT River Valley	Central	Northeast	Southeast	Cape	Islands
Precipitation	20 (2 mo)	36 (2 mo)	25 (2 mo)	18 (2 mo)	38 (2 mo)	17 (9-mo)	37 (9-mo)
Streamflow	35	44	33	33	42	22	N/A
Groundwater	46	52	53	56	44	18	15
Lakes/ Impoundments	41	40	25	26	77	21	N/A
ET*	27	30	30	34	48	36	30
KBDI**	435	538	538	579	492	470	365

Month	Western	CT River Valley	Central	Northeast	Southeast	Cape	Islands
July Declaration	Level 0	Level 0	Level 0	Level 0	Level 0	Level 2	Level 1 – Nantucket County Level 0 – Dukes County

Lakes & Impoundments Index does not reflect water supply status. This summary is provided for informational purposes. No changes in drought status are official until the Secretary of the Executive Office of Energy and Environmental Affairs makes the final drought declaration for the state after receiving a recommendation from the Drought Management Task Force. Data are preliminary and not final until all data are reported. N/A = not applicable. ID = insufficient data. ND = data unavailable *ET not reported outside growing season **KBDI not reported Dec-March outside fire danger season. mos=months

Index Severity Levels

Level 0	Level 1	Level 2	Level 3	Level 4
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Drought Indices by Region - August 2025

Drought Index	Western	CT River Valley	Central	Northeast	Southeast	Cape	Islands
Precipitation	5 (3 mo)	20 (3 mo)	11 (3 mo)	15 (3 mo)	28 (3 mo)	15 (9-mo)	47 (9-mo)
Streamflow	20	26	16	14	23	9	N/A
Groundwater	41	38	39	46	32	15	13
Lakes/ Impoundments	40	44	26	23	35	19	N/A
ET*	14	16	22	27	41	19	14
KBDI**	463	572	600	532	513	493	450

Month	Western	CT River Valley	Central	Northeast	Southeast	Cape	Islands
<i>July Declaration</i>	<i>Level 0</i>	<i>Level 0</i>	<i>Level 0</i>	<i>Level 0</i>	<i>Level 0</i>	<i>Level 2</i>	<i>Level 1 – Nantucket County</i> <i>Level 0 – Dukes County</i>
<i>August Recommendation</i>	<i>Level 2</i>	<i>Level 2</i>	<i>Level 2</i>	<i>Level 2</i>	<i>Level 1</i>	<i>Level 2</i>	<i>Level 2 – Nantucket County</i> <i>Level 0 – Dukes County</i>

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