

# Hydrologic Conditions in Massachusetts for *July 2025*

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DCR Office of Water Resources

## **Drought Management Task Force**

August 6, 2025

Meeting Co-Chairs: EOEEA, MEMA



# MA Drought Management Plan Indices

Numbers in parentheses indicate number of data points across the state



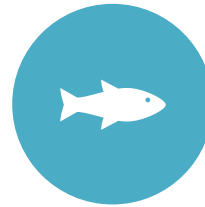
Precipitation (93)



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 <sup>th</sup> percentile	< 200
1	≤30 and >20	200-400
2	≤20 and >10	400-600
3	≤10 and >2	600-700
4	≤2	700-800

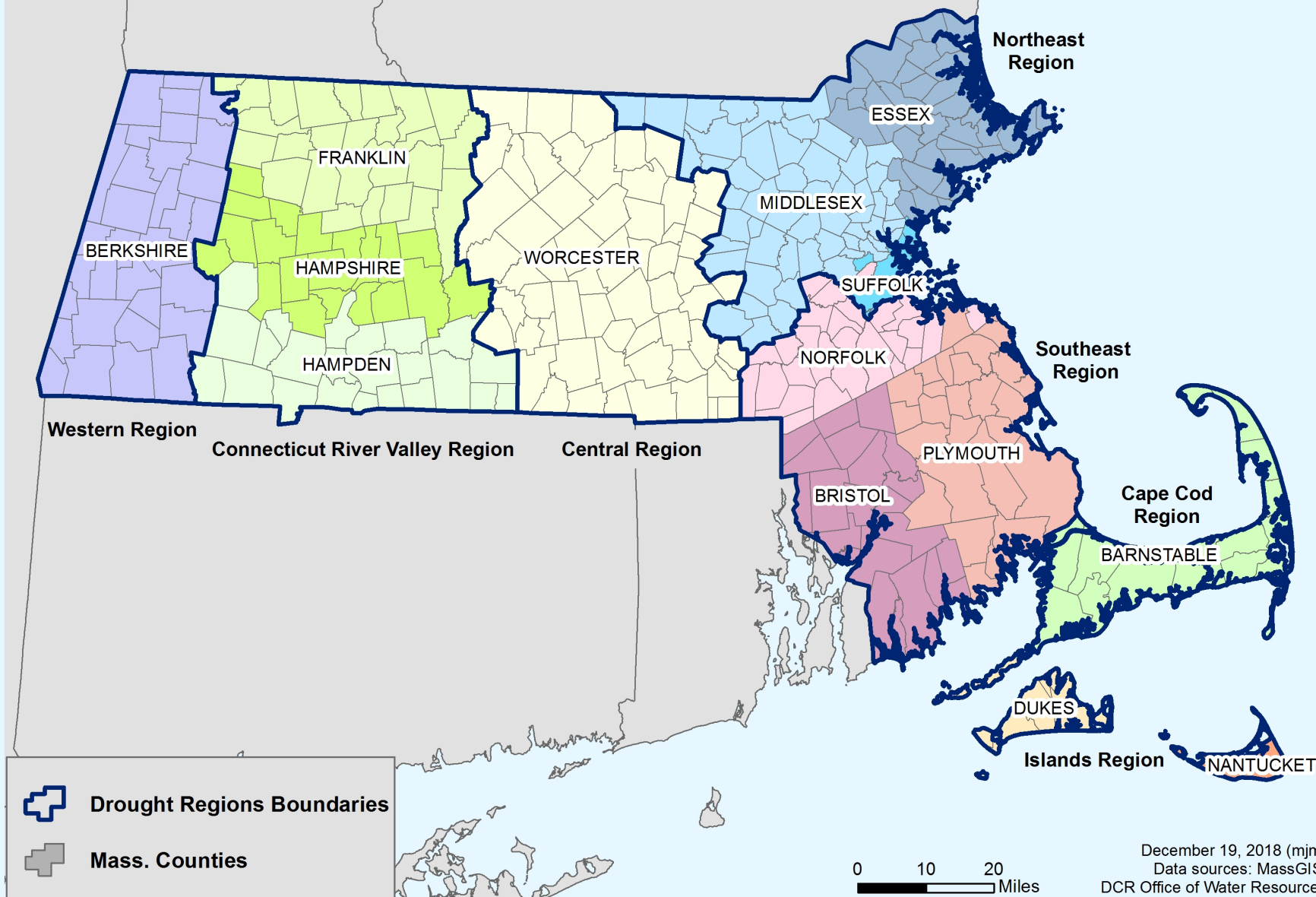
# MA Drought Management Plan

## Drought Levels



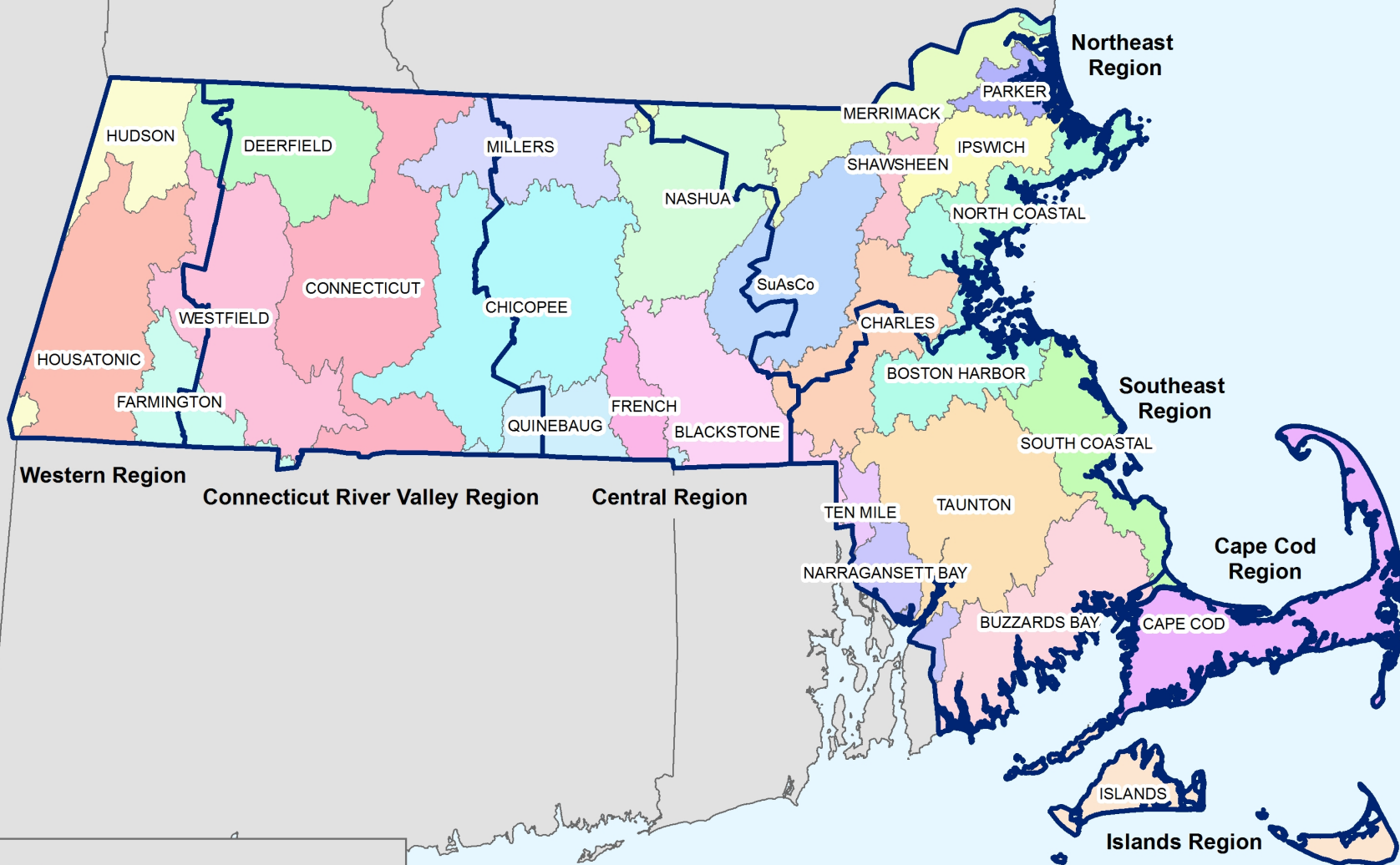


# MASSACHUSETTS DROUGHT REGIONS with Counties





# 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



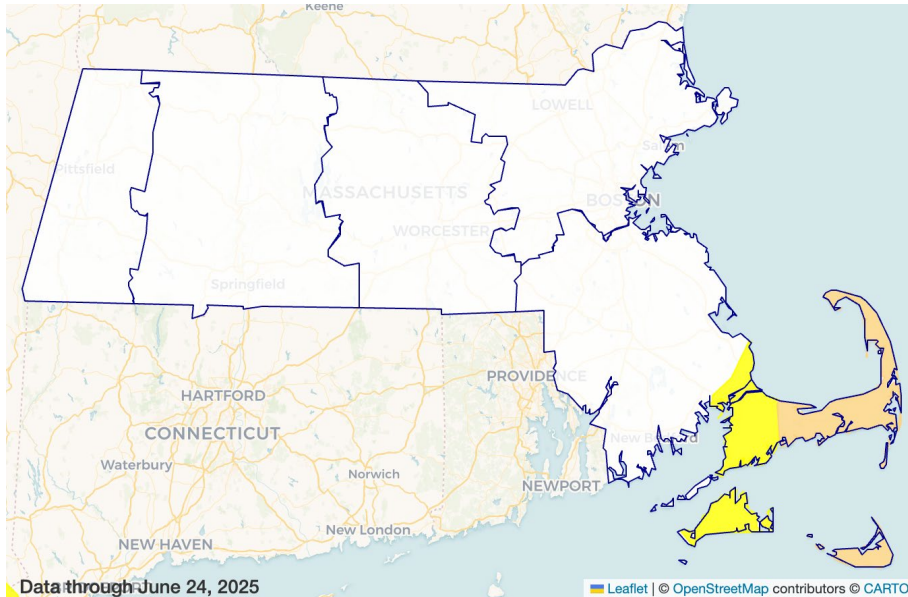
Public Health  
Impacts

# Recent Hydrologic History

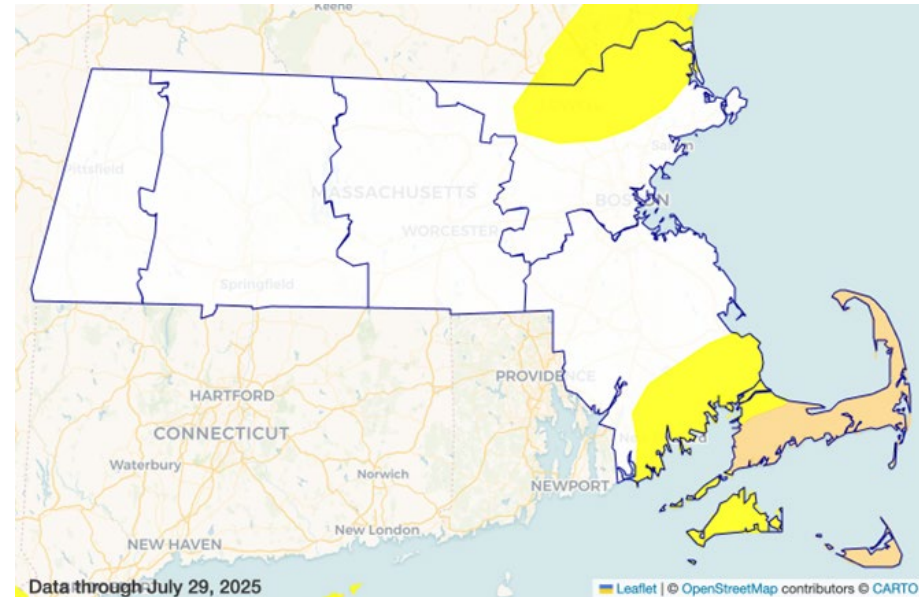
- **Mid-August through February – onset and variable conditions**
  - Impacts to streamflow and groundwater develop and persist
- **March through May – recovery except Cape and Islands**
  - Improvements to streamflow and groundwater except in the Cape Cod and Islands Regions
- **June and July – mixed conditions**
  - Mixed precipitation across the state with areas some drying out
  - Groundwater remain below normal in the Cape Cod, Islands, and southern part of the Southeast Regions
  - Scattered below normal streamflow and groundwater rest of the state



# US Drought Monitor



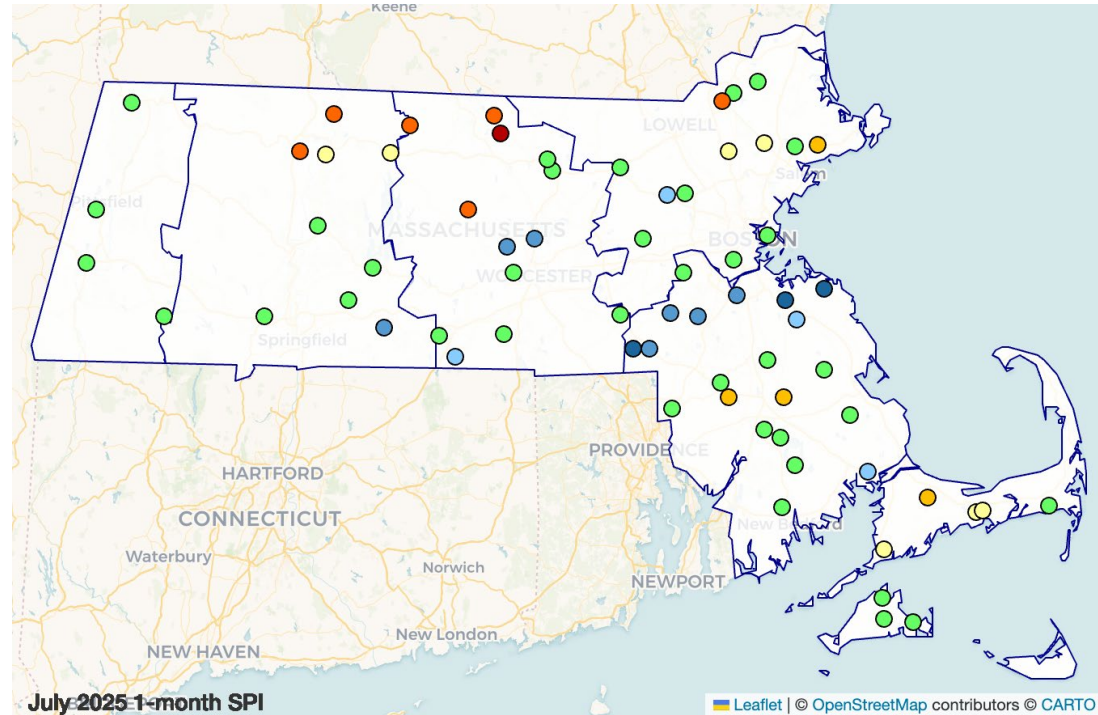
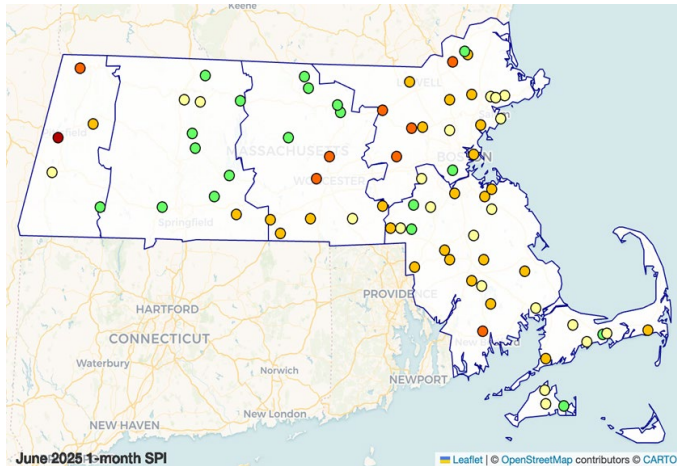
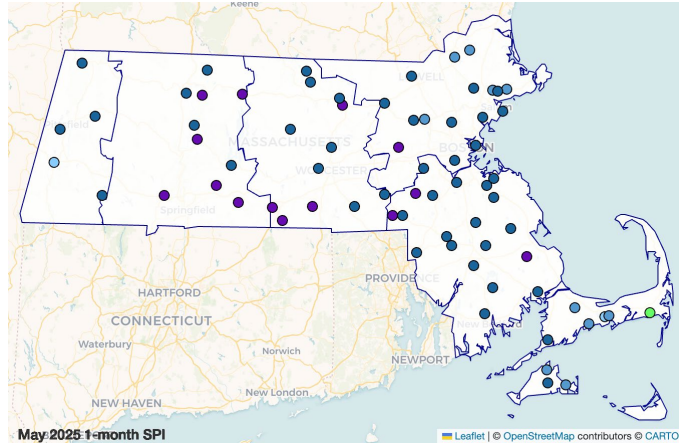
Data through June 24, 2025



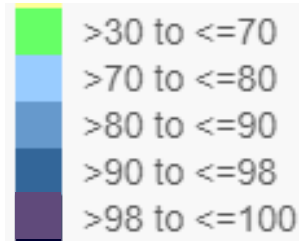
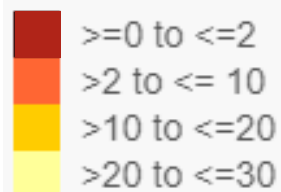
Data through July 29, 2025

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

# Standardized Precipitation Index



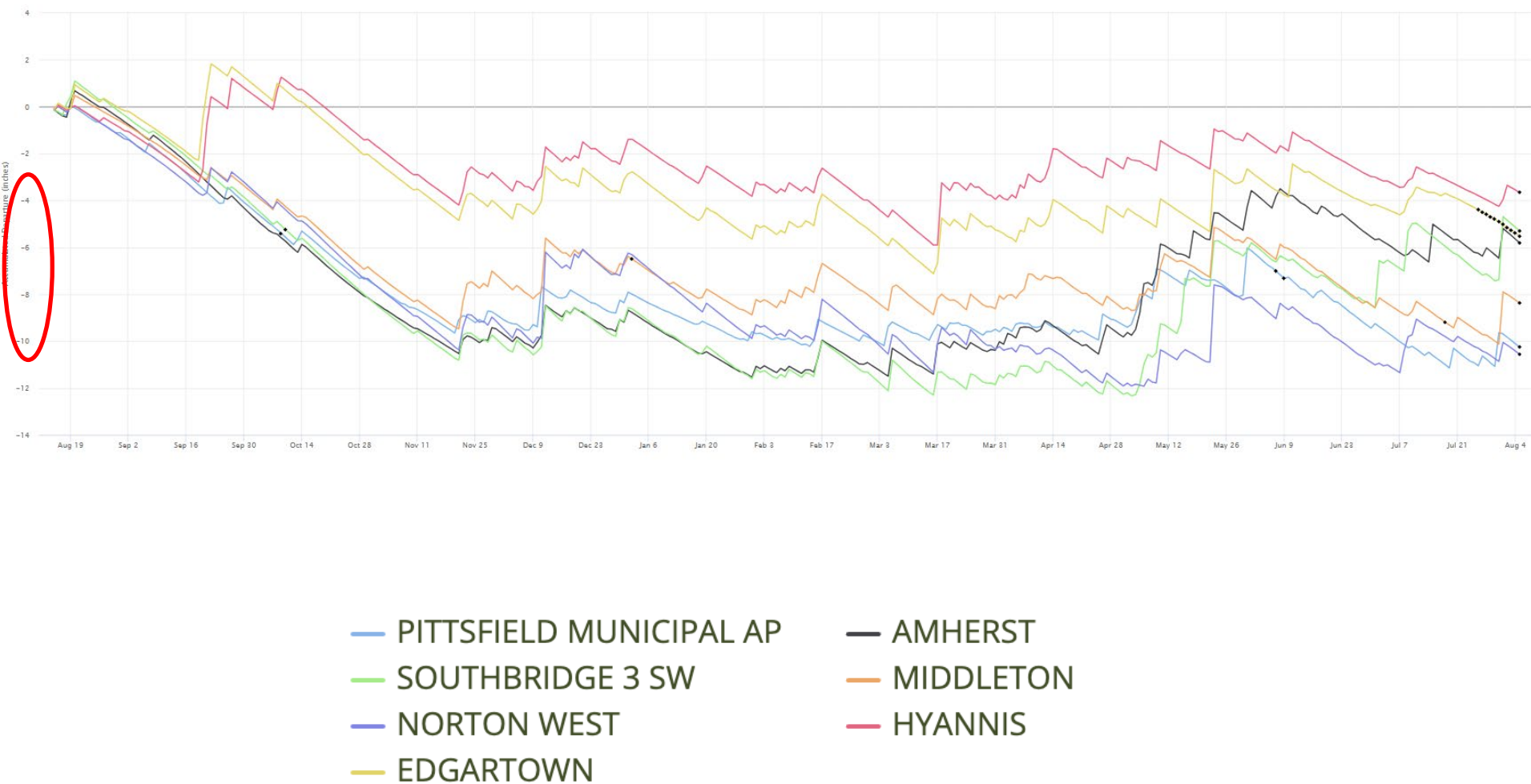
## Percentiles



## Index Severity Levels



# ~4-10" of Precipitation Deficit since mid-August



# 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	4	42	20	54	58	48	30	53	67
CTRV	9	45	36	85	82	63	38	68	84
CENTRAL	13	48	25	75	76	58	27	77	90
NORTHEAST	13	42	18	57	60	41	14	64	70
SOUTHEAST	21	62	38	78	65	57	33	74	81
CAPE COD	5	28	14	36	32	17	12	28	42
ISLANDS	3	58	31	62	62	37	22	45	59

Index Severity Levels

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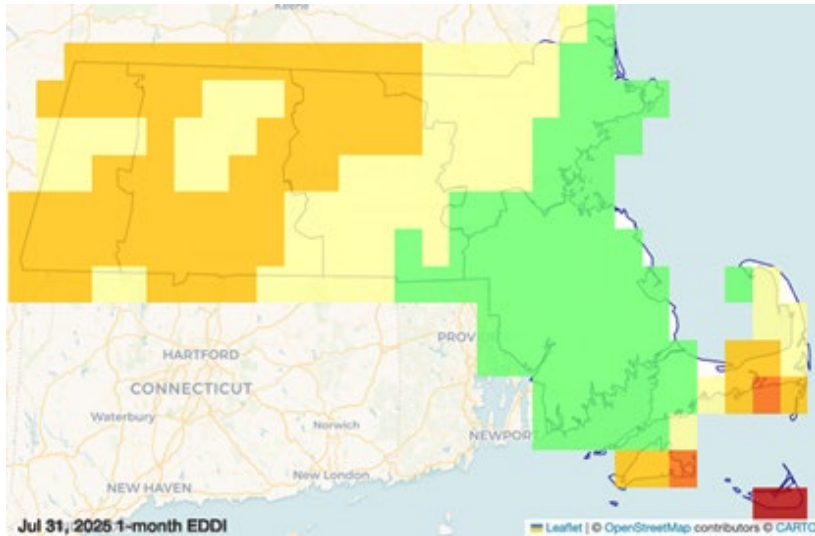
\* 1- and 36-month SPI is for informational purposes only, not for drought determination. Of the 2- to 24-month look-back periods, the most relevant is selected each month depending on the phase of the drought - onset, during or recovery.

N/A: Not Available

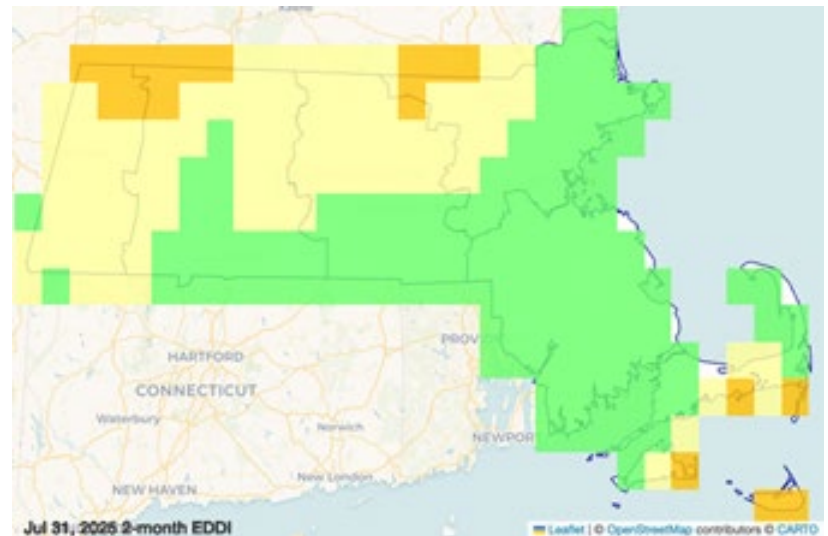


# Evapotranspiration

1-month

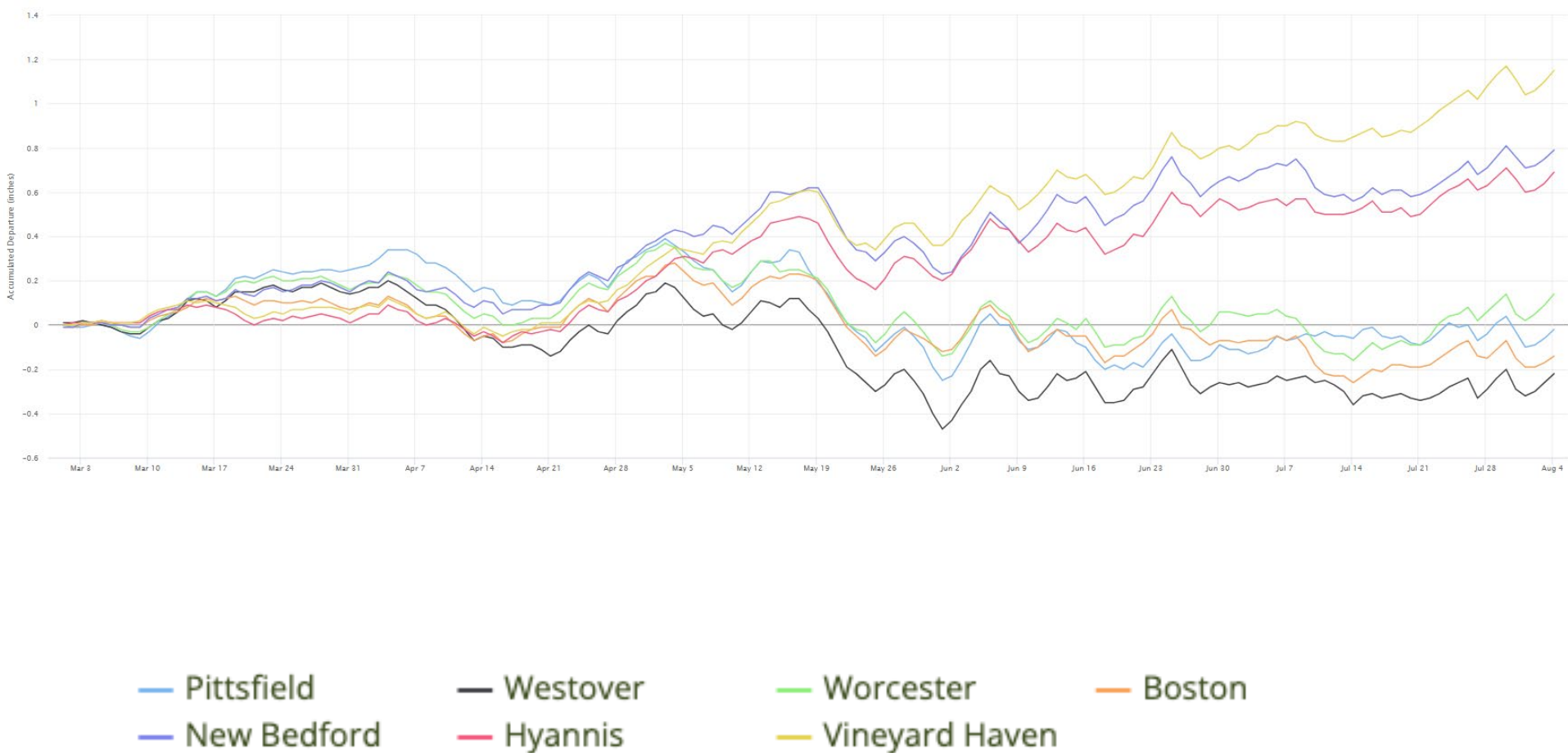


2-month



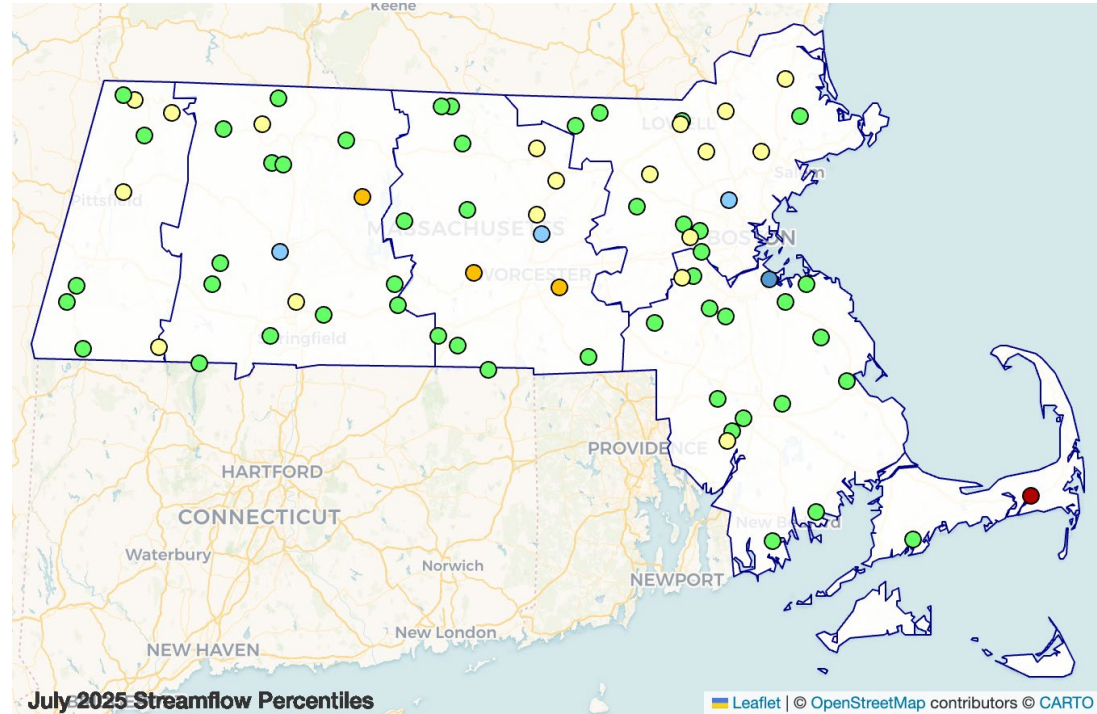
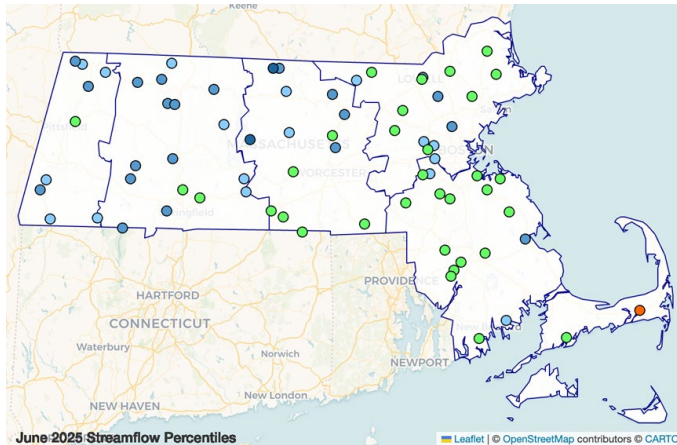
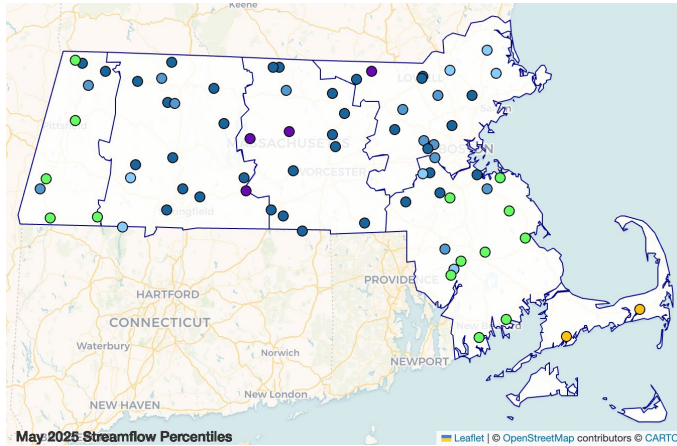
REGION	MEDIAN 2-MONTH EDDI (2025-07-31)
WESTERN	27
CTRV	30
CENTRAL	30
NORTHEAST	34
SOUTHEAST	48
CAPE COD	36
ISLANDS	30

# Accumulated Potential Evapotranspiration Departure from 30-Year Average in inches

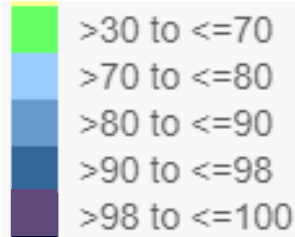
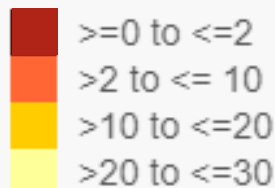


# Streamflow

## 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	0	0	0	4	0	35
CTRV	16	0	0	1	2	0	44
CENTRAL	15	0	0	2	3	0	33
NORTHEAST	16	0	0	0	7	0	33
SOUTHEAST	17	0	0	0	2	0	42
CAPE COD	2	1	0	0	0	0	22

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

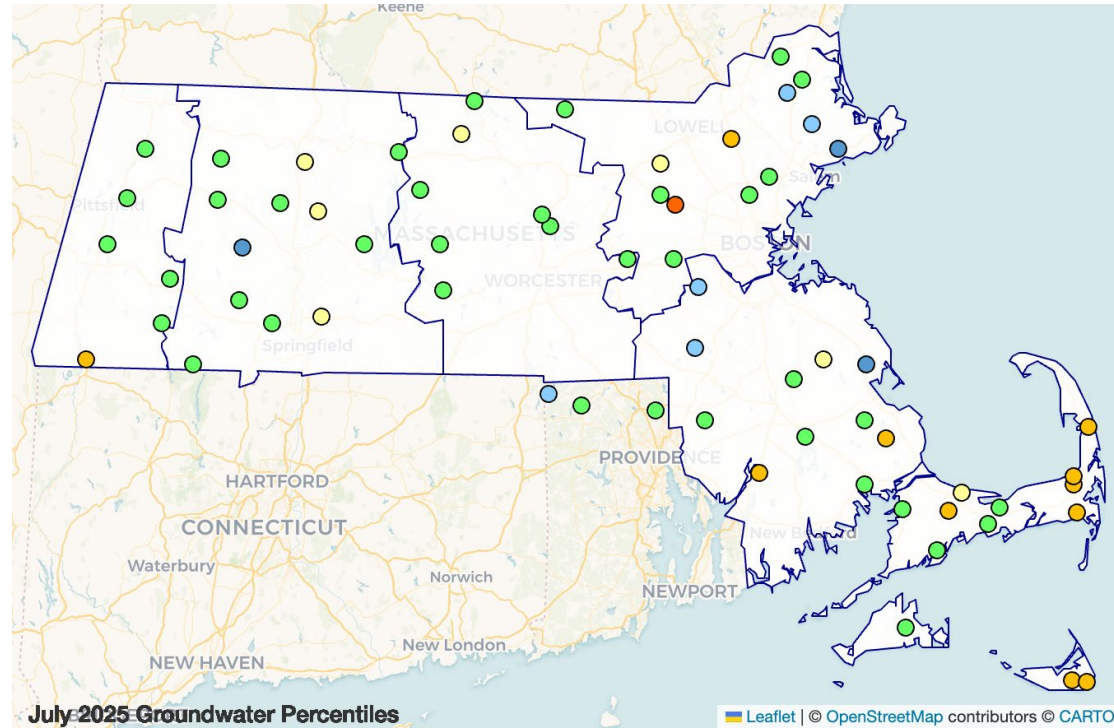
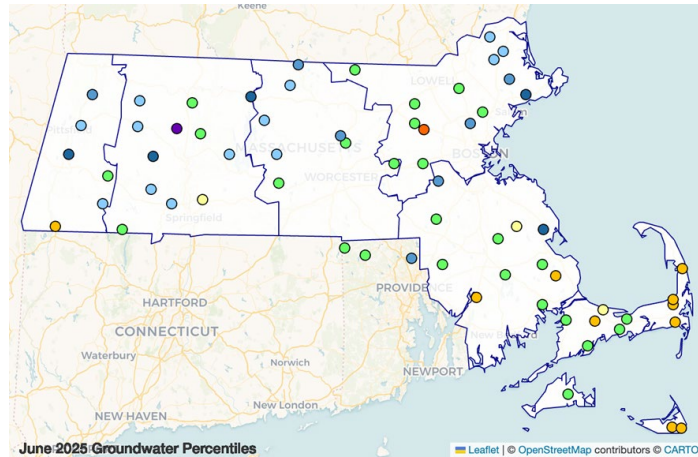
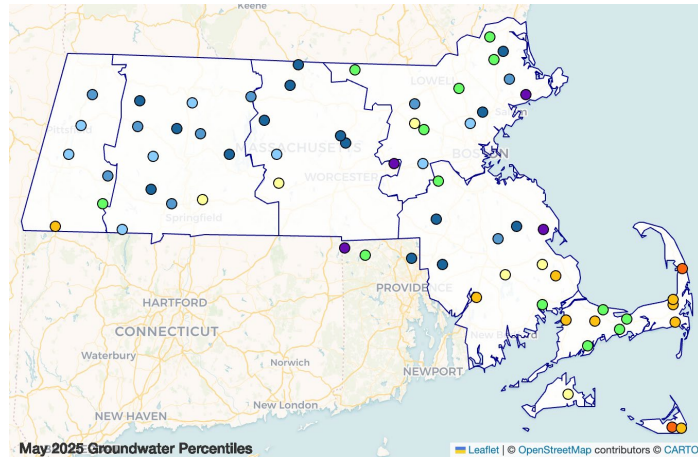
Index Severity Levels

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



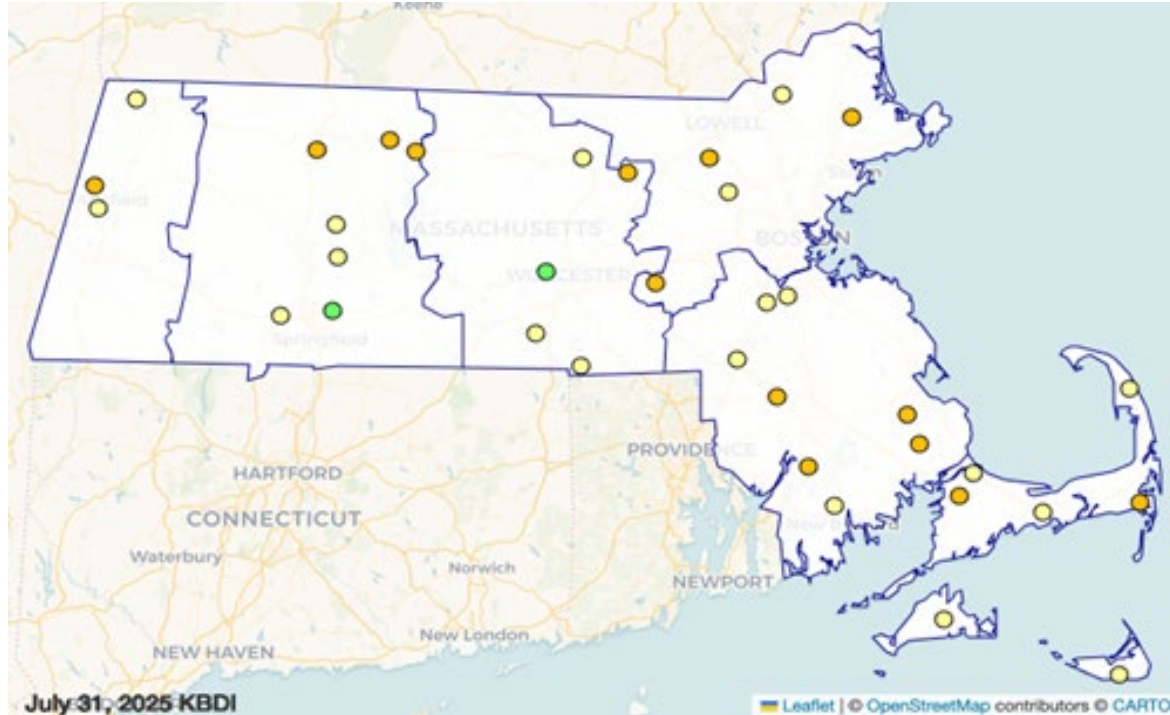
# Groundwater Index

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	0	0	46
CTRV	12	0	0	0	3	0	52
CENTRAL	10	0	0	0	1	0	53
NORTHEAST	13	0	1	1	1	0	56
SOUTHEAST	13	0	0	2	1	0	44
CAPE COD	10	0	0	5	1	0	18
ISLANDS	3	0	0	2	0	0	15

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

● $\geq 700$ to $\leq 800$	● $\geq 600$ to $< 700$	● $\geq 400$ to $< 600$	● $\geq 200$ to $< 400$	● $\geq 0$ to $< 200$
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REGION	NUMBER OF SITES REPORTING	HIGHEST OF SITE VALUES
WESTERN	3	435
CTRV	7	538
CENTRAL	5	538
NORTHEAST	5	579
SOUTHEAST	8	492
CAPE COD	5	470
ISLANDS	2	365

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	41st
CTRV	2	40th
CENTRAL	3	25th
NORTHEAST	6	26th
SOUTHEAST	2	77th
CAPE COD	1	21st

## 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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# Drought Indices by Region

## June 2025

Drought Index	Western	CT River Valley	Central	Northeast	Southeast	Cape	Islands
Precipitation	70 (2 mo)	92 (2 mo)	86 (2 mo)	71 (2 mo)	79 (2 mo)	13 (9-mo)	22 (9-mo)
Streamflow	76	83	79	69	57	23	N/A
Groundwater	74	75	68	69	48	24	14
Lakes/ Impoundments	18	54	36	19	69	25	N/A
ET*	81	77	68	68	61	47	35
KBDI**	269	275	327	372	374	273	<200

Month	Western	CT River Valley	Central	Northeast	Southeast	Cape	Islands
<b>June Declaration</b>	<b>Level 0</b>	<b>Level 0</b>	<b>Level 0</b>	<b>Level 0</b>	<b>Level 0</b>	<b>Level 1</b>	<b>Level 1 – Nantucket County</b> <b>Level 0 – Dukes County</b>

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 - 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
<b>July Recommendation</b>	<b>Level 0</b>	<b>Level 0</b>	<b>Level 0</b>	<b>Level 0</b>	<b>Level 0</b>	<b>Level 2</b>	Level 1 – Nantucket County Level 0 – Dukes County
<b>June Declaration</b>	<b>Level 0</b>	<b>Level 0</b>	<b>Level 0</b>	<b>Level 0</b>	<b>Level 0</b>	<b>Level 1</b>	Level 1 – Nantucket County Level 0 – Dukes County

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## Index Severity Levels

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