



Let's Talk About PFAS

Monthly Webinar Series

February 3, 2021

Local and National Perspectives on PFAS in Drinking Water

Welcoming remarks

Cheryl Osimo, Mass. Breast Cancer Coalition
Mark Ells, Barnstable Town Manager

Presentations

Laurel Schaider, Silent Spring Institute
Alyson McCann, University of Rhode Island
Hans Keijser, Hyannis Water System

Q&A

Moderated by Cheryl Osimo



Sources, Transport, Exposure & Effects of PFASs
UNIVERSITY OF RHODE ISLAND SUPERFUND RESEARCH PROGRAM

PFAS in public drinking water supplies: A local and national perspective

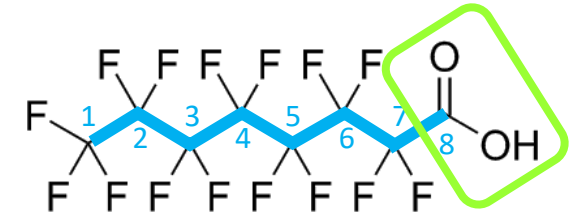
The background of the slide is a collage of three images. On the left is a coastal town with colorful houses and a steep, rocky hillside. On the right is a white lighthouse on a small island next to a blue body of water. At the bottom is a green field with a fence and some trees.

**Laurel Schaidler, PhD
Silent Spring Institute
February 3, 2021**

What are PFAS?

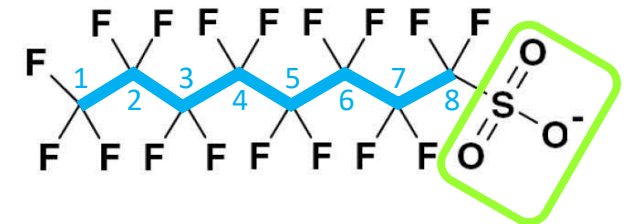
- Per- and polyfluoroalkyl substances
- Class of over 9,000 compounds
- Extremely resistant to degradation
- Mobile in environment
- Used in consumer products since 1950s
- Emerged as common drinking water pollutants around 2010-2015

PFOA ("C8")



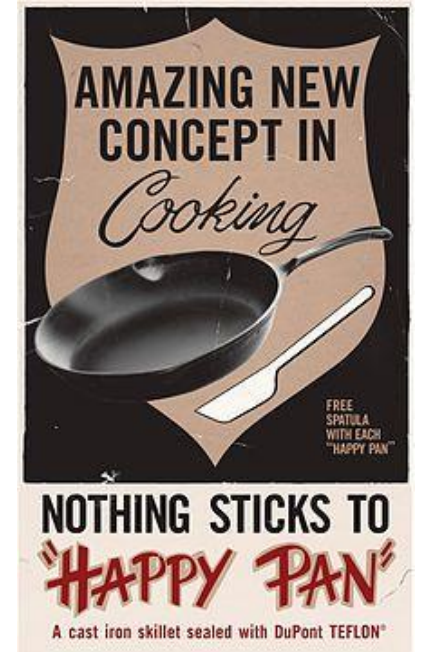
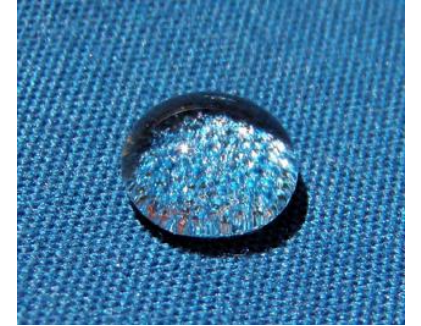
8 carbon chain

PFOS

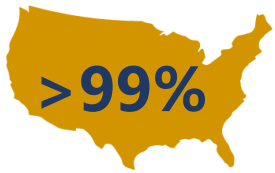


PFAS are common in everyday items

- Carpets & upholstery
- Waterproof apparel
- Waxes (floor, skis)
- Non-stick cookware
- Grease-proof food packaging
- Dental floss
- Cosmetics
- Paints

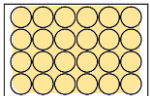


Exposure and health concerns



PFAS exposures are common

- PFAS have been detected in over 99% of Americans

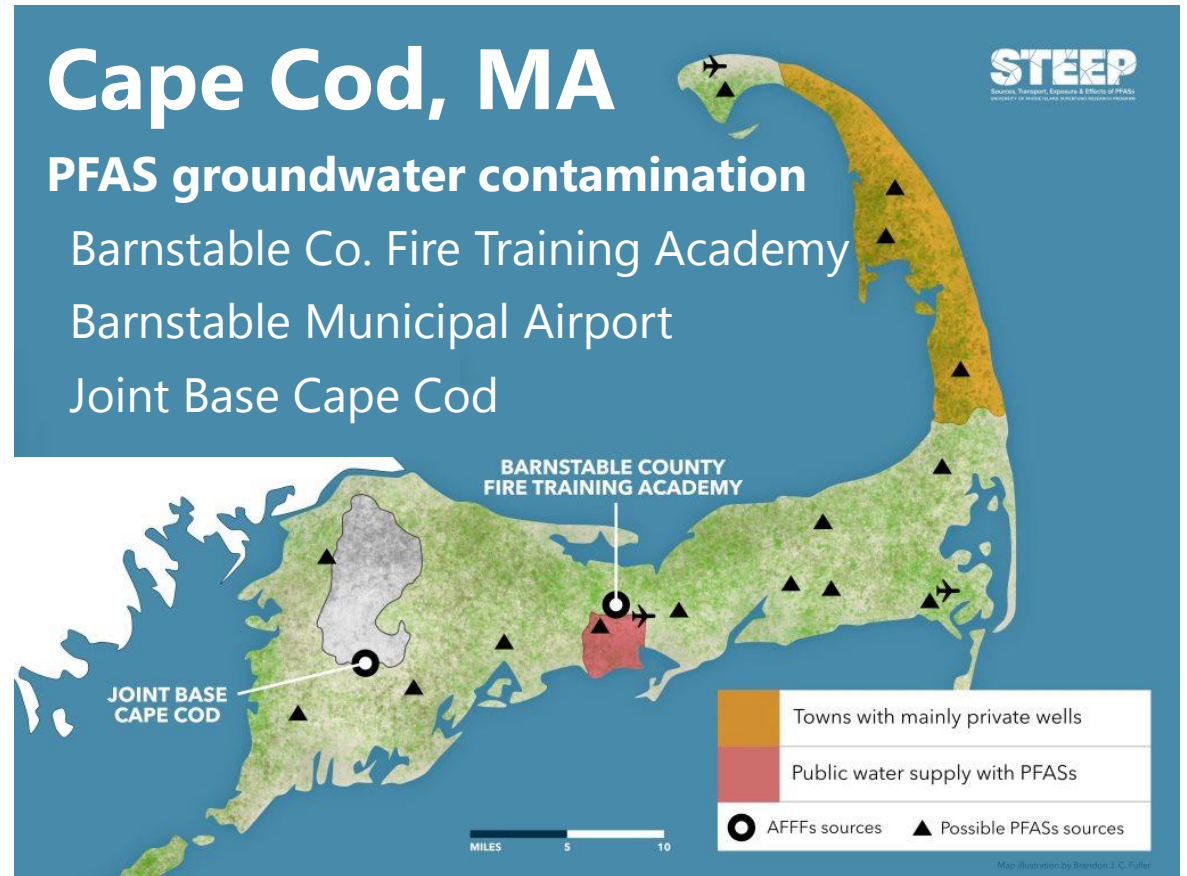


Harmful health effects linked to PFAS exposures

- Cancer (kidney, testicular)
- Thyroid disruption
- Elevated cholesterol
- Decreased birth weight
- Developmental effects
- Changes in liver enzymes
- Ulcerative colitis
- Preeclampsia
- Immunotoxicity, including decreased vaccine response

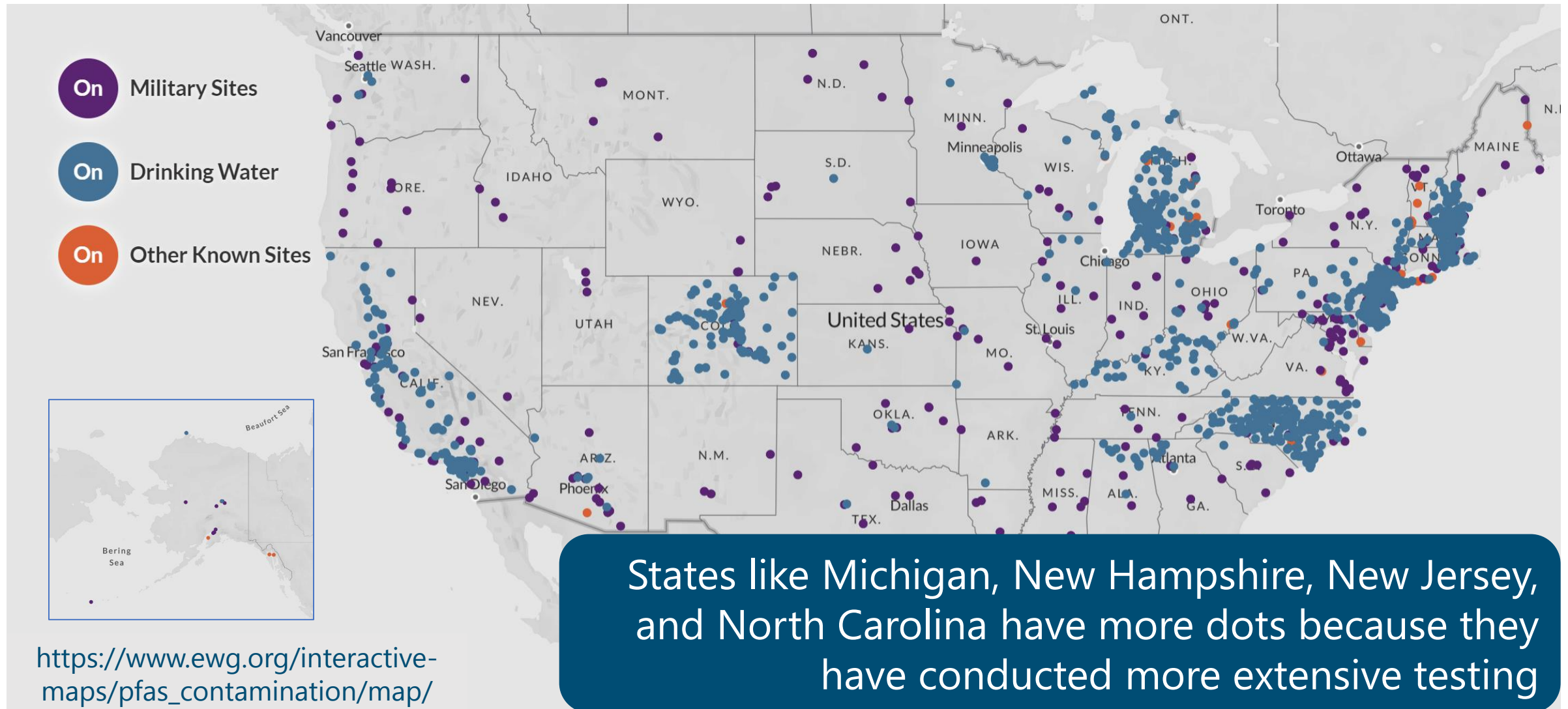
Sources of PFAS water contamination

- AFFF firefighting foam
- PFAS chemical production and other industries
- Landfills
- Sewage treatment plants
- Septic systems
- Land-applied sludge



EWG: 2,230 contaminated sites in 49 U.S. states

Over 200 million Americans with PFAS in drinking water



https://www.ewg.org/interactive-maps/pfas_contamination/map/

States like Michigan, New Hampshire, New Jersey, and North Carolina have more dots because they have conducted more extensive testing

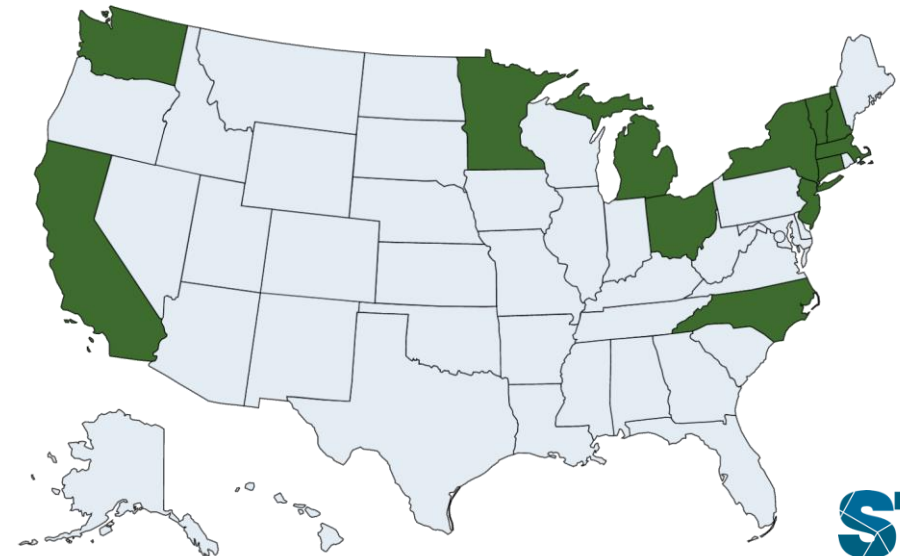
Drinking water regulations

There are no federal drinking water standards

- In 2016, EPA established a non-enforceable Lifetime Health Advisory for PFOS and PFOA of **70 parts per trillion** (ppt) or nanograms per liter (ng/L)

12 states have stricter regulations

- Some are enforceable standards
- Beyond PFOS and PFOA
- Many in the range of 10 to 20 ppt, individually or in combinations
- Stricter monitoring requirements



Massachusetts MCL – October 2020

Maximum Contaminant Level

Among the strictest standards in the U.S.

- 20 parts per trillion for sum of 6 PFAS: PFHpA, PFOA, PFNA, PFDA, PFHxS, PFOS

Monitoring requirements for public water supplies

- Phased in by system size, beginning 1/1/21 for systems with 50,000+ people
- Quarterly monitoring in Year 1
- Detections over 10 ppt trigger more frequent testing

Includes financial support for public water supplies

- Funding for testing and designing treatment systems

Review of new science every 3 years

2010 Silent Spring results on Cape Cod

20 public wells in 9 districts tested for PFOS and PFOA

PFOS detected above 1 ppt in 8 of 20 wells

- Up to 97 ppt (Hyannis)

PFOA detected above 10 ppt in 2 of 20 wells

- Up to 22 ppt (Hyannis)

Water Department	Results for 20 wells		
Barnstable FD	●	●	
Brewster	●	●	
Buzzards Bay	●	●	
Chatham	●	●	
C-O-MM	●	●	●
Cotuit	●	●	
Dennis	●	●	
Falmouth	●	●	
Hyannis	●	●	●

● Not detected
 ● Detected, below 20 ppt
 ● Detected, at or above 20 ppt

UCMR3 testing on Cape Cod (2013–2015)

Testing mandated by EPA

- All large U.S. water supplies (over 10,000 customers) and limited number of small water supplies
- Out of 170 Mass. water supplies tested, 5 had PFAS detections

15 Cape supplies included

- 2 had PFAS detections

Limitations

- High detection limits

PFAS detected in:

Hyannis:
up to 430 ppt PFOS

Mashpee:
up to 33 ppt PFHxS

PFAS not detected in:

Bourne
Brewster
Chatham
C-O-MM
Dennis
Falmouth

Harwich
Orleans
Provincetown
N. Sagamore
Sandwich
Yarmouth

No testing in:

Barnstable FD
Buzzards Bay

Cotuit

Responses by Cape water supplies

Water systems with PFAS detections in UCMR3

Hyannis

- Multiple activated carbon treatment systems
- Purchasing agreements with other supplies
- Evaluating sites for new wells

Mashpee

- Activated carbon treatment on Mashpee Village Well funded by Air Force
- Turner Road Well offline



Hyannis Water System

Other testing on Cape Cod (2016–2020)

- Most Cape water supplies have conducted PFAS testing after UCMR3 testing
- More testing will be required according to new standard
- Tap water in homes is a mix of water from multiple wells

PFAS detected in (sum of 6):

Barnstable FD (up to 31 ppt, 10/2020)

C-O-MM (up to 18 ppt)

Cotuit (up to 5.9 ppt, 9/2020)

Falmouth (up to 58 ppt, 5/2019)

PFAS not detected in:

Bourne (12/2018)

North Sagamore (2/2020)

Buzzards Bay (9/2020)

Orleans (12/2020)

Dennis (9/2020)

Sandwich (12/2019)

Harwich (9/2019)

Upper Cape (11/2020)

No results for:

Brewster

Provincetown

Chatham

Yarmouth

Eastham

Data from Mass. EEA data portal and J. Hobill, MassDEP

How do I know if my water has PFAS?

Call your water supply

- Ask for results of recent PFAS testing

Consult your water supply's Consumer Confidence Report

- Available from your water supplier or online

Search the Mass. EEA data portal

- <https://eeaonline.eea.state.ma.us/portal#!/search/drinking-water>

Search EWG's Tap Water Database

- <https://www.ewg.org/tapwater/>

ASK • LEARN • ACT

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Resources:

URI STEEP: web.uri.edu/stEEP

Silent Spring Institute: www.silentspring.org

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SCHOOL OF PUBLIC HEALTH
Department of Environmental Health



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More information about STEPP is available at: <https://web.uri.edu/stEEP/>

