

Hydrologic Conditions in Massachusetts for March 2025

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DCR Office of Water Resources

Drought Management Task Force

April 8, 2025

Meeting Co-Chairs: EOEEA, MEMA



MA Drought Management Plan

Indices

Numbers in parentheses indicate number of data points across the state



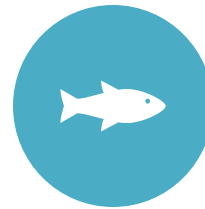
Precipitation (93)



Streamflow (63)



Groundwater (63)



Lakes and
Impoundments (20)



KBDI - Fire Danger
(36)



Evapotranspiration
(national map)

MA Drought Management Plan

Index Severity Levels

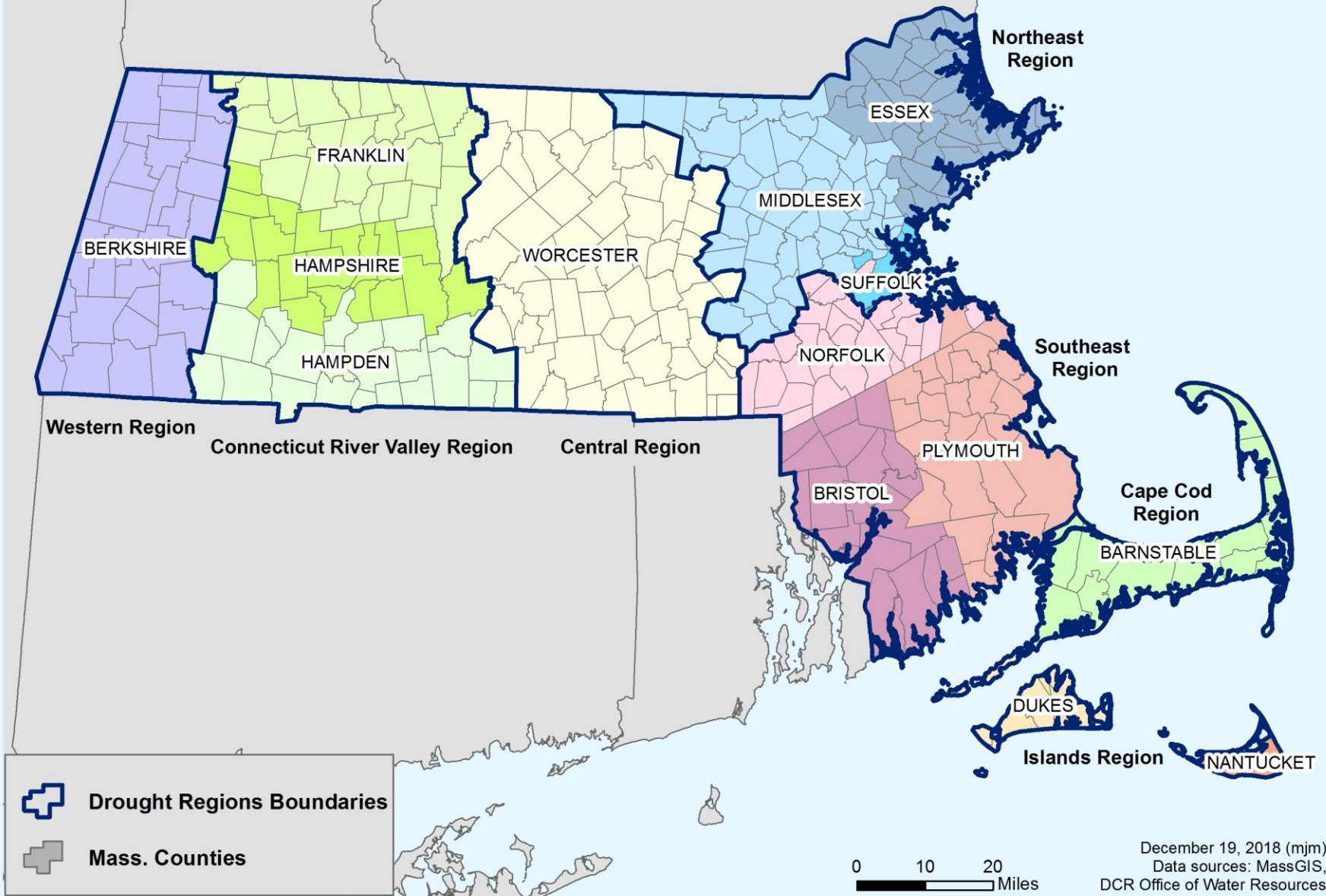
Index Severity Level	Percentiles for: Precipitation, Streamflow, Lakes and Impoundments, Groundwater, and Evapotranspiration	Keetch-Byram Drought Index
0	>30 th percentile	< 200
1	≤30 and >20	200-400
2	≤20 and >10	400-600
3	≤10 and >2	600-700
4	≤2	700-800

MA Drought Management Plan

Drought Levels



MASSACHUSETTS DROUGHT REGIONS with Counties

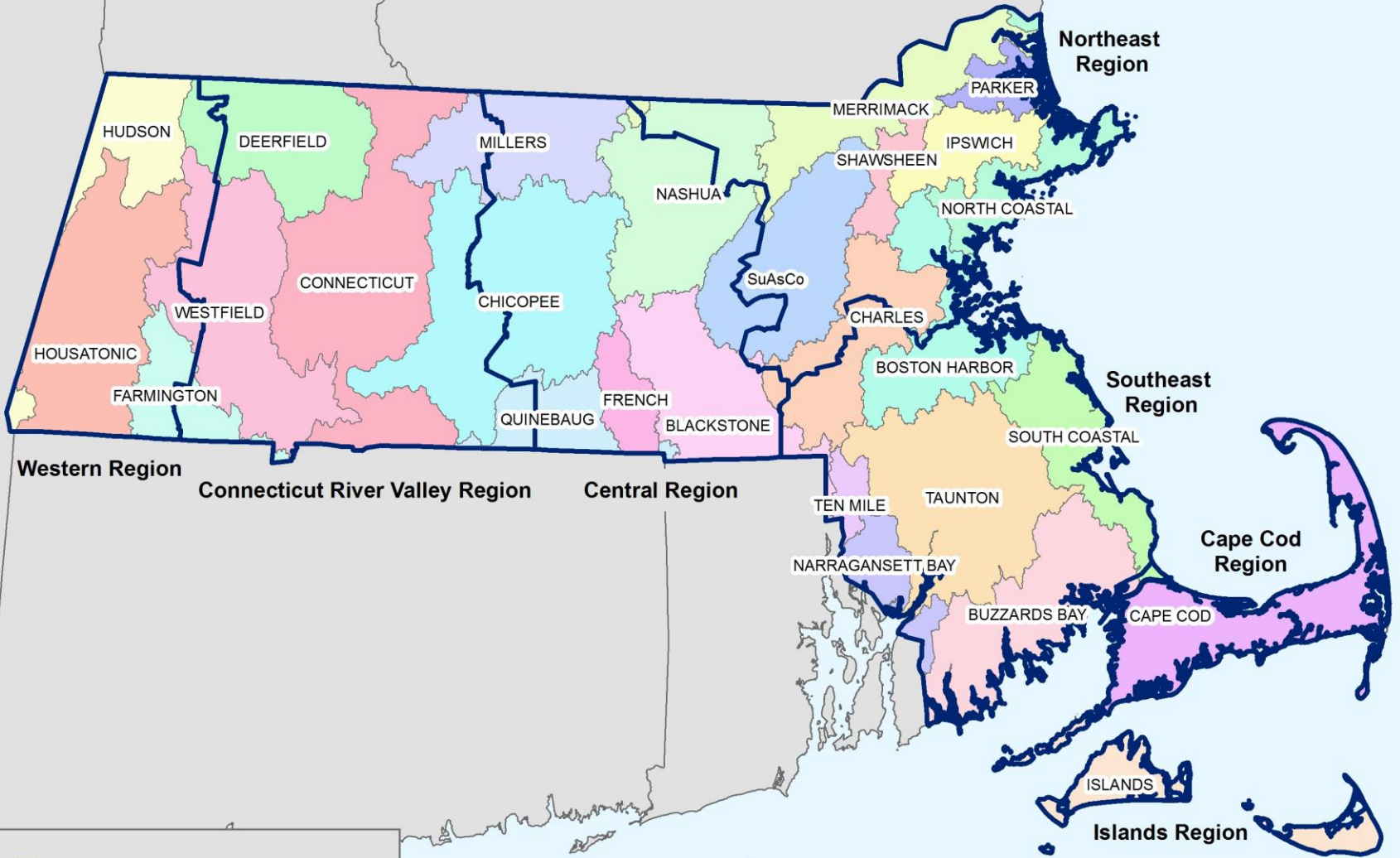


-  Drought Regions Boundaries
-  Mass. Counties

0 10 20
Miles

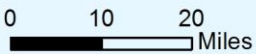
December 19, 2018 (mjm)
Data sources: MassGIS,
DCR Office of Water Resources

MASSACHUSETTS DROUGHT REGIONS with Watersheds



 Drought Regions Boundaries

 Mass. Counties



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

Task Force Member Updates



Hydrologic
Conditions



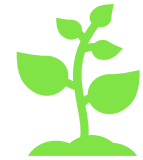
Weather &
Forecast



Water Supply
Impacts



Environmental
Impacts



Agricultural
Impacts



Fire Danger



Engineering/
Infrastructure
Impacts

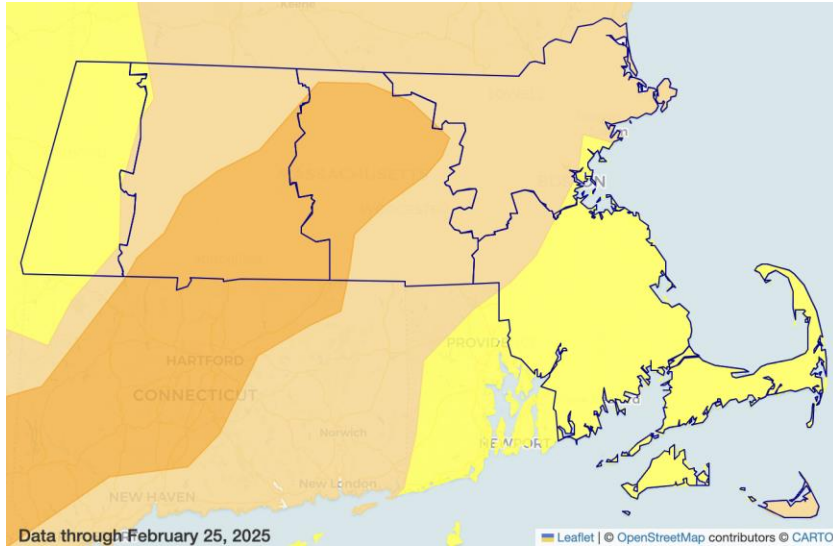


Public Health
Impacts

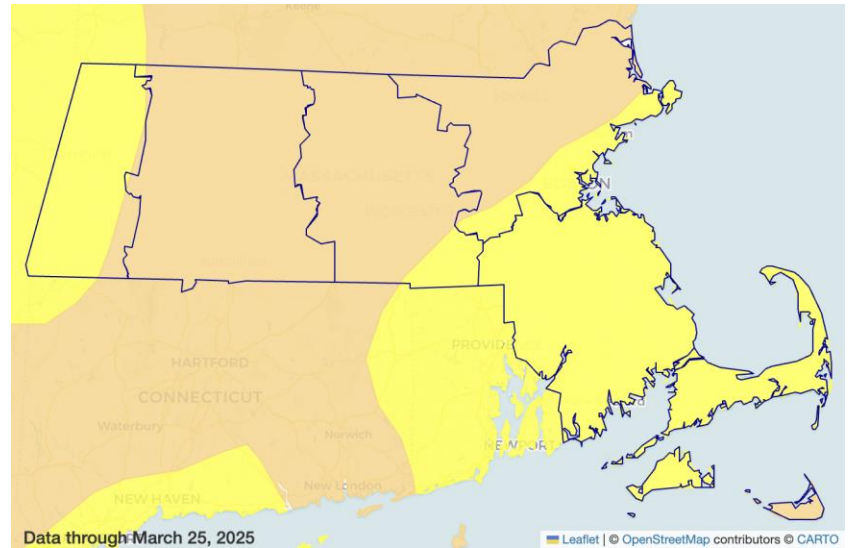
Recent Hydrologic History

- **Mid-August through November**
 - *Below-normal* precipitation drying out areas with impacts to streamflow and eventually groundwater
- **December-February**
 - Variable precipitation from *below normal to above normal*
 - Continued impacts to streamflow and groundwater with temporary relief in streamflow at times
- **March**
 - *Normal* precipitation
 - Improvements to streamflow and groundwater except in the Cape Cod and Islands Regions

US Drought Monitor



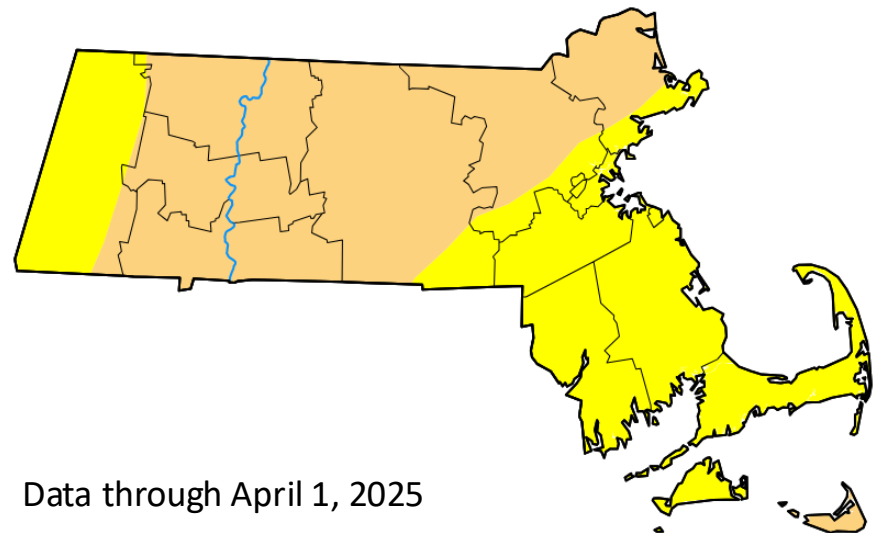
Data through February 25, 2025



Data through March 25, 2025

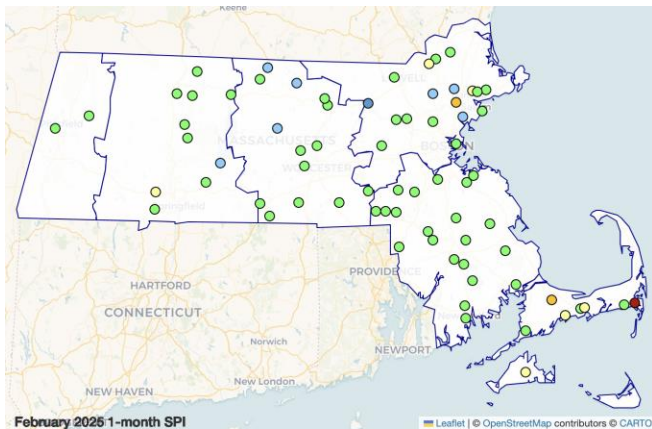
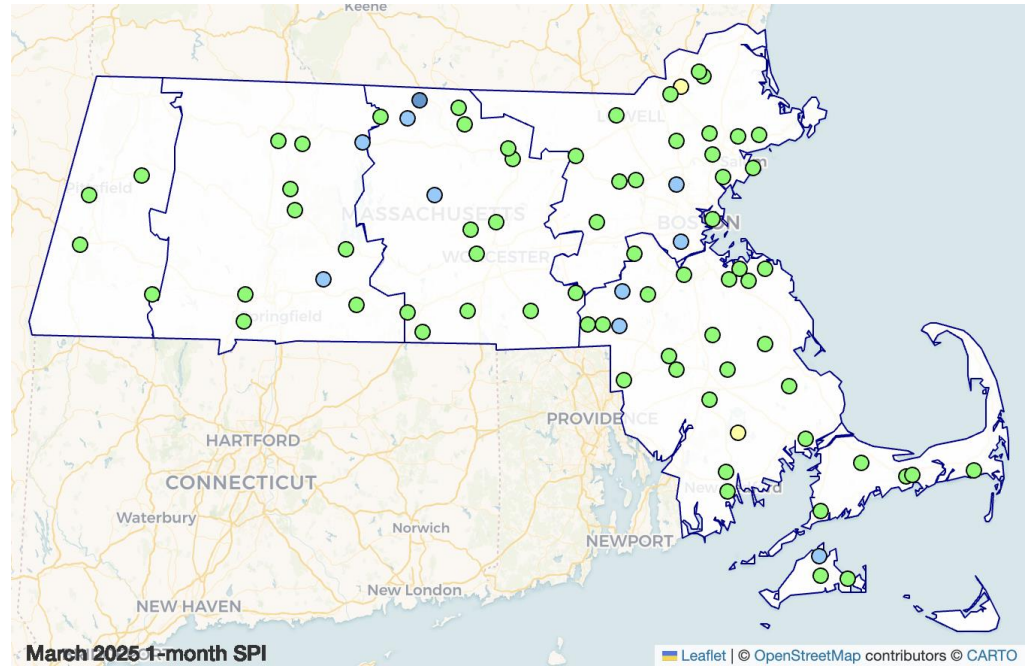
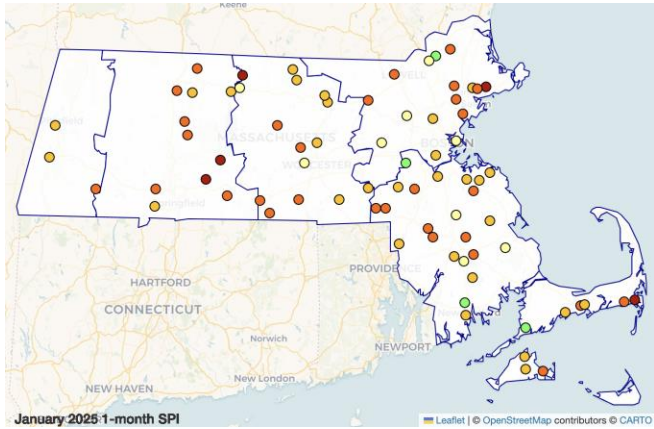
- None
- D0 (Abnormally Dry)
- D1 (Moderate Drought)
- D2 (Severe Drought)
- D3 (Extreme Drought)
- D4 (Exceptional Drought)

USDM	=	MA DMP
0	=	1
1	=	2
2,3	=	3
4	=	4

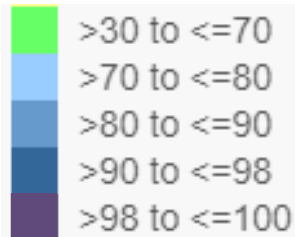
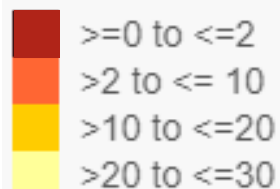


Data through April 1, 2025

Standardized Precipitation Index



Percentiles



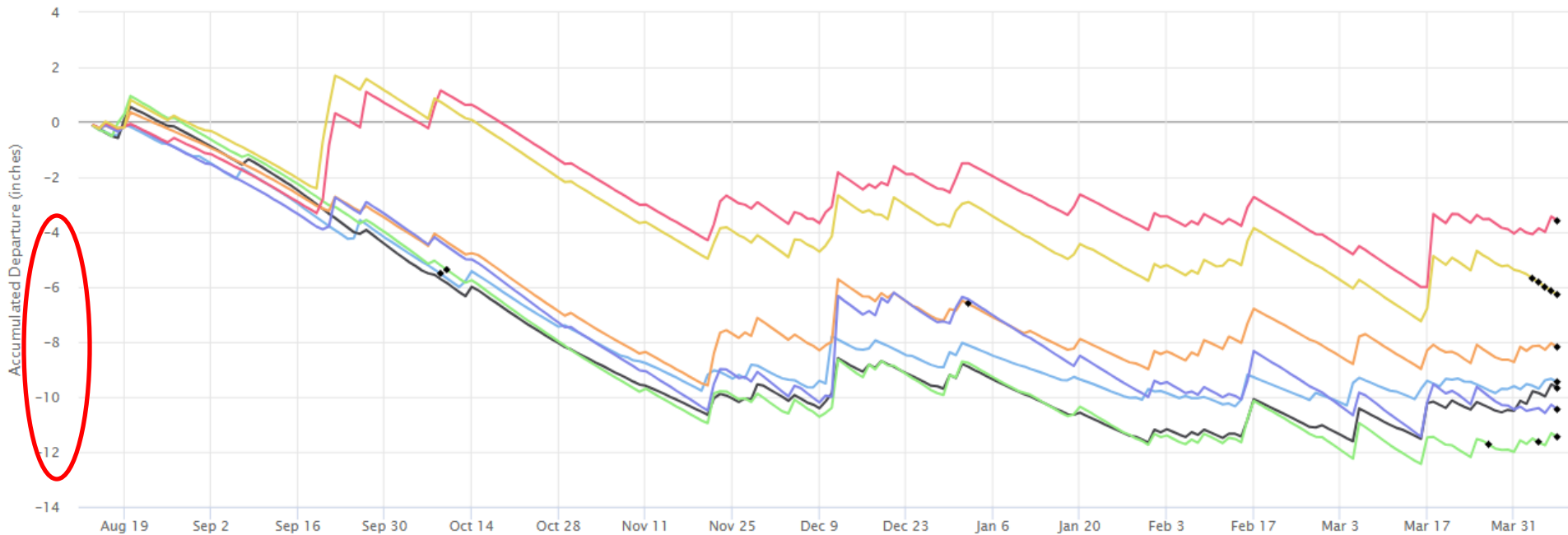
Index Severity Levels



4-12" of Precipitation Deficit since mid-August

Accumulated Precipitation Departure from Normal (inches)

Black diamonds represent missing values



— NORTH ADAMS HARRIMAN AIRPORT
— SOUTHBRIDGE 3 SW
— NORTON WEST
— EDGARTOWN

— AMHERST
— MIDDLETON
— HYANNIS

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	50	57	29	20	23	28	78	73
CTRV	10	67	63	28	10	11	17	87	79
CENTRAL	16	63	60	32	12	8	15	85	79
NORTHEAST	19	50	54	33	14	12	14	78	56
SOUTHEAST	23	53	50	26	16	11	24	79	65
CAPE COD	5	55	42	17	9	10	11	29	39
ISLANDS	3	64	65	30	26	40	34	55	40

Index Severity Levels

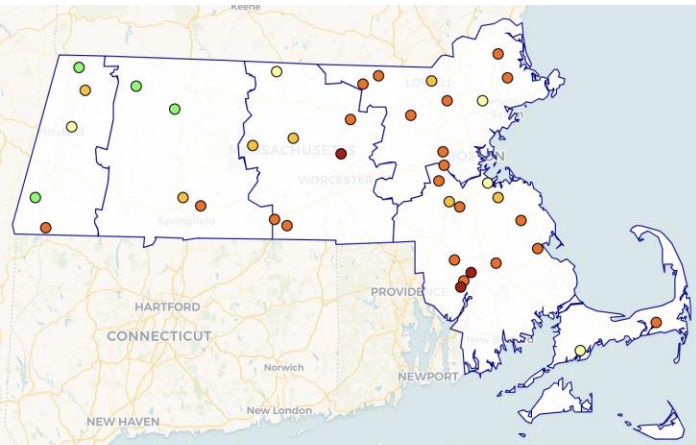
Level 0	Level 1	Level 2	Level 3	Level 4
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* 1- and 36-month SPI is for informational purposes only, not for drought determination. Of the 2- to 24-month look-back periods, the most relevant is selected each month depending on the phase of the drought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

N/A: Not Available

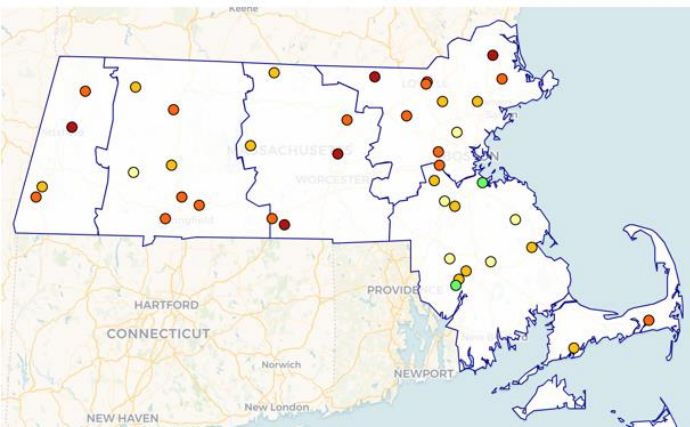
Streamflow

Percentiles of Monthly Median



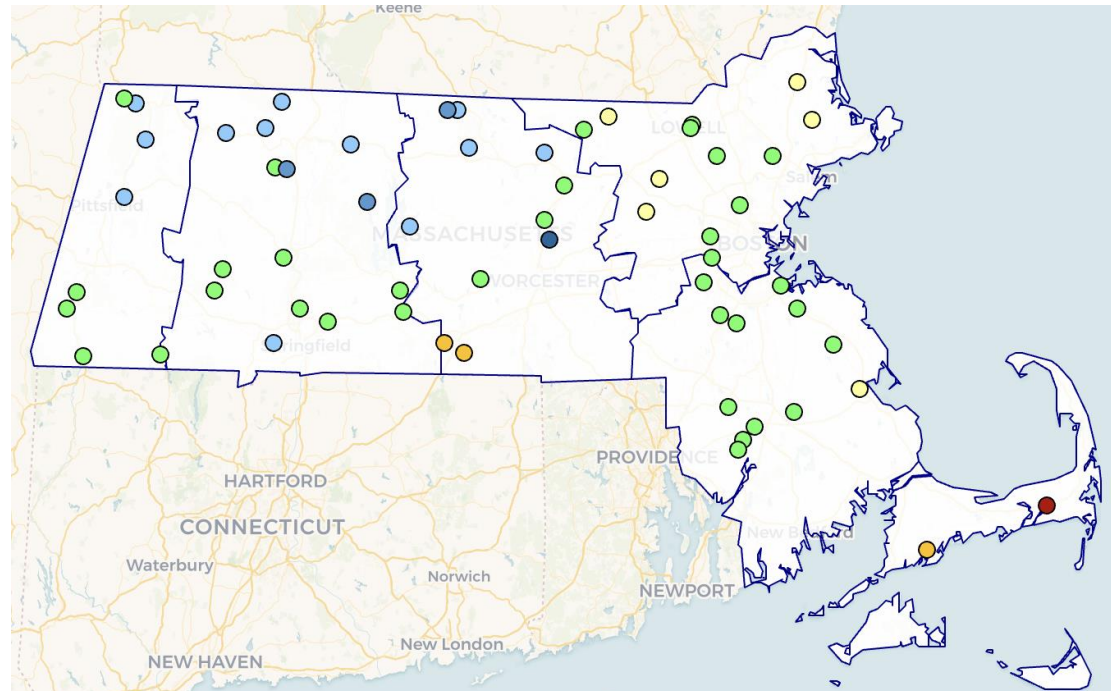
January 2025 Streamflow Percentiles

Leaflet | © OpenStreetMap contributors © CARTO



February 2025 Streamflow Percentiles

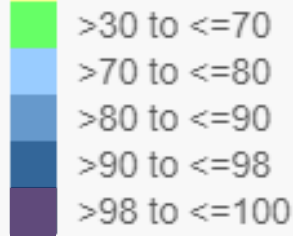
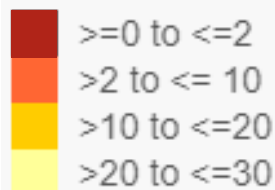
Leaflet | © OpenStreetMap contributors © CARTO



March 2025 Streamflow Percentiles

Leaflet | © OpenStreetMap contributors © CARTO

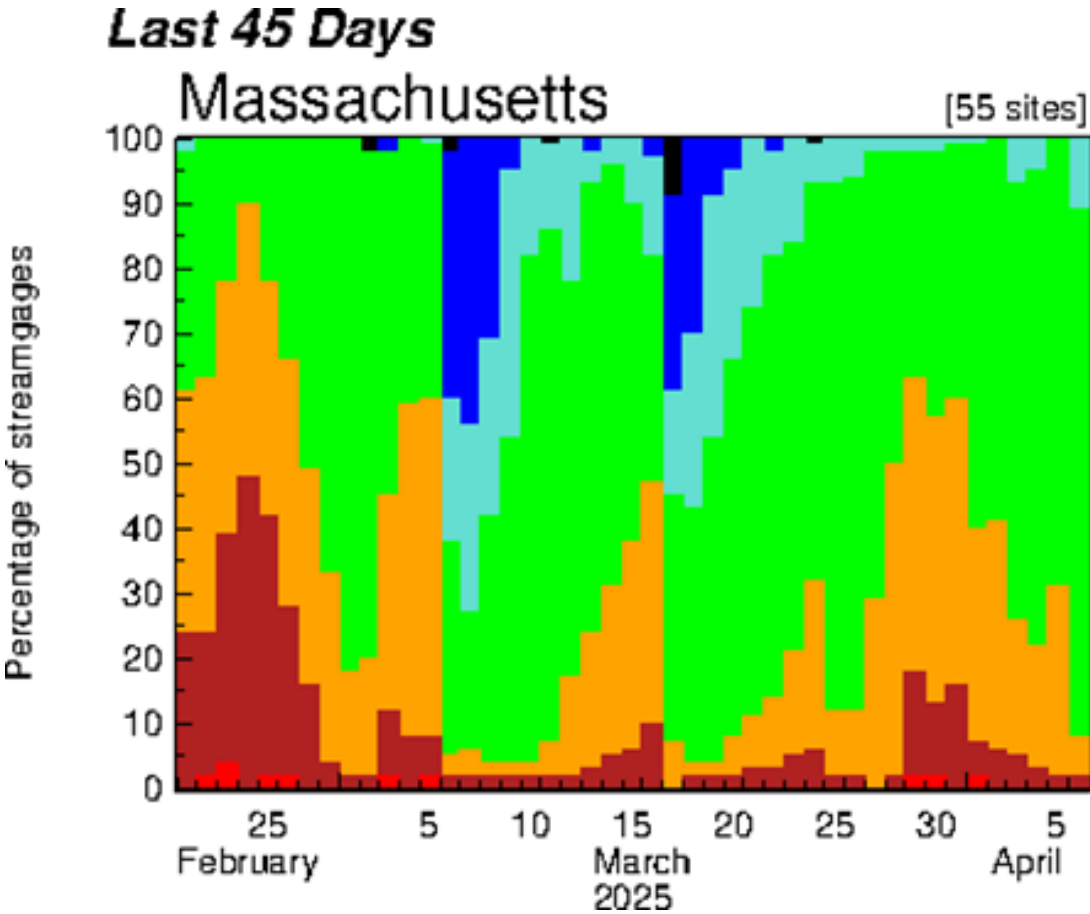
Percentiles



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	8	0	0	0	0	0	64
CTRV	15	0	0	0	0	0	68
CENTRAL	11	0	0	2	0	1	72
NORTHEAST	13	0	0	0	5	0	40
SOUTHEAST	12	0	0	0	1	0	38
CAPE COD	2	1	0	1	0	0	9

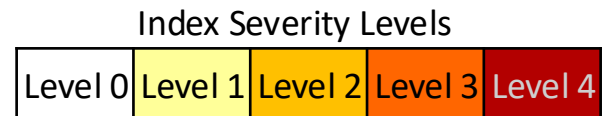
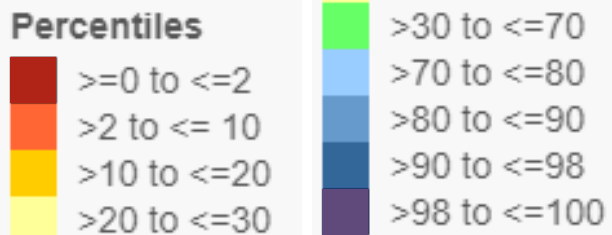
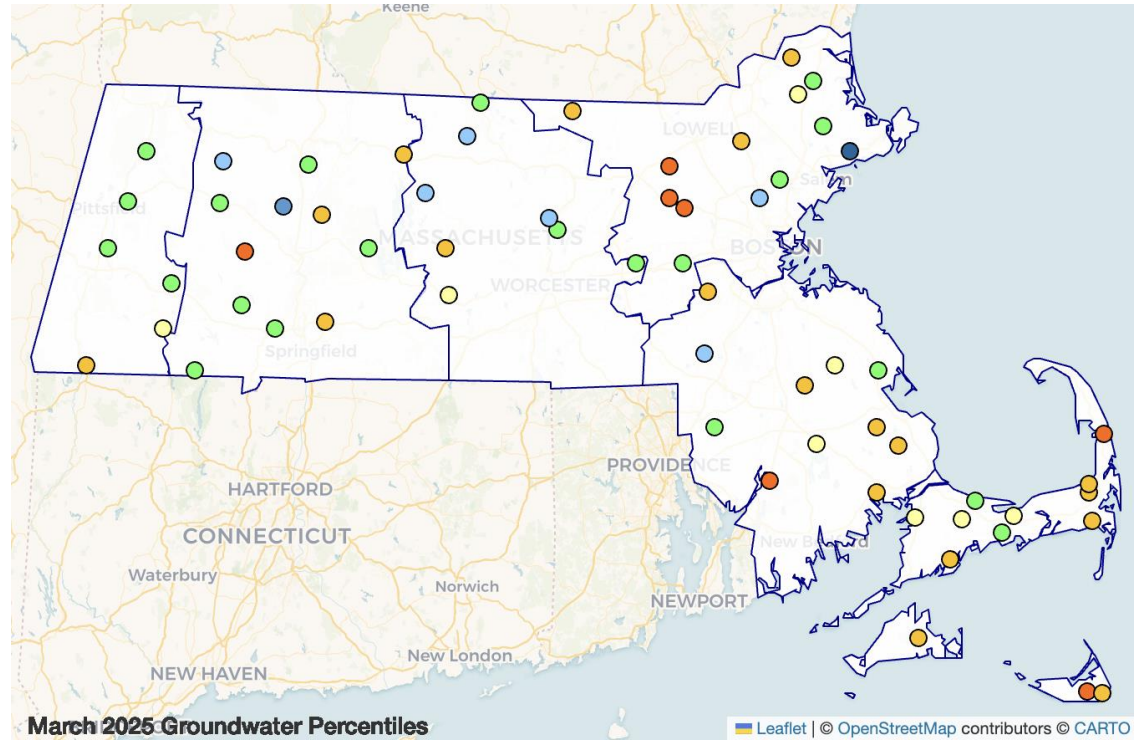
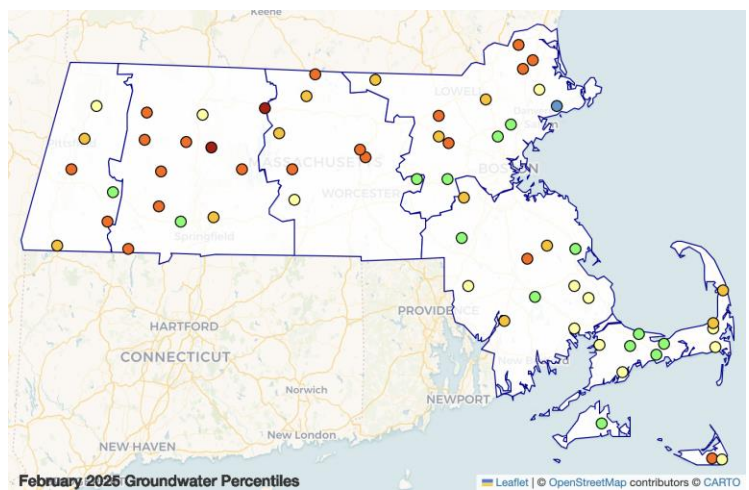
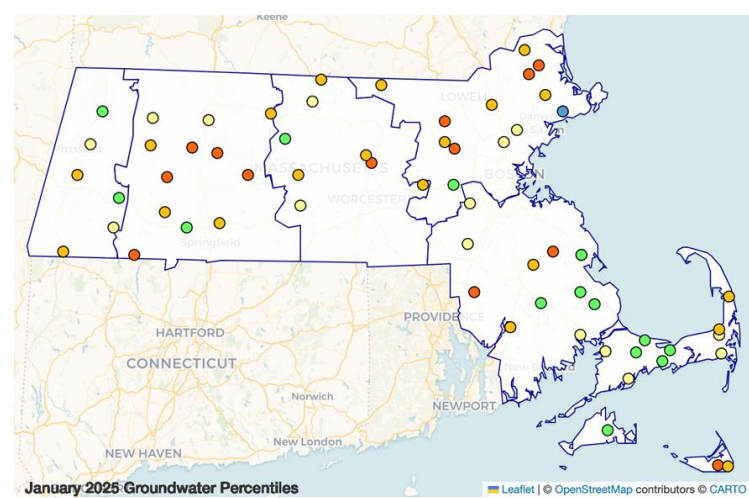
REGION	NUMBER OF GAGES IN NETWORK
WESTERN	8
CTRV	15
CENTRAL	13
NORTHEAST	13
SOUTHEAST	12
CAPE COD	2

Index Severity Levels



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



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	48
CTRV	12	0	1	3	0	0	41
CENTRAL	8	0	0	1	1	0	59
NORTHEAST	13	0	3	3	1	1	28
SOUTHEAST	12	0	1	5	2	0	21
CAPE COD	10	0	1	4	3	0	20
ISLANDS	3	0	1	2	0	0	12

Index Severity Levels



Lakes & Impoundments

REGION	NUMBER OF SITES REPORTING	MEDIAN OF INDIVIDUAL PERCENTILES OR PERCENT FULL
WESTERN	2	15th
CTRV	2	25th
CENTRAL	5	9th
NORTHEAST	5	7th
SOUTHEAST	2	27th
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

February 2025

Drought Index	Western	CT River Valley	Central	Northeast	Southeast	Cape	Islands
Precipitation (6-mos)	1	1	2	6	11	20	8
Streamflow	9	9	6	8	23	13	N/A
Groundwater	14	7	10	13	25	27	21
Lakes/ Impoundments	15	17	10	2	3	ND	N/A
ET*	N/A	N/A	N/A	N/A	N/A	N/A	N/A
KBDI**	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Month	Western	CT River Valley	Central	Northeast	Southeast	Cape	Islands
<i>February Declaration</i>	Level 2	Level 3	Level 3	Level 3	Level 2	Level 2	Level 2

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

March 2025

Drought Index	Western	CT River Valley	Central	Northeast	Southeast	Cape	Islands
Precipitation (6-mos)	20	10	12	14	16	9	26
Streamflow	64	68	72	40	38	9	N/A
Groundwater	48	41	59	28	21	20	12
Lakes/ Impoundments	15	25	9	7	27	25	N/A
ET*	N/A	N/A	N/A	N/A	N/A	N/A	N/A
KBDI**	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Month	Western	CT River Valley	Central	Northeast	Southeast	Cape	Islands
March Recommendation	Level 1	Level 1	Level 1	Level 2	Level 1	Level 2	Level 2
<i>February Declaration</i>	<i>Level 2</i>	<i>Level 3</i>	<i>Level 3</i>	<i>Level 3</i>	<i>Level 2</i>	<i>Level 2</i>	<i>Level 2</i>

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Index Severity Levels

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