

Hydrologic Conditions in Massachusetts for February 2025

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DCR Office of Water Resources

Drought Management Task Force

March 6, 2025

Meeting Co-Chairs: EOEEA, MEMA



MA Drought Management Plan Indices

Numbers in parentheses indicate number of data points across the state



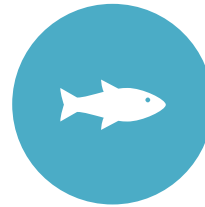
Precipitation (93)



Streamflow (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

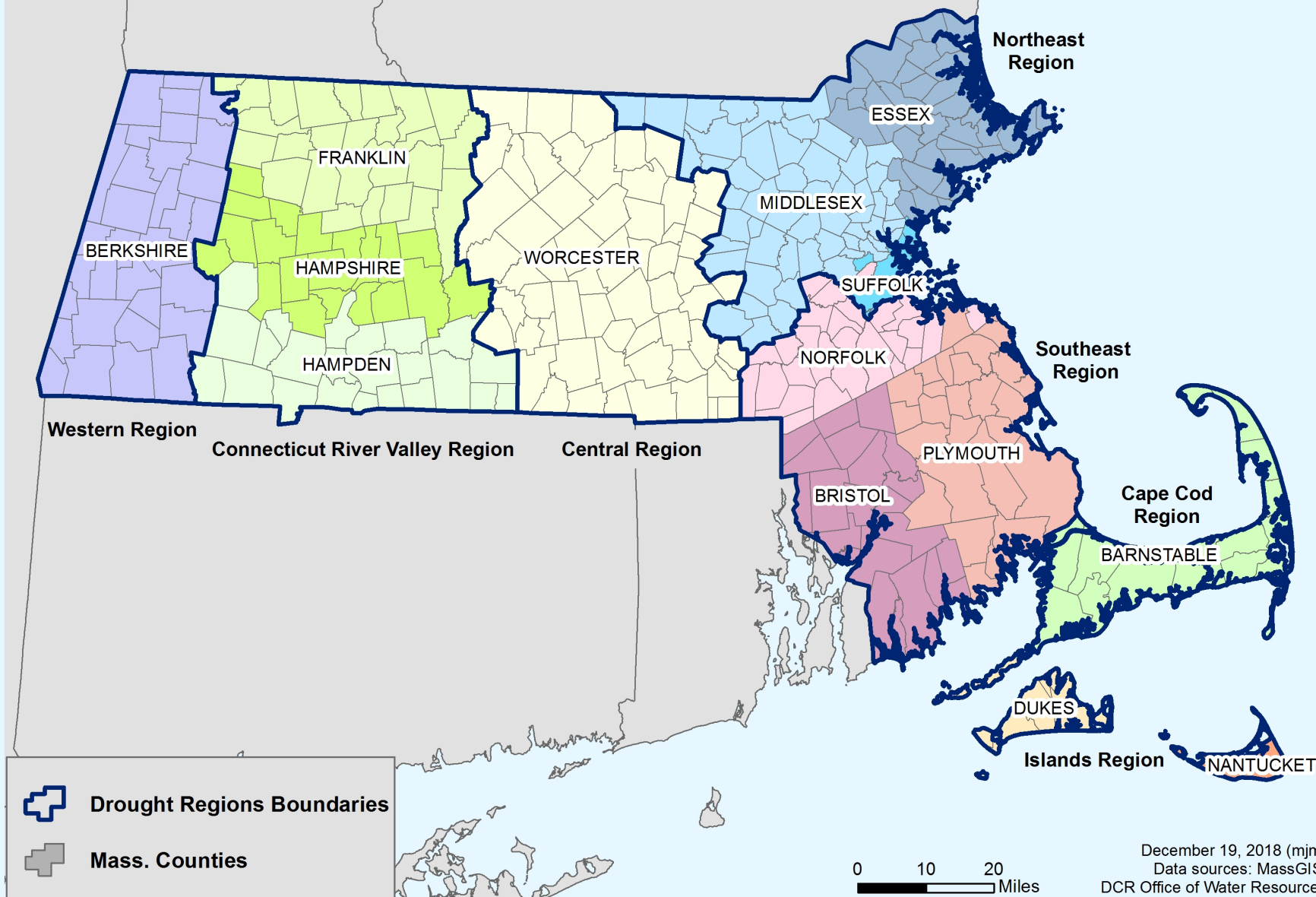
Drought Levels





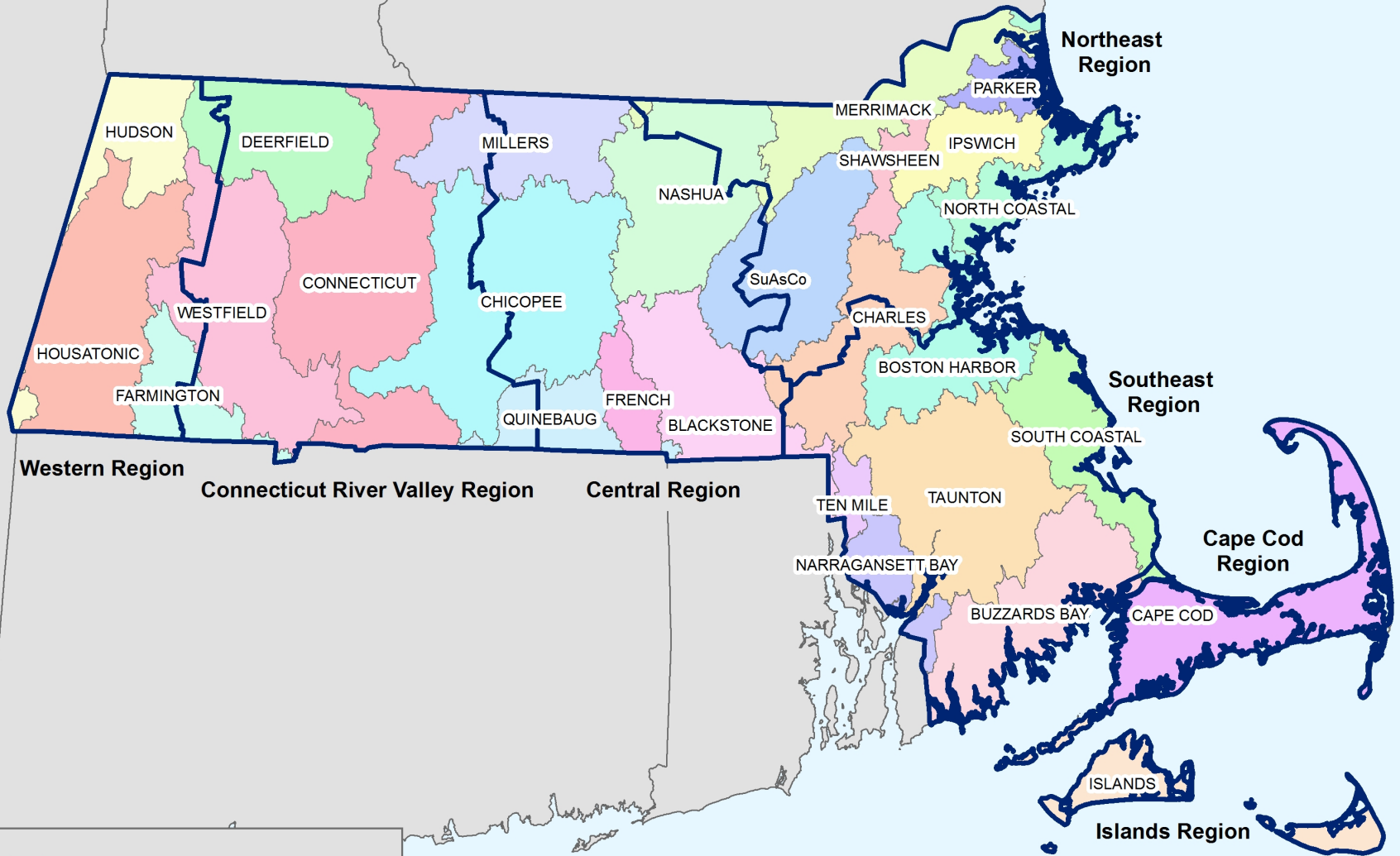
MASSACHUSETTS DROUGHT REGIONS

with Counties





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



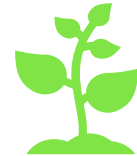
Weather &
Forecast



Water Supply
Impacts



Environmental
Impacts



Agricultural
Impacts



Fire Danger



Engineering/
Infrastructure
Impacts

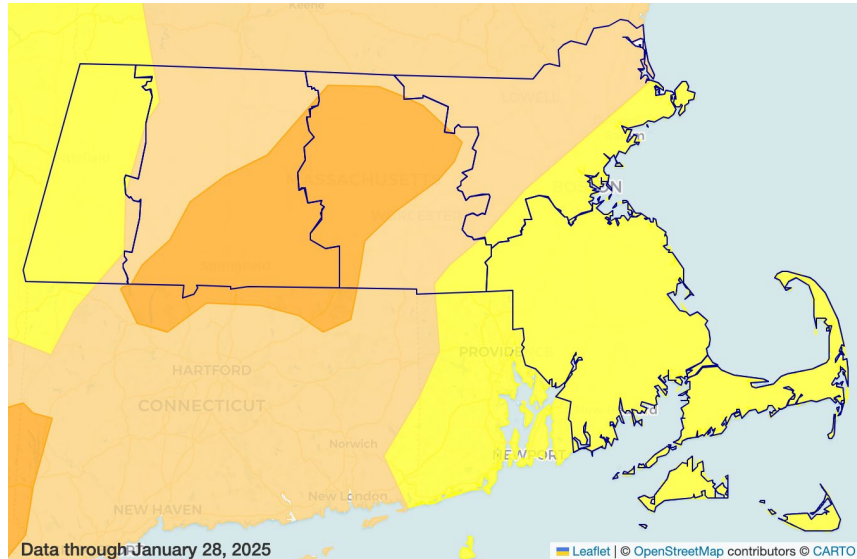


Public Health
Impacts

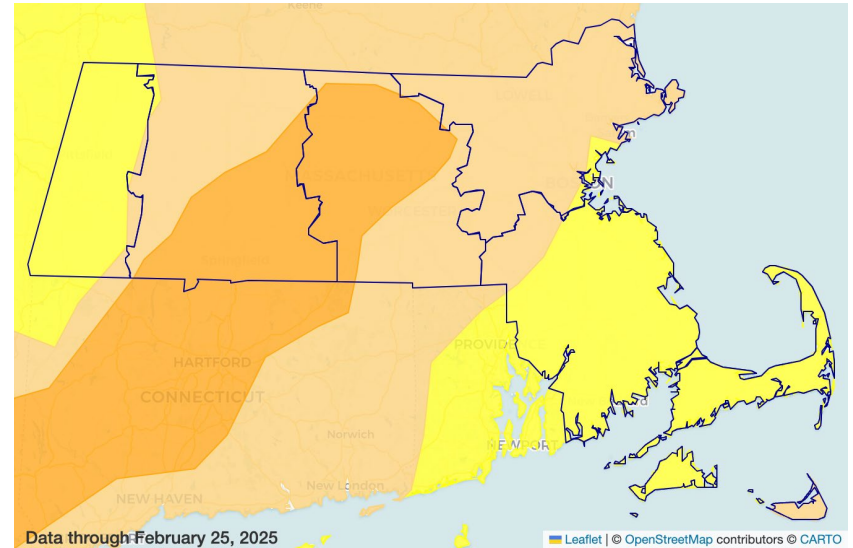
Recent Hydrologic History

- **Mid-August through November**
 - *Below-normal* precipitation drying out areas with impacts to streamflow and eventually groundwater
- **December**
 - *Normal to above-normal* precipitation improved conditions
 - Longer-term precipitation deficits and impacts to streamflow and groundwater
- **January**
 - *Below-normal* precipitation
 - Continued impacts to streamflow and groundwater
- **February**
 - *Mostly normal* precipitation
 - Continued impacts to streamflow and groundwater

US Drought Monitor



Data through January 31, 2025



Data through February 25, 2025

None

D0 (Abnormally Dry)

D1 (Moderate Drought)

D2 (Severe Drought)

D3 (Extreme Drought)

D4 (Exceptional Drought)

USDM **MA DMP**

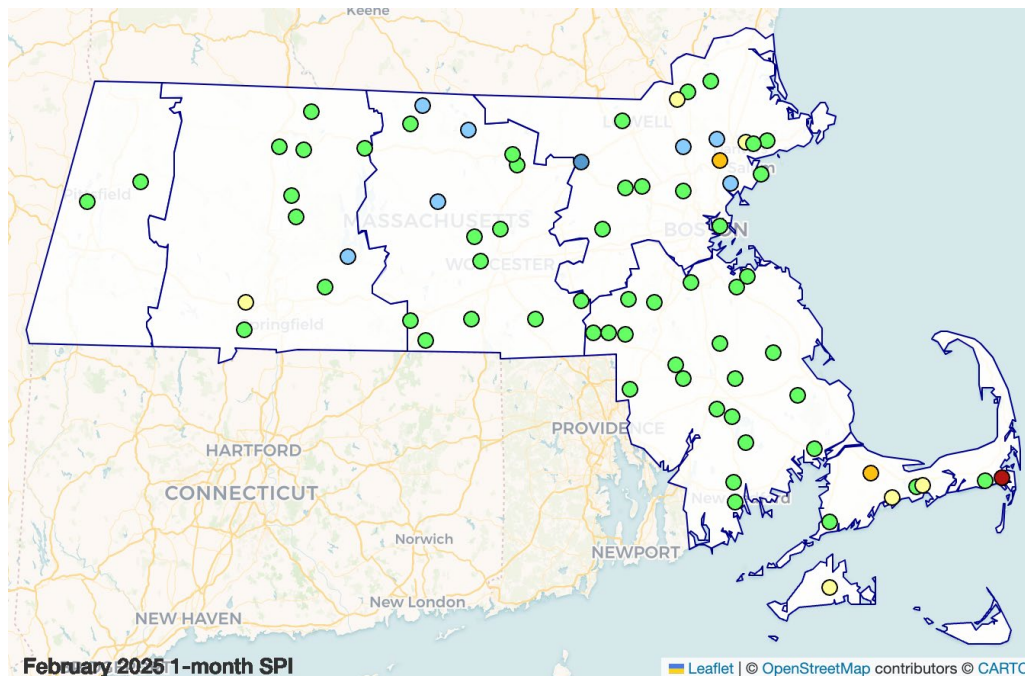
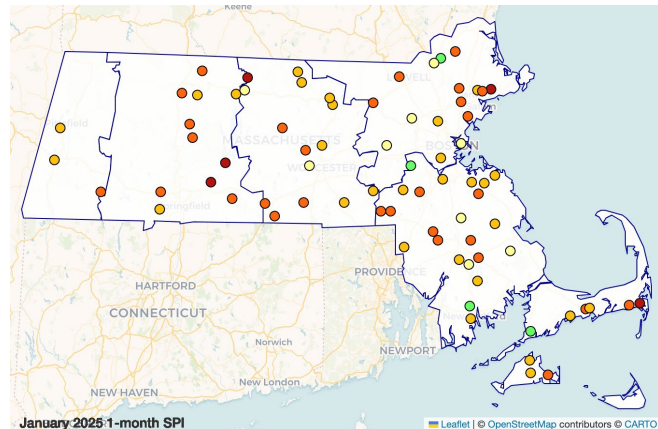
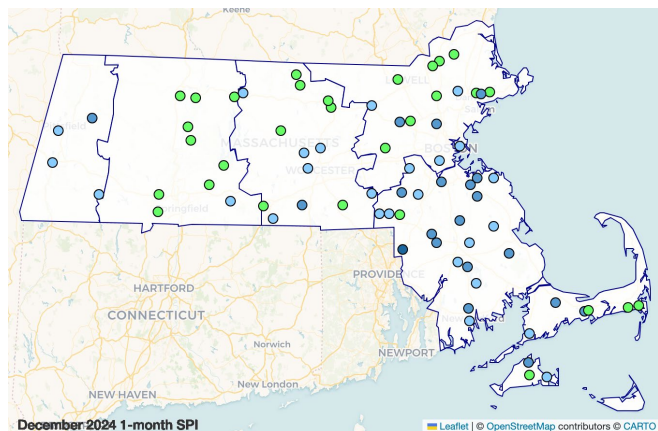
0 = 1

1 = 2

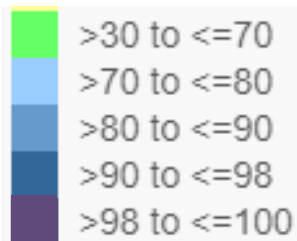
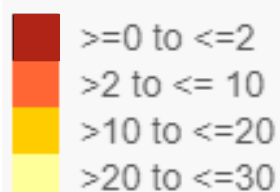
2,3 = 3

4 = 4

Standardized Precipitation Index



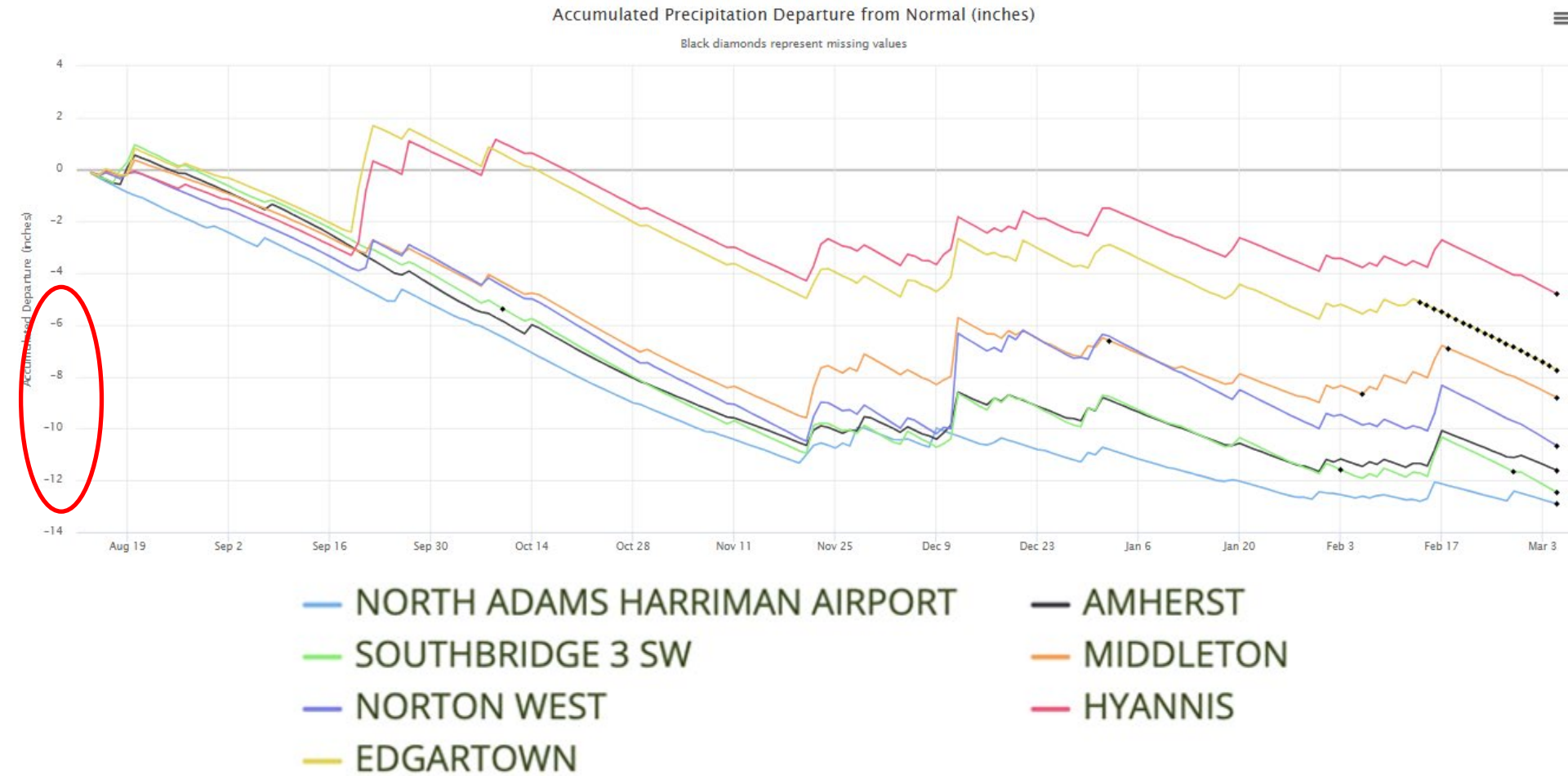
Percentiles



Index Severity Levels

Level 0	Level 1	Level 2	Level 3	Level 4

5-13" 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	2	57	12	37	1	16	37	69	61
CTRV	10	60	18	25	1	12	39	82	71
CENTRAL	14	64	23	37	2	5	38	86	78
NORTHEAST	18	57	26	47	6	8	30	81	54
SOUTHEAST	21	50	19	52	11	9	51	77	65
CAPE COD	7	30	7	18	20	6	14	42	36
ISLANDS	1	30	5	15	8	2	10	4	

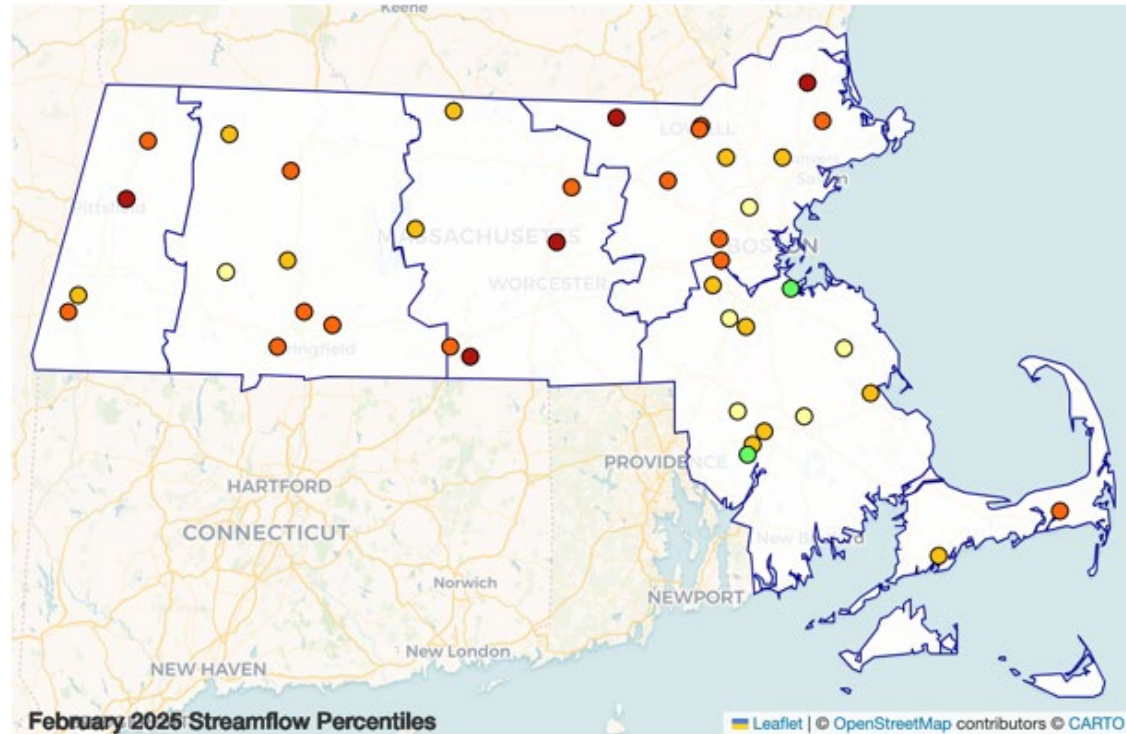
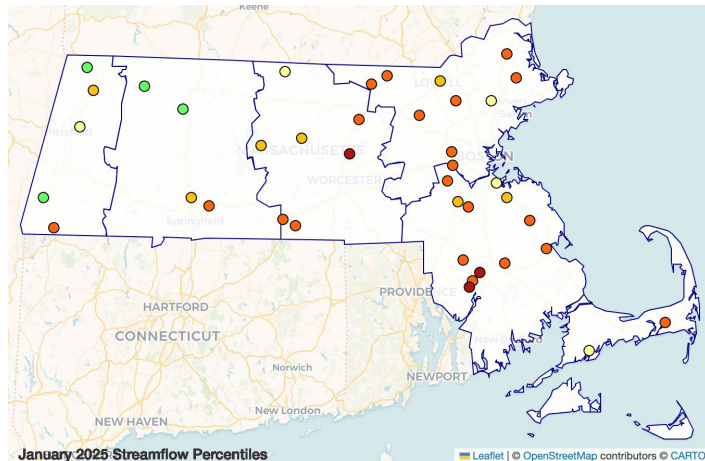
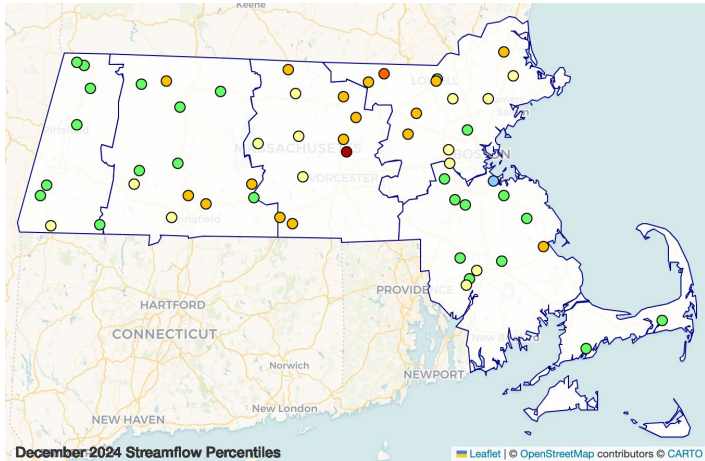
* 1- and 36-month SPI is for informational purposes only, not for drought determination. Of the 2- to 24-month look-back periods, the most relevant is selected each month depending on the phase of the drought - onset, during or recovery.

N/A: Not Available

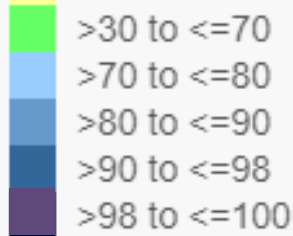
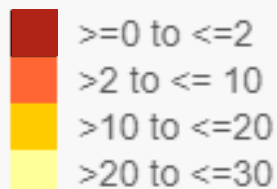
Index Severity Levels				
Level 0	Level 1	Level 2	Level 3	Level 4

Streamflow

Percentiles of Monthly Median



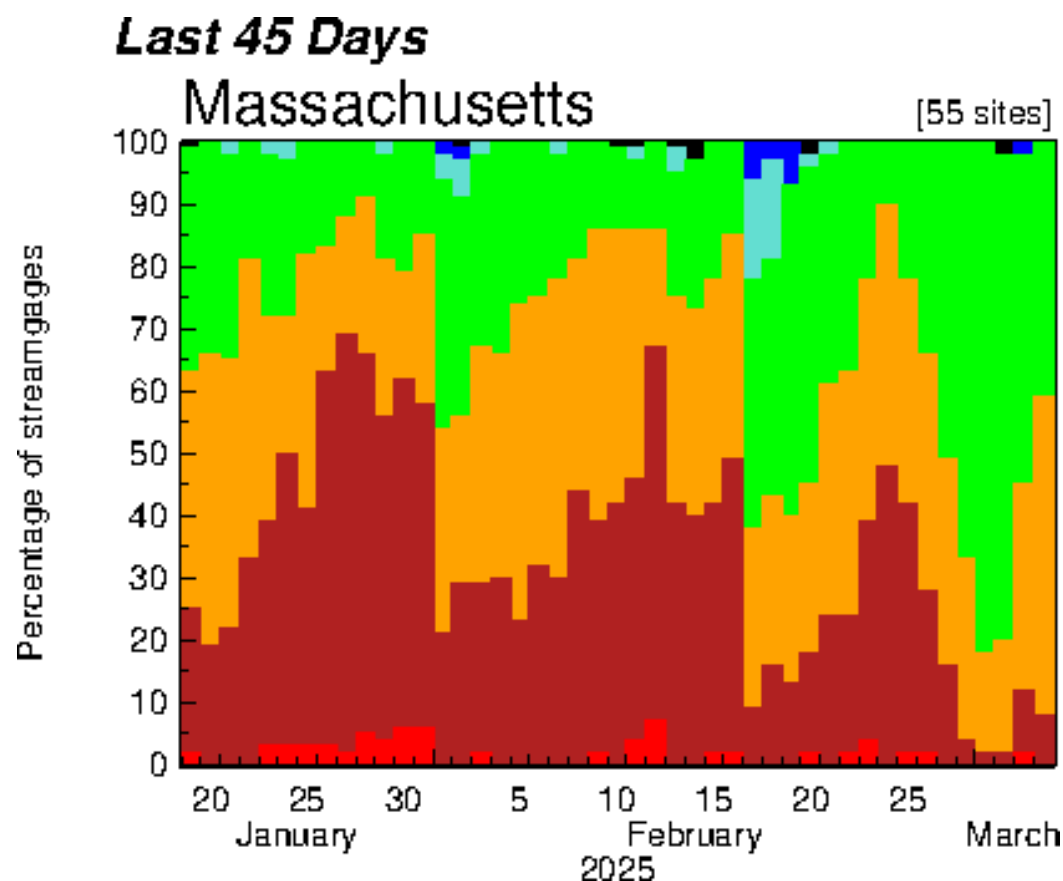
Percentiles



Index Severity Levels

Level 0	Level 1	Level 2	Level 3	Level 4

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

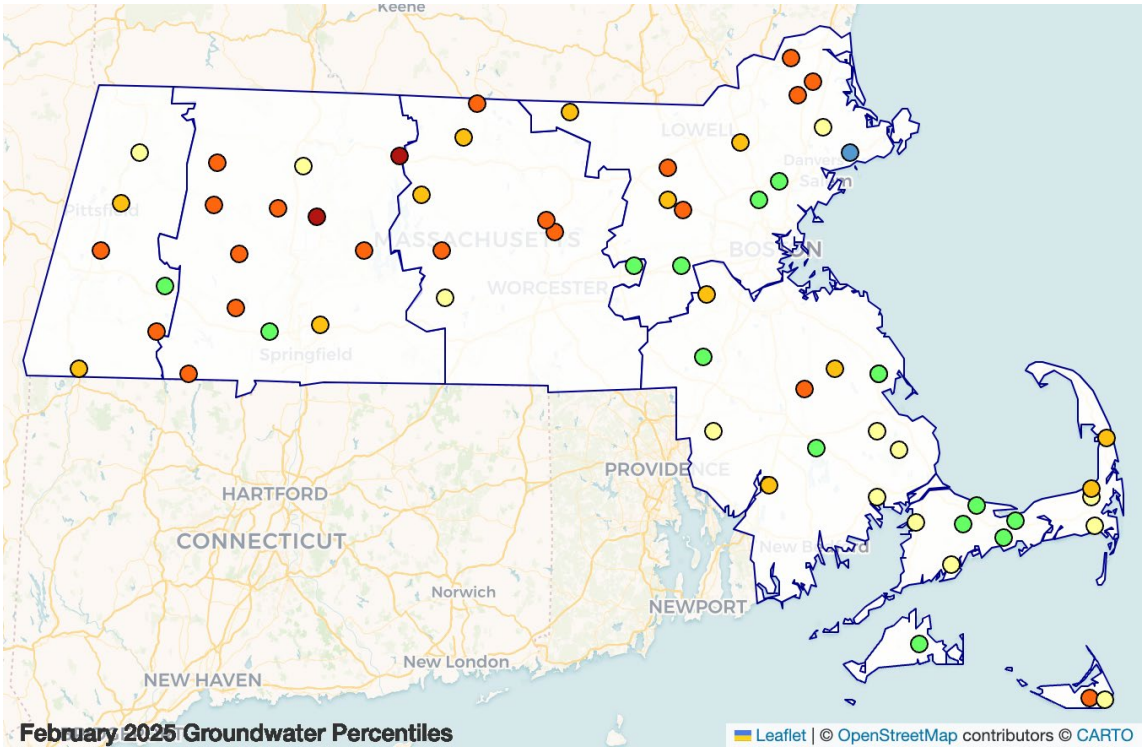
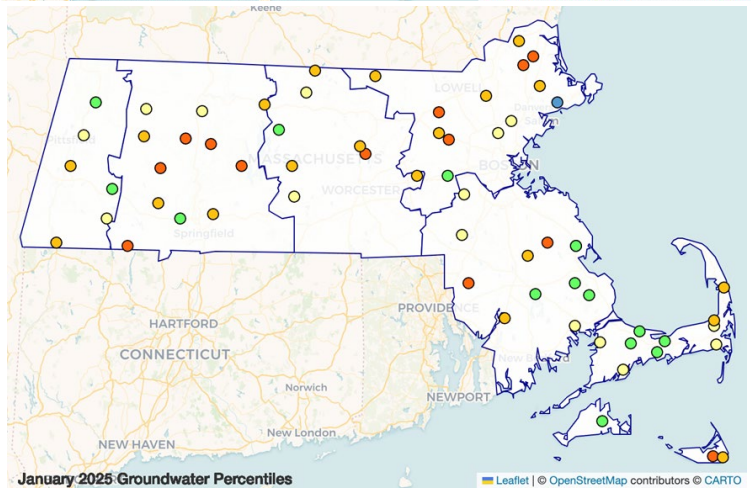
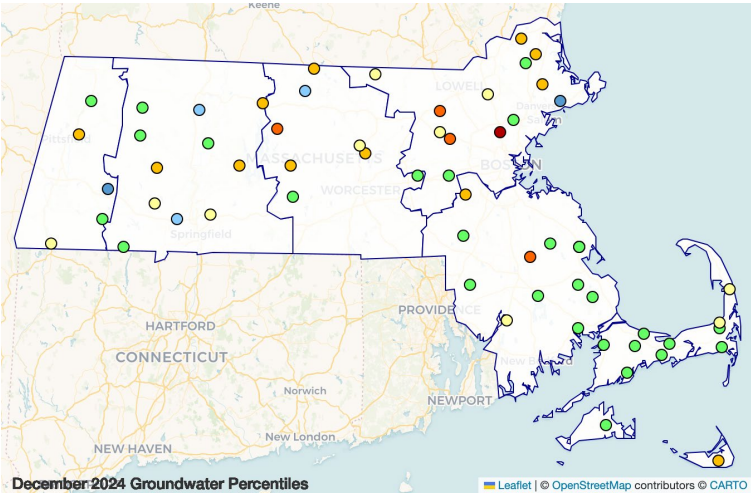
REGION	NUMBER OF GAGES REPORTING	≥0 TO ≤2 PERCENTILE	>2 TO ≤10 PERCENTILE	>10 TO ≤20 PERCENTILE	>20 TO ≤30 PERCENTILE	>90 PERCENTILE	MEDIAN OF INDIVIDUAL GAGE PERCENTILES
WESTERN	4	1	2	1	0	0	9
CTRV	7	0	4	2	1	0	9
CENTRAL	6	2	2	2	0	0	6
NORTHEAST	11	2	6	2	1	0	8
SOUTHEAST	11	0	0	5	4	0	23
CAPE COD	2	0	1	1	0	0	13

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

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.

Index Severity Levels				
Level 0	Level 1	Level 2	Level 3	Level 4

Groundwater Percentiles



Percentiles



≥ 0 to ≤ 2
 > 2 to ≤ 10
 > 10 to ≤ 20
 > 20 to ≤ 30



> 30 to ≤ 70
 > 70 to ≤ 80
 > 80 to ≤ 90
 > 90 to ≤ 98
 > 98 to ≤ 100

Index Severity Levels

Level 0

Level 1

Level 2

Level 3

Level 4

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	2	2	1	0	14
CTRV	12	2	7	1	1	0	7
CENTRAL	8	0	4	2	1	0	10
NORTHEAST	13	0	5	3	1	0	13
SOUTHEAST	12	0	1	3	5	0	25
CAPE COD	10	0	0	2	4	0	27
ISLANDS	3	0	1	0	1	0	21

Index Severity Levels				
Level 0	Level 1	Level 2	Level 3	Level 4

Lakes & Impoundments

REGION	NUMBER OF SITES REPORTING	MEDIAN OF INDIVIDUAL PERCENTILES OR PERCENT FULL
WESTERN	2	15th
CTRV	2	17th
CENTRAL	3	10th
NORTHEAST	4	2nd
SOUTHEAST	1	3rd
CAPE COD	1	ND

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

Drought Indices by Region

January 2025

Drought Index	Western	CT River Valley	Central	Northeast	Southeast	Cape	Islands
Precipitation (6-mos)	16	6	6	10	14	12	10
Streamflow	24	30	10	8	7	16	N/A
Groundwater	25	11	15	15	22	27	16
Lakes/ Impoundments	100%	22	1	4	29	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

<i>Declaration January</i>	<i>Level 1</i>	<i>Level 2</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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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. *ET not reported outside growing season

**KBDI not reported Dec-March outside fire danger season

mos=months

Drought Levels				
Level 0	Level 1	Level 2	Level 3	Level 4

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
February Recommendation	Level 2	Level 3	Level 3	Level 3	Level 2	Level 2	Level 2
January Declaration	Level 1	Level 2	Level 3	Level 3	Level 2	Level 2	Level 2

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Drought Levels				
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