

# WATER Issues and Priorities



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## We ARE seeing more of this....



**July 10, 2010 Storm – 4 inches in 1 hour**

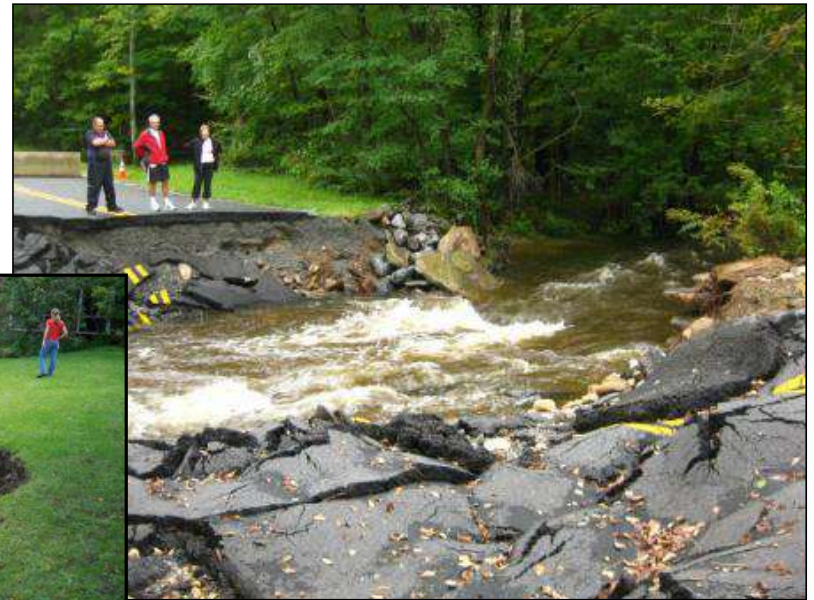
Source: John Bolduc, Environmental Planner, City of Cambridge



**March 31, 2010 - West Warwick**

Source: Northeast River Forecasting Center

**and this.....**





# And this.....Worcester in October 2016

....while we were in the middle of our worst drought since the 1960s!



**4 inches in  
one day**

**Level 4  
DROUGHT  
WARNING**

# High Intensity Rains resulting in Flooding!

Photo from J. Field

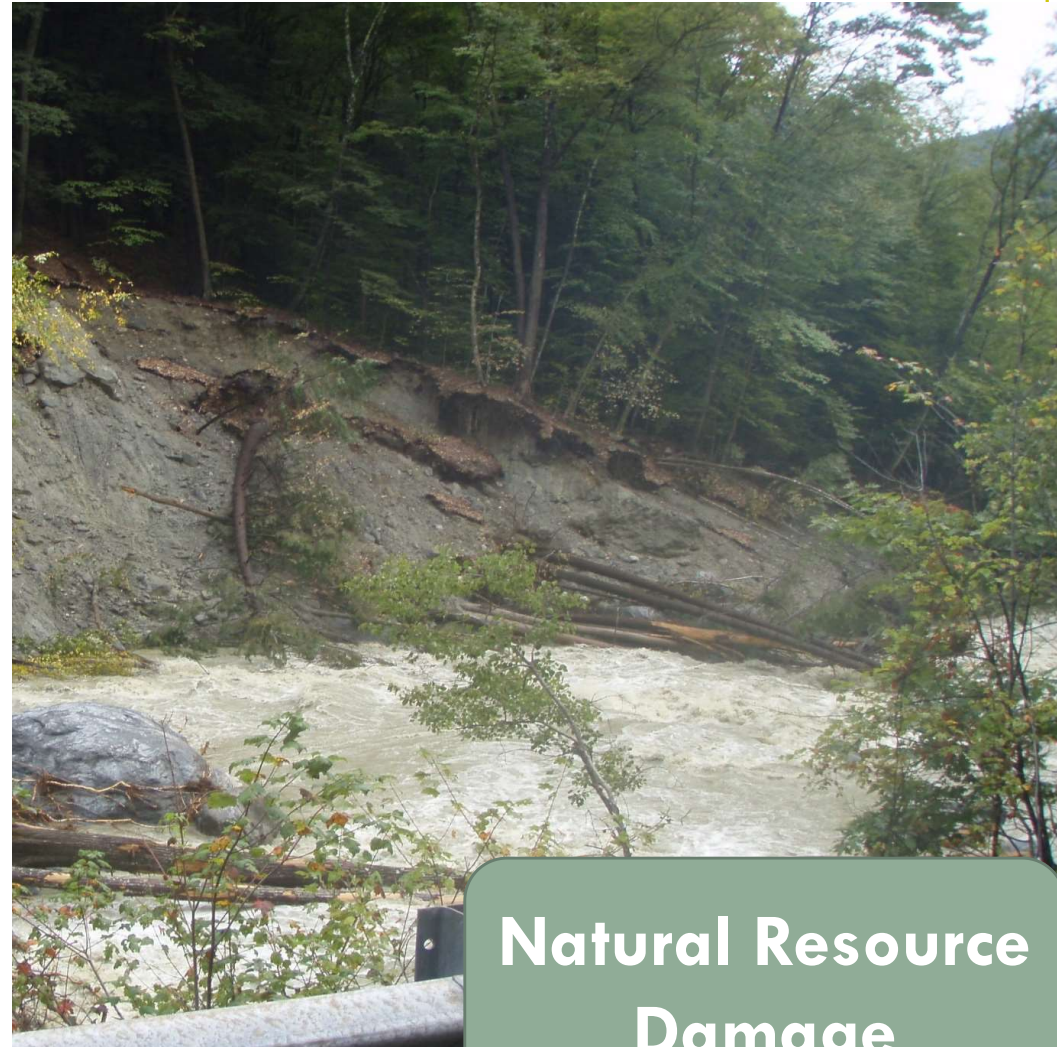


Source: Steve Mabee



# Infrastructure and Property Damage

Photos: J. Kopera, S. Mabee



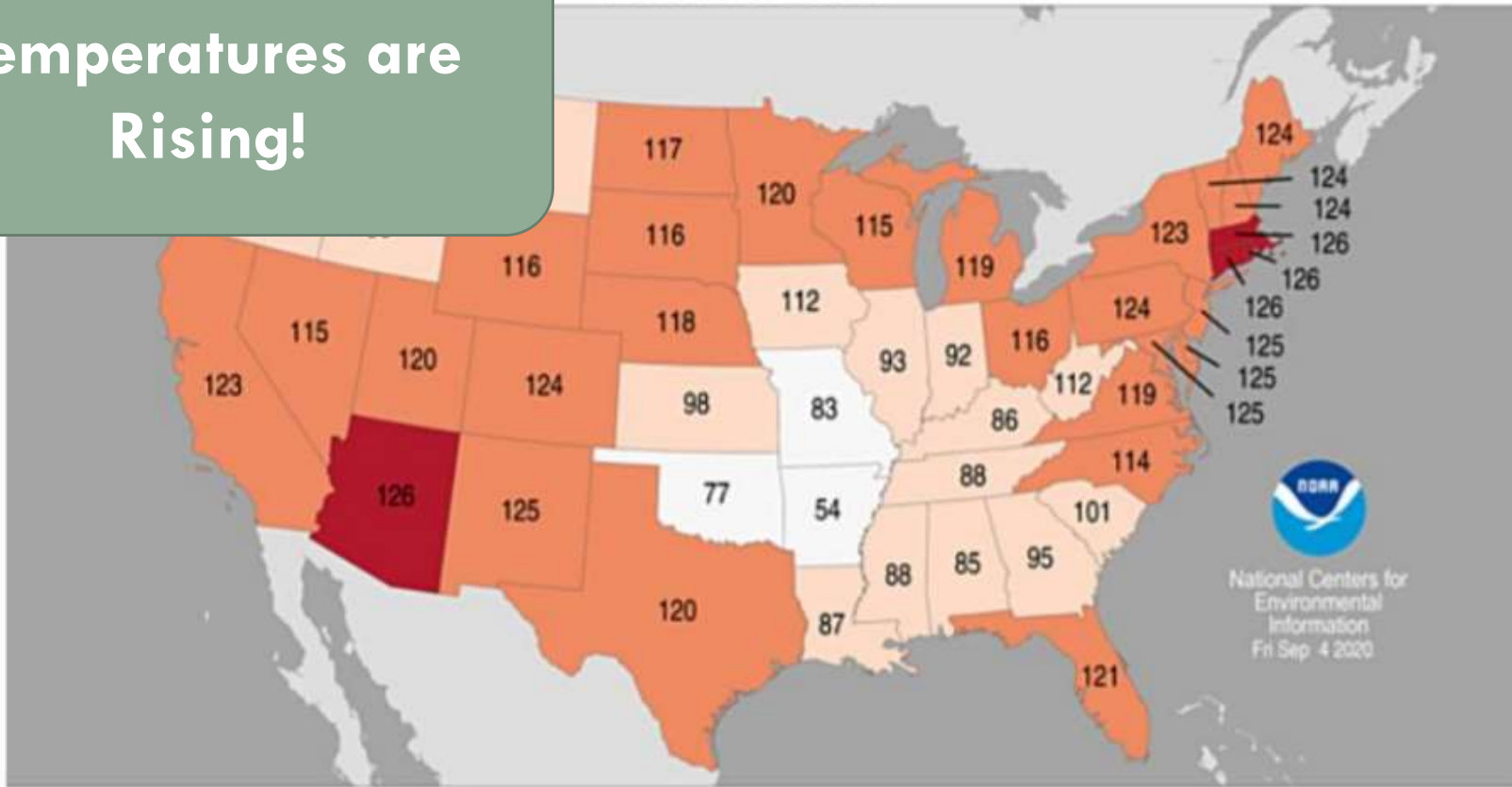
# Natural Resource Damage

# Statewide Average Temperature Ranks

June - August 2020

Period: 1895-2020

Temperatures are Rising!





# And over the last 20 years, more of this...





# Our most severe drought since the 1960s

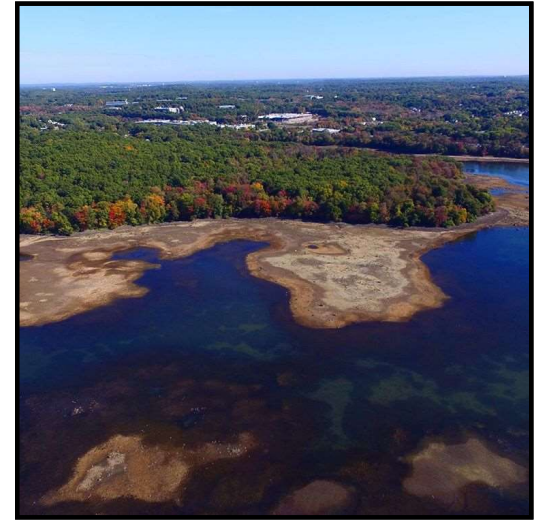
**Mattapoissett River  
September 2016**



**Quabbin Reservoir  
September 2016**



**Cambridge Reservoir  
Fall 2016**



**Martins Brook  
Fall 2016**

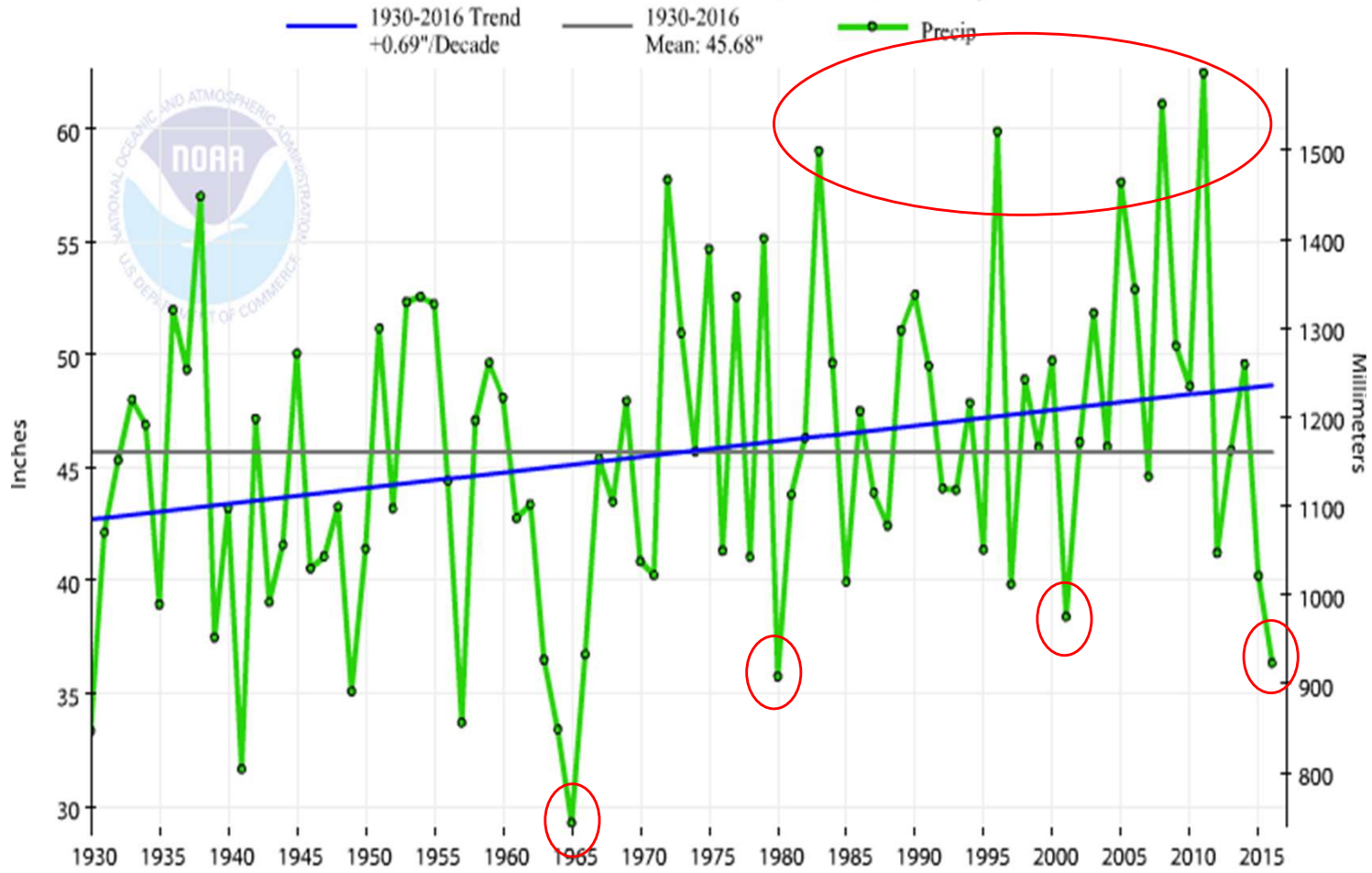


**Scituate Reservoir  
2016**



# Extremes!

## Massachusetts, Climate Division 2, Precipitation, January-December



CT Valley to Merrimack Valley

Source: <http://www.ncdc.noaa.gov/cag>



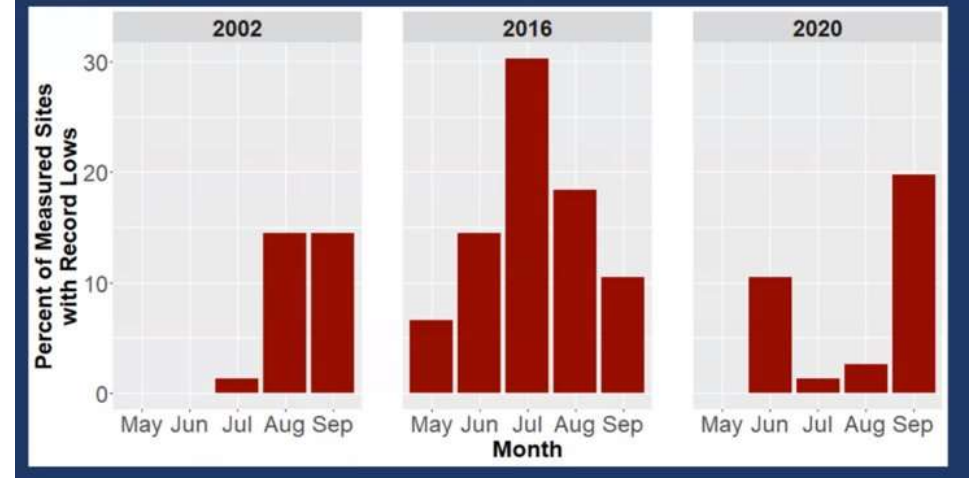
# Streamflow & Groundwater Record Lows

## 2016-2017 Drought

| Month          | # Gages with Period Of Record Lows | # Gages with SF between 2-10 Percentile |
|----------------|------------------------------------|---|
| September 2016 | 15                                 | 41                                      |
| October        | 2                                  | 23                                      |
| November       | 2                                  | 30                                      |
| December       | 1                                  | 9                                       |
| January 2017   | 0                                  | 0                                       |
| February       | 0                                  | 0                                       |
| March          | 1                                  | 10                                      |

| Month          | # Wells with Period Of Record Lows |
|----------------|------------------------------------|
| September 2016 | 14                                 |
| October        | 13                                 |
| November       | 8                                  |
| December       | 6                                  |
| January 2017   | 4                                  |
| February       | 3                                  |
| March          | 2                                  |

Record monthly 7-day lows over the last 30 years  
76 streamgages across New England



## Annual Precipitation

2016 – 37 inches; 2017 – 47 inches

Average per year: 48 inches

Rainfall during the drought of record (1960s) – low 30s

# Climate Equity

## Water Equity

*Climate change poses the greatest threat to those least responsible for it, including low-income and disadvantaged populations, women, racial minorities, marginalized ethnic groups and the elderly.*

- World Resources Institute



# Impacts to Individuals

- Heat wave during a drought
- Wells drying out from droughts
- Emerging Contaminants - PFAS in Water Supply and private wells
- Lead in Pipes (service line)
- Flood damages disproportionately affecting low income and Environmental Justice populations



# AT RISK POPULATION IN FLOOD AREAS

## Census Tract 2072

Census Tract 2072 is located in Lynn, MA. A significant portion of the tract is located in the FEMA 100-year floodplain. The population was 2,939 as of the 2010 Census.

### EDUCATION

23%

No High School Diploma



38%  
High School Graduate



23%  
Some College



16%  
College Degree

### Race and Ethnicity

The largest group: Hispanic Origin (Any Race) (57.26)

The smallest group: Pacific Islander Alone (0.00)

| Indicator                           | Value (%) | Difference |
|-------------------------------------|-----------|------------|
| White Alone                         | 29.46     | -45.90     |
| Black Alone                         | 16.22     | +11.15     |
| American Indian/Alaska Native Alone | 0.79      | +0.39      |
| Asian Alone                         | 11.98     | +8.14      |
| Pacific Islander Alone              | 0.00      | -0.05      |
| Other Race                          | 35.30     | +23.57     |
| Two or More Races                   | 6.25      | +2.70      |
| Hispanic Origin (Any Race)          | 57.26     | +33.70     |

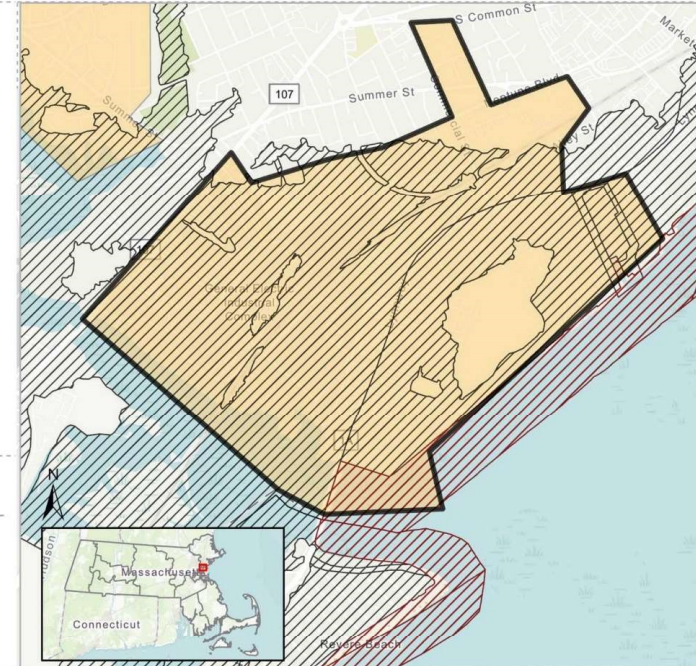
Bars show deviation from Essex County

### HOUSEHOLD OWNERSHIP



80%

2010 Renter Occupied Housing Units (U.S. Census)



### INCOME



\$32,652

Median Household Income



28%

2018 Households Below the Poverty Level (ACS 5-Yr)



36%

2018 Households Receiving Food Stamps/SNAP (ACS 5-Yr)

### AT RISK



35%

2018 Households with 1+ Persons with a Disability (ACS 5-Yr)



84%

Minority Population



12%

2018 Owner Households with No Vehicles (ACS 5-Yr)

| Population by Language Spoken at Home (ACS)    | Total | Percent |
|--|-------|---------|
| Pop 18-64 speak Asian-Pacific Isl & No English | 25    | 1.0%    |
| Pop 18-64 speak Indo-European & No English     | 12    | 0.5%    |
| Pop 18-64 speak Spanish & No English           | 63    | 2.5%    |
| Pop 18-64 speak Other Language & No English    | 0     | 0.0%    |
| Pop 65+ speak Asian-Pacific Isl & No English   | 4     | 0.2%    |
| Pop 65+ speak Indo-European & No English       | 0     | 0.0%    |
| Pop 65+ speak Spanish & No English             | 64    | 2.6%    |
| Pop 65+ speak Oth Language & No English        | 0     | 0.0%    |



# Environmental Justice in Massachusetts



- Executive Order 552 (2014)
- New EJ Director and staff at EEA
- Updated EEA Environmental Justice Policy (2021)
  - EJ point of contact in each agency on the EJ Task Force
  - EEA agencies develop their own strategies to proactive promote EJ
- Chapter 8 of the Acts of 2021: An Act Creating a Next-Generation Roadmap for MA Climate Policy “Climate Roadmap Act”
  - Included new EJ definitions such as: Environmental benefits, Environmental burdens, Environmental justice population, Neighborhood
  - Changes to MEPA:
    - requires meaningful public involvement
    - Requires an EIR for any project located within 1 mile of EJ population; for air quality impacting projects within 5 miles of EJ population
    - Agency cannot exempt an EIR filing for projects in EJ neighborhoods and likely to cause damage to environment
  - Creates statutory authority for an EJ Advisory Council

# Outreach

## TIPS FOR SAVING WATER

When in Drought or Not – Please Do Your Part!



INDOOR WATER USE

1. Choose high-efficiency plumbing products and appliances (look for the WaterSense or Energy Star labels).
2. Turn off water while brushing teeth or shaving: "Never Let the Water Run."
3. Take shorter showers (5 minutes or less) and use water-saving showerheads.
4. Wash only full loads of laundry and dishes.
5. Fix leaks! Dripping faucets and leaking toilets, pipes, and appliances can add up to hundreds of gallons of water lost per week.
6. Create a kitchen compost bin instead of using the garbage disposal.
7. Collect and reuse clean household water (water running while you wait for hot water to reach your faucet or shower; leftover water from cooking, etc.) and use this to water plants.



[www.mass.gov/conservemawater](http://www.mass.gov/conservemawater)

To check your drought region and status go to:  
[mass.gov/ma-drought-management](http://mass.gov/ma-drought-management)

Information for Private Well Owners

During a drought, wells and reservoirs can drop to low levels because there is less water to draw from the ground. Your water supply will be affected if the drought continues.

Any water conservation efforts you make can have a great benefit on your own water supply, and the community's water supply. If you follow town restrictions and conserve water appropriately, you will help your community to have enough water for fire protection the likelihood of fires increases as conditions get dry, public health and safety, and the environment. To help, you can:

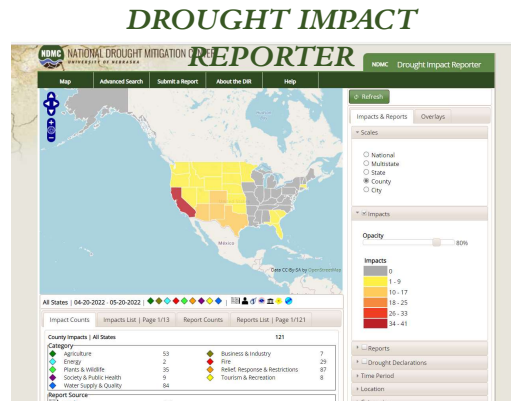
- Be mindful of the amount of water you use
- Follow the same water restrictions that your city or town is following

Remember, even if you have your own well, it almost always still comes from the same source as the public water supply, as long as you are in the same river basin. Water conservation measures are critical and should be started early. Reducing your water use can save water for the future!

You can get more information about your well from your local Board of Health.

**If your well goes dry - private citizen**

- First contact your town office, your local Board of Health and emergency management official to report your dry well and to determine if there are any local resources available to help.



## TIPS FOR SAVING WATER

When in Drought or Not – Please Do Your Part!



OUTDOOR WATER USE

1. **LIMIT LAWN WATERING, ESPECIALLY DURING A DROUGHT!**  
Lawns naturally go dormant during dry conditions. They'll revive when conditions improve.
  - If you are in a region at Drought Level 3, **Critical Drought** (Severe Drought Conditions) or Drought Level 4, **Emergency Drought**: Do not water your lawn.
  - If you are in a region at Drought Level 2, **Significant Drought** (Moderate to Severe Drought): Limit watering to hand-held only or drip irrigation. Water after 5PM or before 9AM to avoid evaporative losses.
  - If you are in a region at Drought Level 1, **Mild Drought** (Abnormally Dry Conditions): Limit watering to 1 day per week at most. Water after 5PM or before 9AM.
2. **MINIMIZE LANDSCAPE WATER NEEDS THROUGH WATER-SMART LANDSCAPING PRINCIPLES<sup>2</sup>**
  - Maintain healthy soils (a minimum of 6-inches in depth, where possible).
  - Choose native plants or plants and turf that need less water.
  - Use mulch to reduce evaporation and moderate soil temperature.
  - Leave grass clippings on lawn to shade and return nutrients to soil.
3. **MINIMIZE YOUR USE OF WATER OUTDOORS**
  - Sweep driveways, walks, patios, and other outdoor areas with a broom rather than hosing them off.
  - Wash vehicles using a bucket and sponge, employing a hose with a shut-off nozzle for rinse only, or, if available, use a commercial car wash that recycles water (most do).
  - Cover swimming pools when not in use to prevent evaporation.

1. Certain water uses are not subject to mandatory restrictions, such as water used for health or safety reasons; for the production of food and fiber; for the maintenance of livestock; to meet the core functions of a business (for example, irrigation by plant nurseries as necessary to maintain stock).  
2. Adapted from Water-Smart Landscapes Start with WaterSense (EPA WaterSense)

To check your drought region and status go to:  
[mass.gov/ma-drought-management](http://mass.gov/ma-drought-management)

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### MASSDEP PRIVATE WELLS PFAS SAMPLING PROGRAM

QUESTIONS AND ANSWERS REGARDING THE MANAGEMENT OF PFAS<sup>6</sup> IN YOUR GROUNDWATER UNDER THE MASSACHUSETTS OIL AND HAZARDOUS MATERIAL RELEASE PREVENTION AND RESPONSE ACT

The purpose of this document is to provide owners of private wells who are considering participating in the MassDEP Private Wells PFAS Sampling Program with basic information about dealing with the presence of PFAS in their well<sup>7</sup>. In Massachusetts, the notification, assessment and cleanup of environmental contamination is directed through the MassDEP Waste Site Cleanup Program. The applicable laws, regulations and guidance that support the program are available online, including an overview of the program at <https://www.mass.gov/guides/the-waste-site-cleanup-program>. Owners of private wells who seek additional information may wish to consult an attorney and/or a Licensed Site Professional (LSP) licensed by the



# Assistance to Communities



## MUNICIPAL VULNERABILITY PREPAREDNESS PROGRAM

**MVP**

Municipal Vulnerability Preparedness

- Planning Grants for Climate Resilience Planning – 335 community Climate Resilience Plans
- Implementation Grants for resilience projects

### 2021 Projects Receiving ARPA Grant Funds

| Project Type                       | # of Projects | Project Costs             |                       |                | Eligible Subsidy | ARPA Funds Committed |
|------------------------------------|---------------|---------------------------|-----------------------|----------------|------------------|----------------------|
|                                    |               | Disadvantaged Communities | All Other Communities | Total          |                  |                      |
| <b>Drinking Water SRF Projects</b> |               |                           |                       |                |                  |                      |
| PFAS Projects <sup>(1)</sup>       | 10            | \$46.9                    | \$59.4                | \$106.3        | 20.0%            | \$21.3               |
| Small Systems                      | 2             | 16.8                      | ---                   | 16.8           | 15.0%            | 2.5                  |
| All Other DW Projects              | 8             | 25.5                      | 9.5                   | 35.0           | 10.0%            | 3.5                  |
| <b>Total DWSRF Projects</b>        | <b>20</b>     | <b>89.2</b>               | <b>---</b>            | <b>158.1</b>   |                  | <b>27.3</b>          |
| <b>Clean Water SRF Projects</b>    |               |                           |                       |                |                  |                      |
| CSO Projects                       | 1             | ---                       | 23.0                  | 23.0           | 15.0%            | 3.5                  |
| All Other CW Projects              | 31            | 446.2                     | 34.4                  | 480.6          | 7.5%             | 36.0                 |
| <b>Total CWSRF Projects</b>        | <b>32</b>     | <b>446.2</b>              | <b>57.4</b>           | <b>503.6</b>   |                  | <b>39.5</b>          |
| <b>Combined Totals</b>             | <b>52</b>     | <b>\$535.4</b>            | <b>\$126.3</b>        | <b>\$661.7</b> |                  | <b>\$66.8</b>        |

<sup>(1)</sup> Projects to remediate Per- and polyfluoroalkyl substances (PFAS). This ARPA subsidy will be paired with the Trust's 0% interest rate PFAS program.

Source: MassDEP

## LEAD ABATEMENT

- Lead in School Drinking Water - \$ and Technical Assistance
- Through SRF: Lead Service Line Replacement Grant (49% loan forgiveness).
- BIL: expect \$65m in 2022



## PFAS

- PFAS Treatment Grant
- \$1M in testing and support for private well testing
- Supplemental Budget & Interim PFAS6 Response Program: \$10.4m
- Through SRF: \$180m prior years & more than \$100 recommended
- ARPA I: \$21.3m to PFAS remediation
- BIL: expect \$17.5m in 2022

ARPA: American Rescue Plan Act of 2021  
BIL: Bipartisan Infrastructure Law

# Thank you!

**VANDANA RAO**

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**Website: [www.mass.gov/eea](http://www.mass.gov/eea)  
[www.mass.gov/conservemawater](http://www.mass.gov/conservemawater)  
[www.mass.gov/drought-management](http://www.mass.gov/drought-management)**

