

# Hydrologic Conditions in Massachusetts for *May 2025*

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DCR Office of Water Resources

## **Drought Management Task Force**

June 9, 2025

Meeting Co-Chairs: EOEEA, MEMA



# MA Drought Management Plan Indices

Numbers in parentheses indicate number of data points across the state



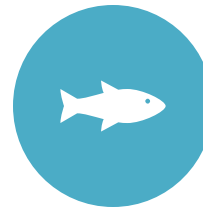
Precipitation (93)



Streamflow (63)



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

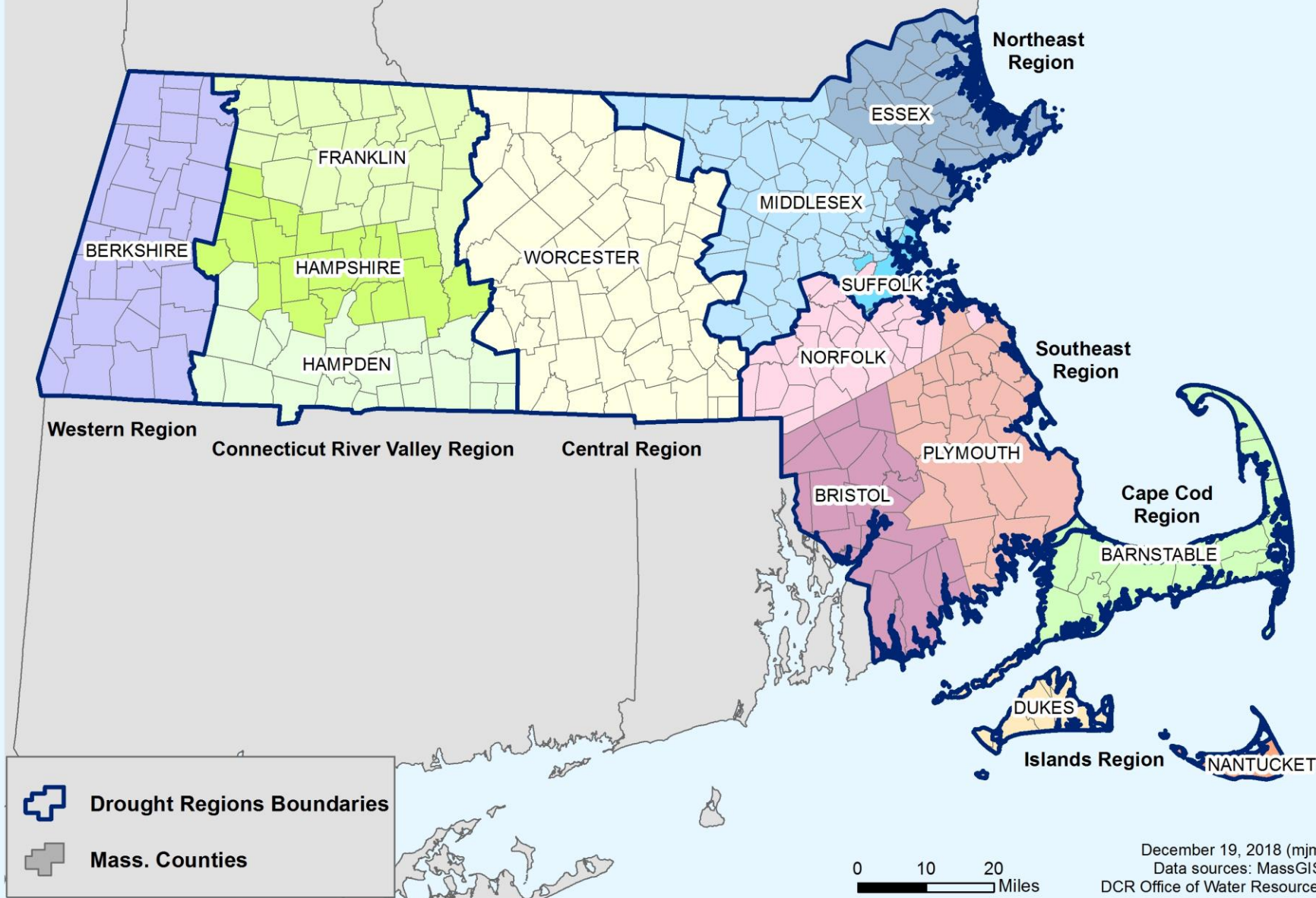
## Drought Levels





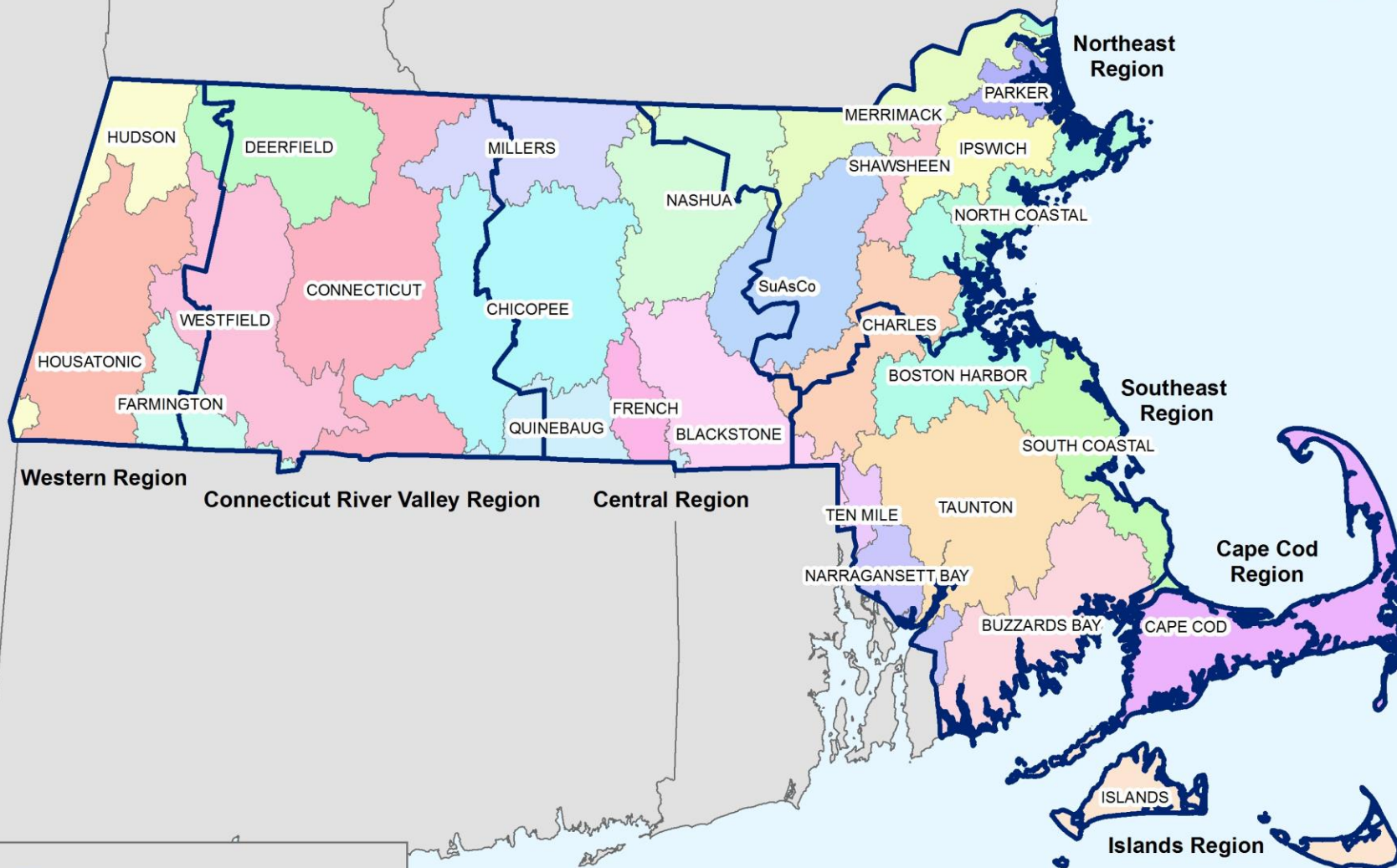
# MASSACHUSETTS DROUGHT REGIONS

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



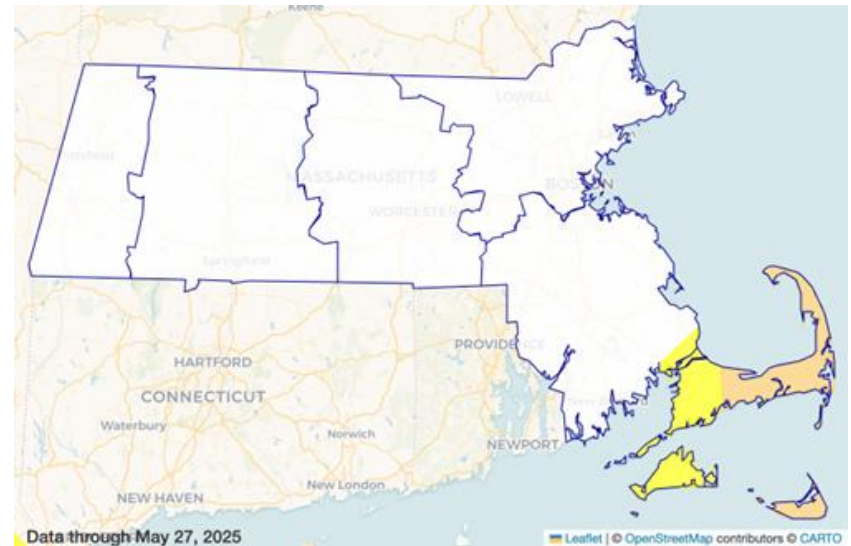
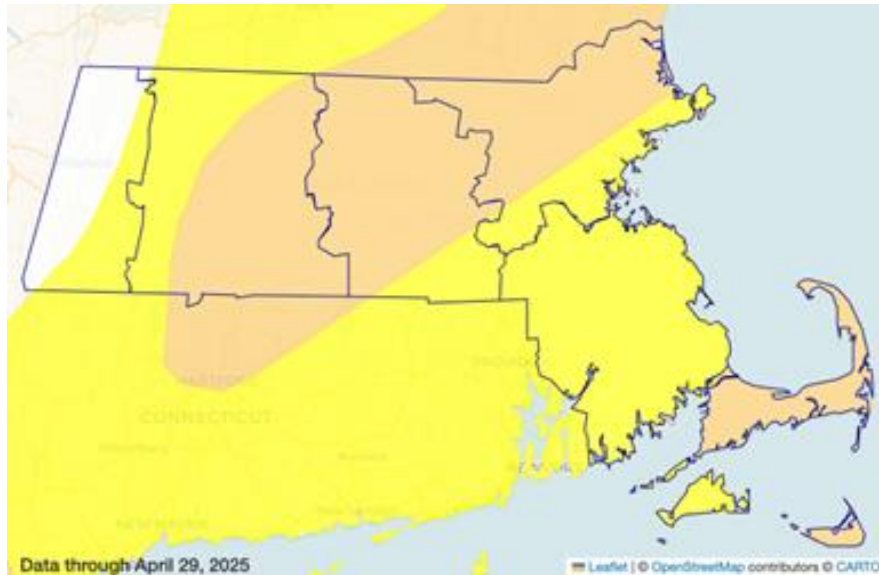
Public Health  
Impacts

# Recent Hydrologic History

- **Mid-August through November - onset**
  - *Below-normal* precipitation drying out areas with impacts to streamflow and eventually groundwater
- **December-February – variable conditions**
  - Variable precipitation from *below normal* to *above normal*
  - Continued impacts to streamflow and groundwater with temporary relief in streamflow at times
- **March and April – start recovery**
  - *Normal* precipitation with some improvements to streamflow and groundwater except in the Cape Cod and Islands Regions
- **May – continue recovery**
  - Above-normal precipitation across the state
  - Improvements throughout the state; groundwater still recovering in the Cape Cod, Islands, and southern part of the Southeast Regions



# US Drought Monitor



None

D0 (Abnormally Dry)

D1 (Moderate Drought)

D2 (Severe Drought)

D3 (Extreme Drought)

D4 (Exceptional Drought)

**USDM**

**MA DMP**

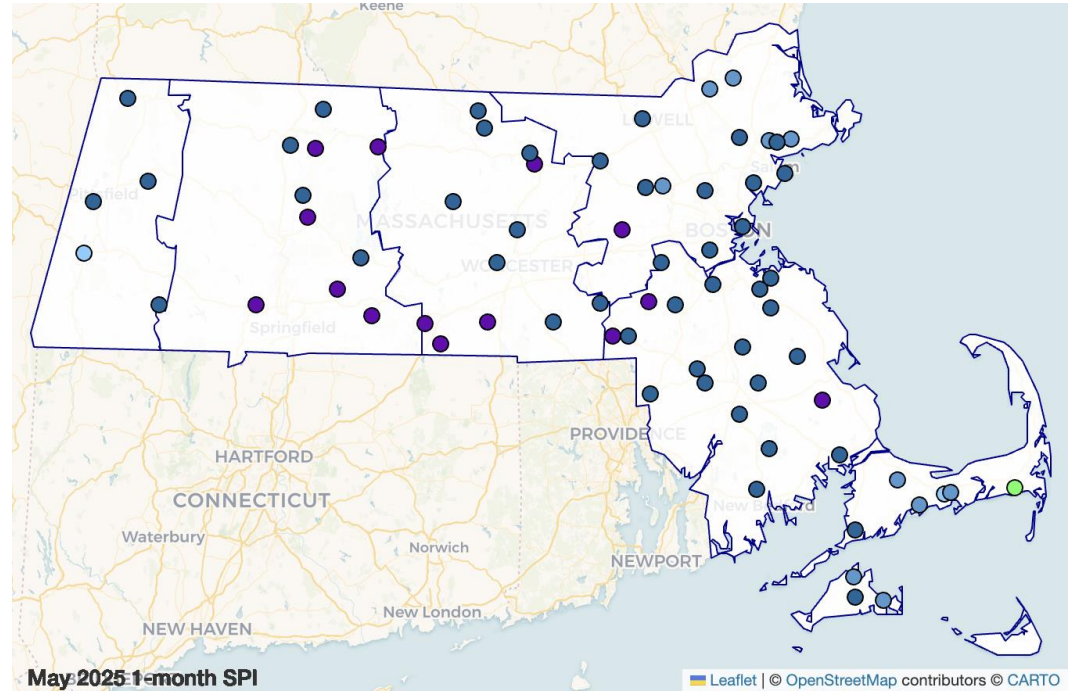
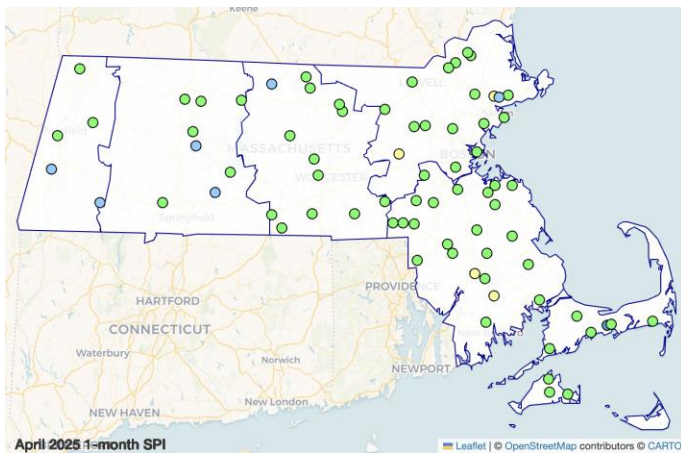
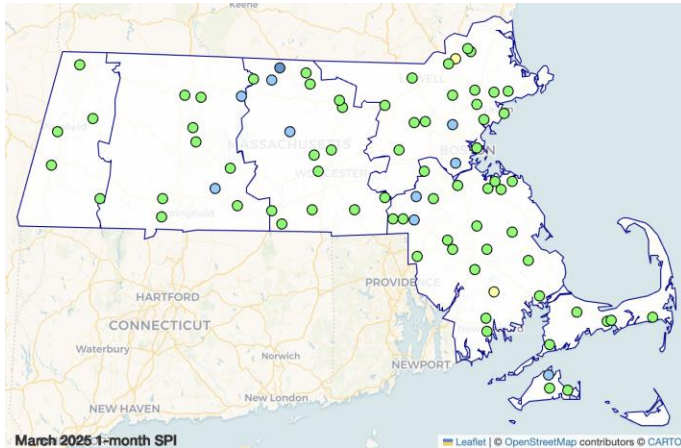
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1 = 2

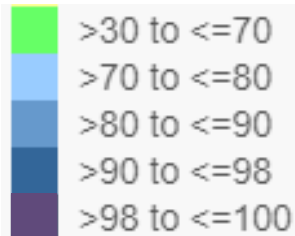
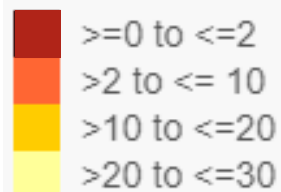
2,3 = 3

4 = 4

# Standardized Precipitation Index



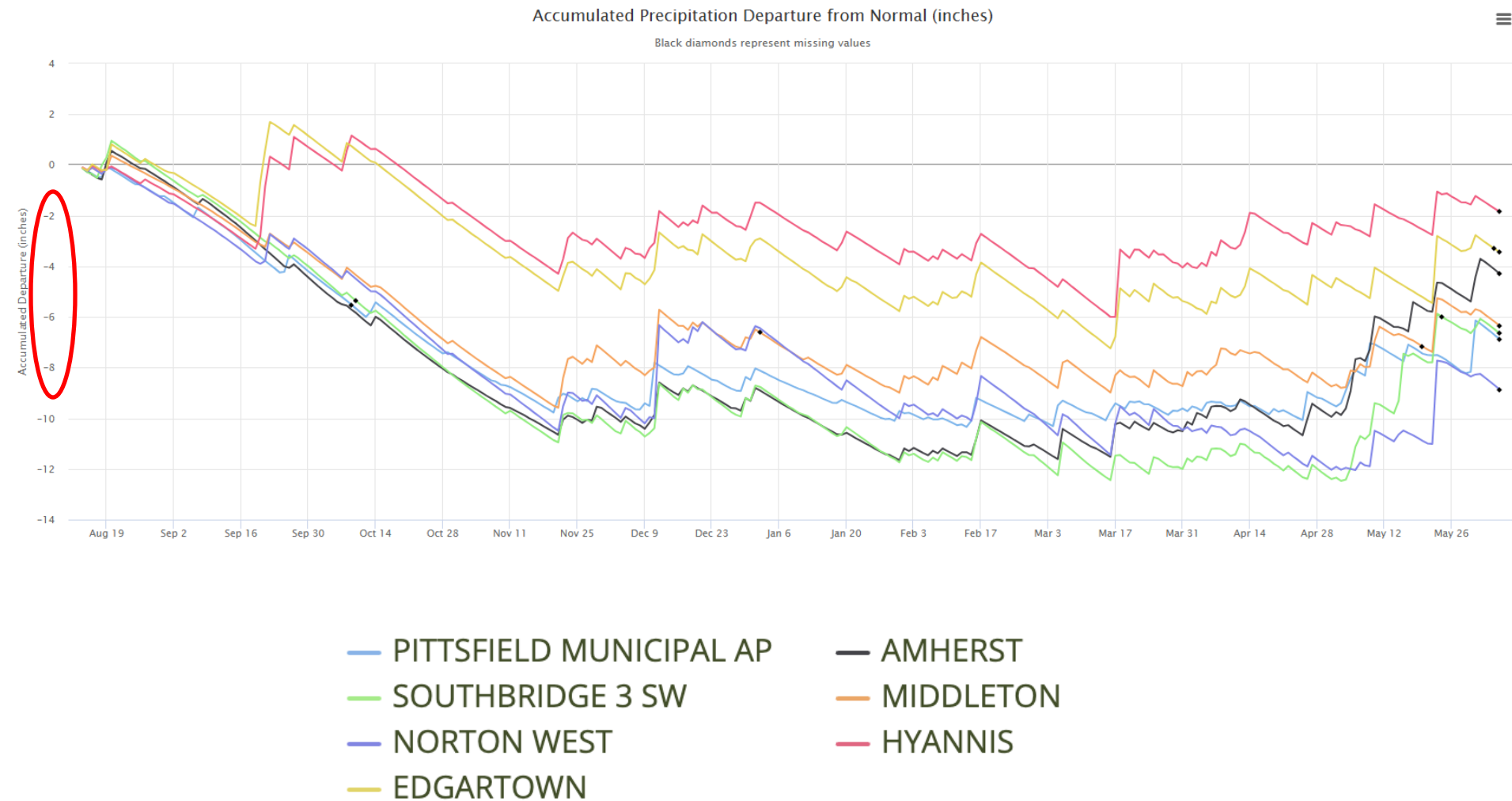
## Percentiles



## Index Severity Levels



# 2-8" 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	5	95	95	94	81	26	43	83	67
CTRV	10	99	96	95	84	25	44	86	76
CENTRAL	12	97	94	92	81	25	24	94	90
NORTHEAST	16	94	88	84	70	26	22	86	73
SOUTHEAST	20	97	89	83	72	32	24	84	80
CAPE COD	6	85	84	80	57	32	12	47	45
ISLANDS	3	90	82	82	71	44	37	52	56

Index Severity Levels

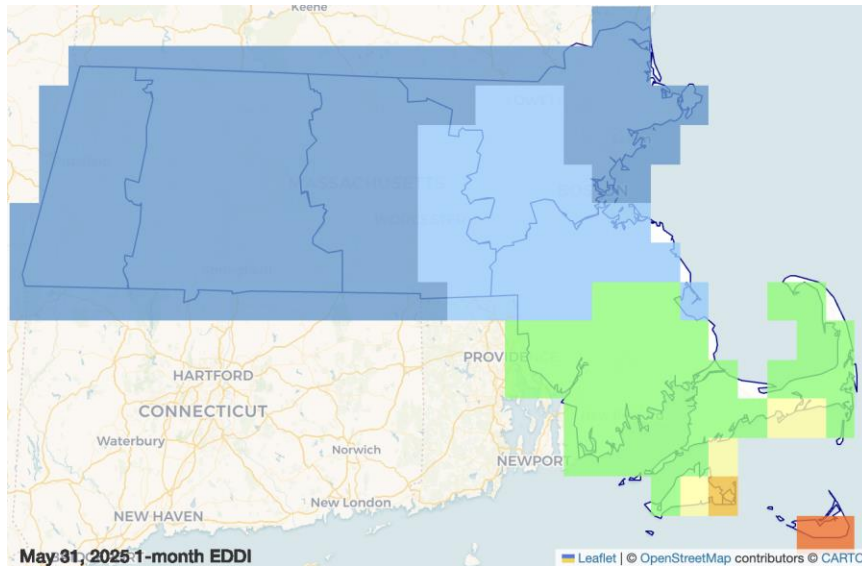
Level 0	Level 1	Level 2	Level 3	Level 4
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\* 1- and 36-month SPI is for informational purposes only, not for drought determination. Of the 2- to 24-month look-back periods, the most relevant is selected each month depending on the phase of the drought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

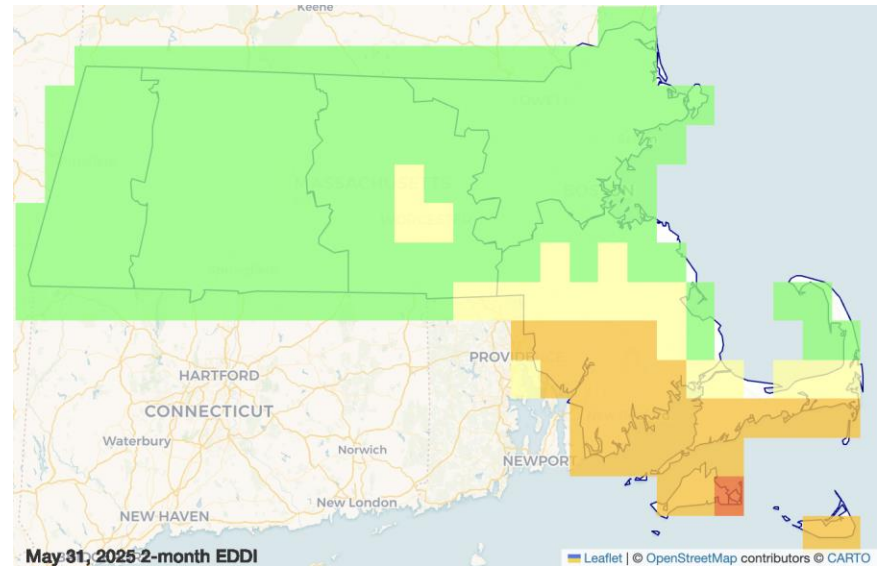
N/A: Not Available

# Evapotranspiration

1-month



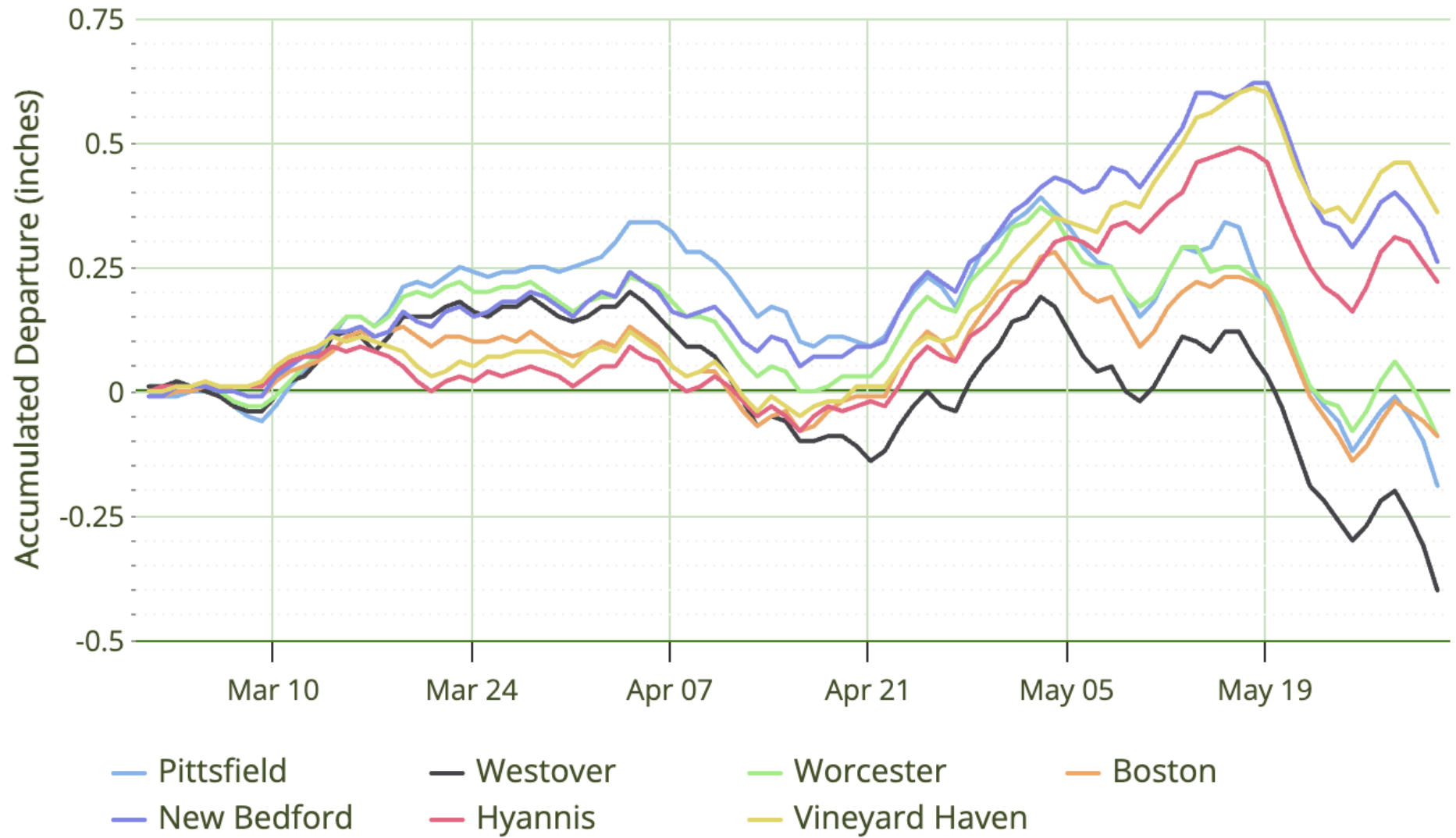
2-month



REGION	MEDIAN 2-MONTH EDDI (2025-05-31)
WESTERN	48
CTRV	41
CENTRAL	39
NORTHEAST	44
SOUTHEAST	23
CAPE COD	20
ISLANDS	15

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

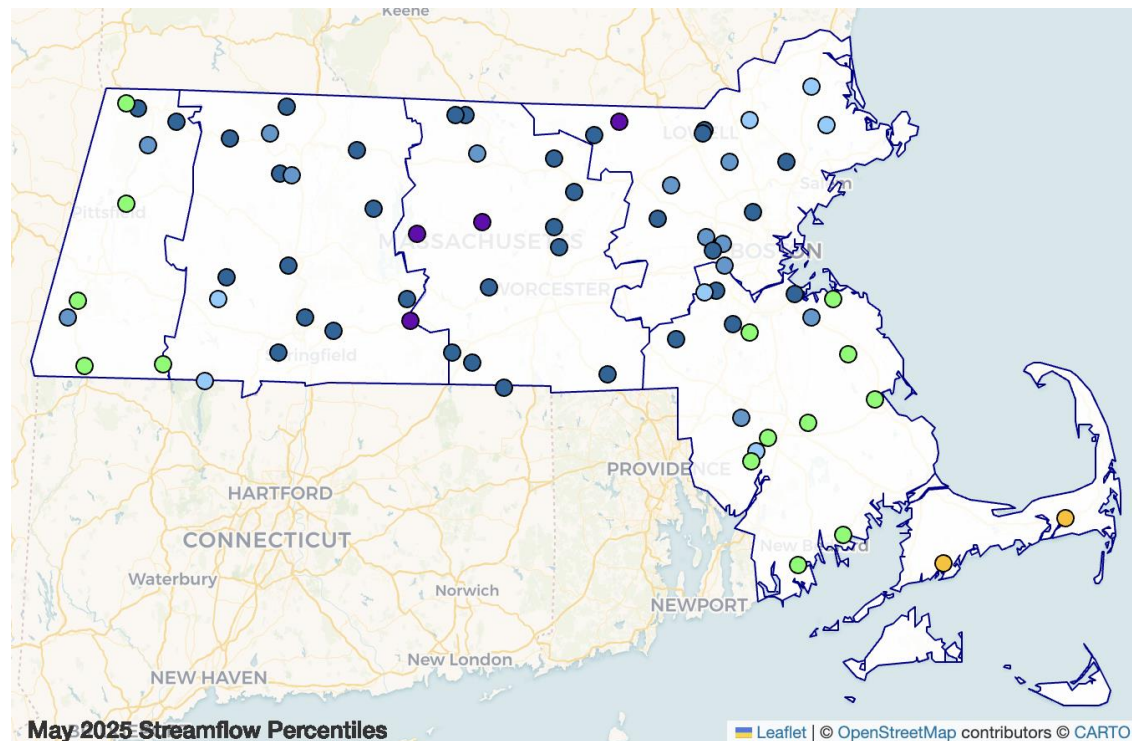
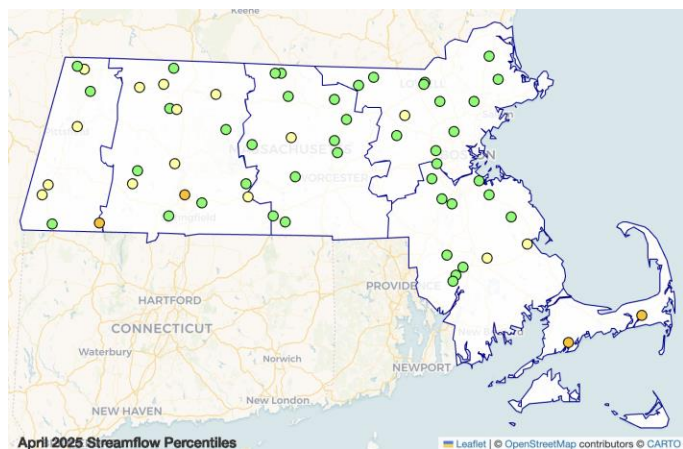
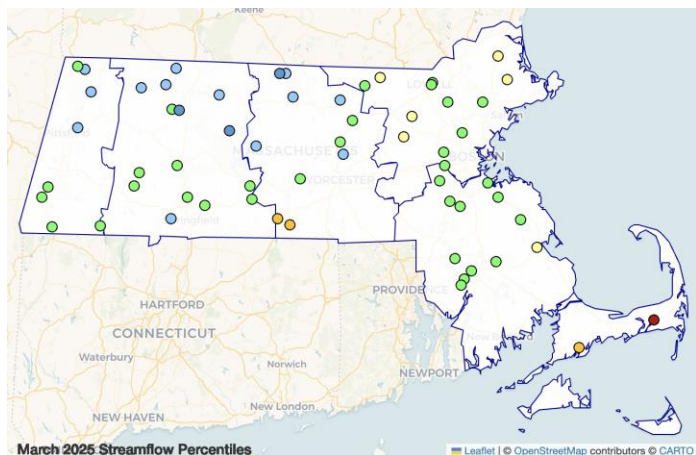
Accumulated PET Departure from Average (inches)



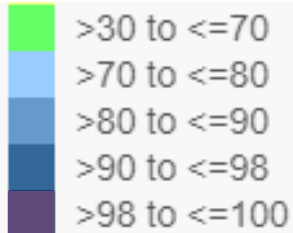
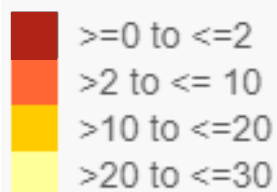


# Streamflow

## Percentiles of Monthly Median



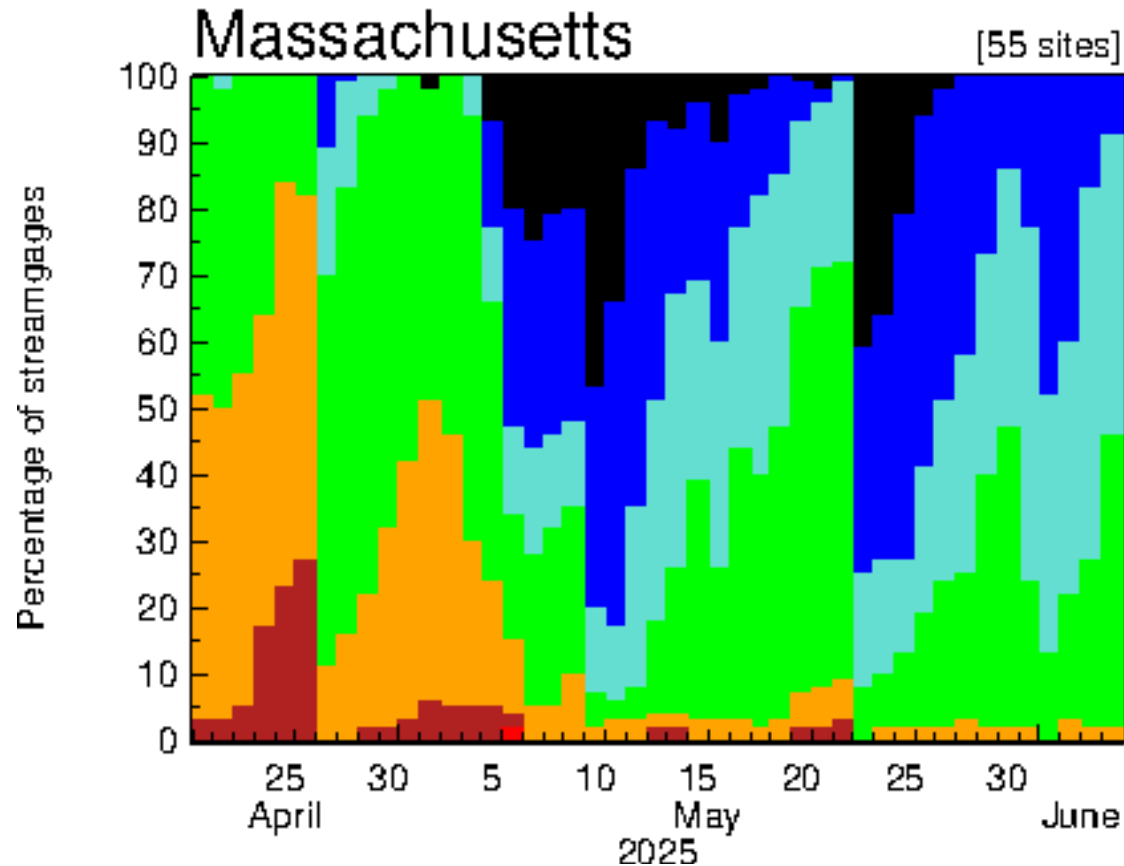
### Percentiles



### Index Severity Levels



# Percent of Gages at Various Percentiles



Explanation - Percentile classes							
Low	<10	10-24	25-75	76-90	>90	High	No Data
	Much below normal	Below normal	Normal	Above normal	Much above normal		



# 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	0	2	70
CTRV	16	0	0	0	0	12	92
CENTRAL	14	0	0	0	0	13	96
NORTHEAST	16	0	0	0	0	8	91
SOUTHEAST	17	0	0	0	0	4	70
CAPE COD	2	0	0	2	0	0	14

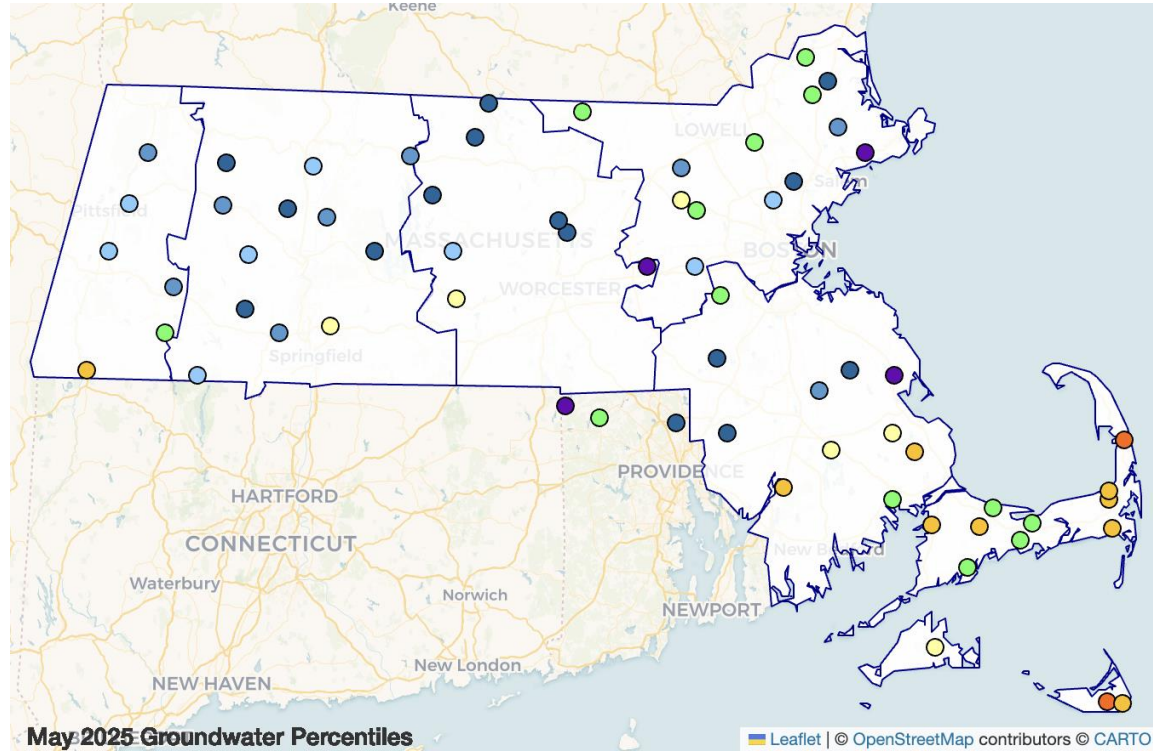
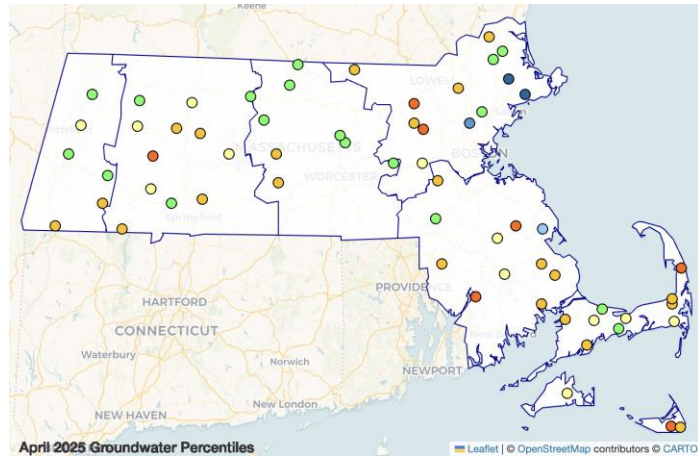
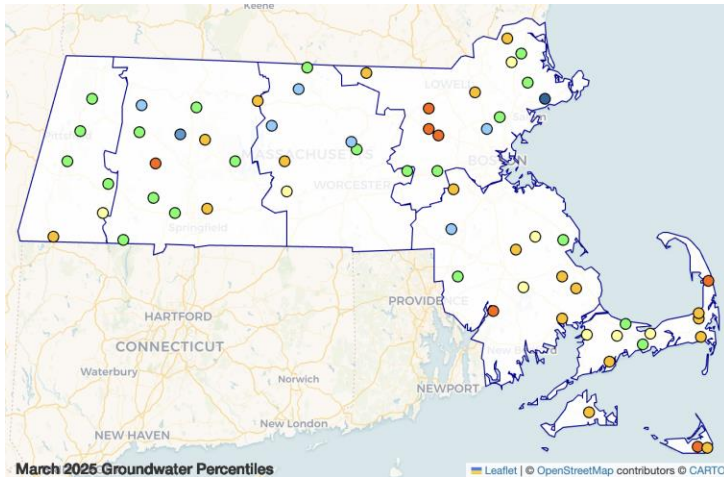
REGION	NUMBER OF GAGES IN NETWORK
WESTERN	9
CTRV	16
CENTRAL	14
NORTHEAST	16
SOUTHEAST	17
CAPE COD	2

Index Severity Levels

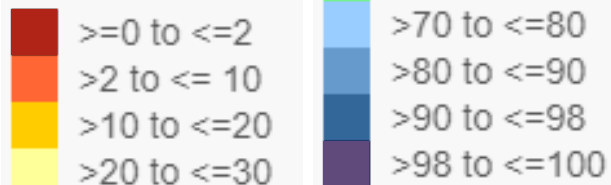
Level 0	Level 1	Level 2	Level 3	Level 4
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Notes: Not all gages report in all months due to ice, beaver dams, or other conditions. The Islands Region does not have any streamflow gages.

# Groundwater Percentiles



## Percentiles



## Index Severity Levels



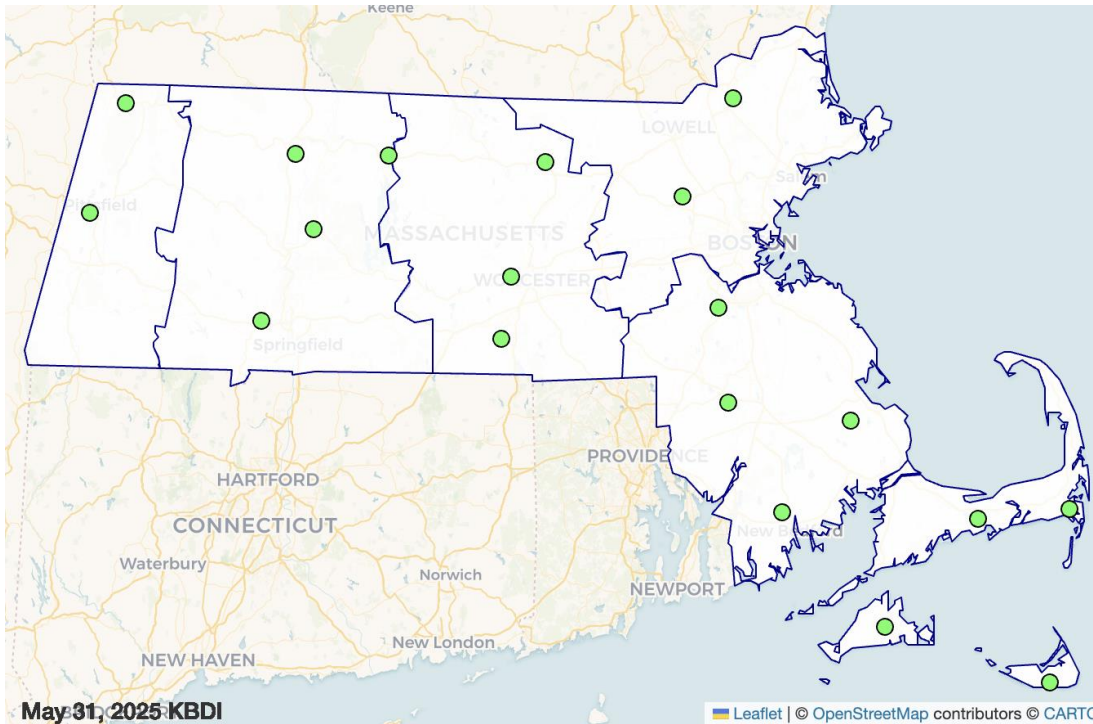
# Groundwater Index

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	75
CTRV	12	0	0	0	1	4	88
CENTRAL	10	0	0	0	1	7	96
NORTHEAST	13	0	0	0	1	3	73
SOUTHEAST	13	0	0	2	2	6	85
CAPE COD	10	0	1	5	0	0	20
ISLANDS	3	0	1	1	1	0	17

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	2	0
CTRV	4	0
CENTRAL	3	32
NORTHEAST	2	47
SOUTHEAST	4	53
CAPE COD	2	162
ISLANDS	2	18

**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	1	100% full
CTRV	2	43rd
CENTRAL	5	31st
NORTHEAST	6	31st
SOUTHEAST	2	100% full
CAPE COD	1	25th

## 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

## Mid-May 2025

Drought Index	Western	CT River Valley	Central	Northeast	Southeast	Cape	Islands
Precipitation (6-mos)	81	75	74	59	57	58	33
Precipitation (9-mos)	10	14	14	15	15	37	18
Streamflow	56	59	65	42	31	14	N/A
Groundwater	75	89	95	43	29	18	13
Lakes/ Impoundments	ND	ND	ND	ND	ND	ND	N/A
ET*	9	7	2	9	7	31	28
KBDI**	<200	<200	<200	<200	<200	<200	<200

Month	Western	CT River Valley	Central	Northeast	Southeast	Cape	Islands
<b>Mid-May Declaration</b>	<b>Level 0</b>	<b>Level 0</b>	<b>Level 0</b>	<b>Level 0</b>	<b>Level 1</b>	<b>Level 2</b>	<b>Level 1</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

## May 2025

Drought Index	Western	CT River Valley	Central	Northeast	Southeast	Cape	Islands
Precipitation (6-mos)	81	84	81	70	72	57	71
Precipitation (9-mos)	26	25	25	26	32	32	44
Streamflow	70	92	96	91	70	14	N/A
Groundwater	75	88	96	73	85	20	17
Lakes/ Impoundments	100% full	43	31	31	100% full	25	N/A
ET*	48	41	39	44	23	20	15
KBDI**	<200	<200	<200	<200	<200	<200	<200

Month	Western	CT River Valley	Central	Northeast	Southeast	Cape	Islands
<b>May 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>	<b>Level 1</b>
<b>Mid-May Declaration</b>	<b>Level 0</b>	<b>Level 0</b>	<b>Level 0</b>	<b>Level 0</b>	<b>Level 1</b>	<b>Level 2</b>	<b>Level 1</b>

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