



Update on Silent Spring Institute PFAS research on Cape Cod



SILENT SPRING INSTITUTE
Researching the Environment and Women's Health

Laurel Schaider, PhD
Senior Scientist
Silent Spring Institute

Barnstable Town Council | April 3, 2025

We are an independent, non-profit research organization dedicated to identifying the links between everyday chemicals and health, with a focus on women's health and breast cancer.

History

Founded by Massachusetts Breast Cancer Coalition in 1994.

Now a leading scientific research organization on environmental causes of breast cancer.



"A lab of our own"

Silent Spring Institute researchers have been studying endocrine disrupting compounds and other unregulated water contaminants on Cape Cod since the 1990s.



Septic systems



Ponds & estuaries



Groundwater



Drinking water

PFAS in Hyannis drinking water

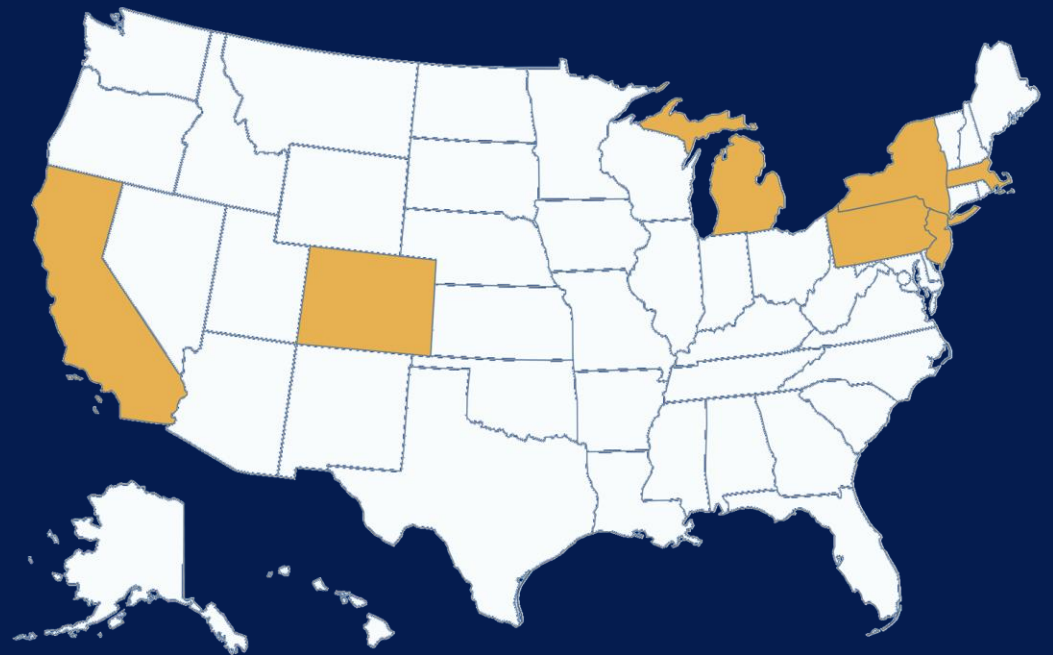


- 2010: Silent Spring first discovered PFAS in Hyannis water
- In 2013-2015, Hyannis had higher PFAS than any other water supply in MA
- Main sources: AFFF firefighting foams at Barnstable Co. Fire Training Academy and Barnstable Municipal Airport
- In 2016, Hyannis started filtering water to remove PFAS
- All Hyannis water is now filtered for PFAS

CDC PFAS Multi-site Health Study

- Funded by **CDC** and Agency for Toxic Substances and Disease Registry (**ATSDR**)
- Goal: improve understanding of PFAS-related health effects
- Target study population size: 7,000 adults and 2,100 children

**Includes communities in 7 states:
CA, CO, MA, MI, NJ, NY, PA**





Massachusetts PFAS & Your Health Study in Hyannis and Ayer



Research partners

Silent Spring Institute (lead)
Harvard School of Public Health
Eastern Research Group

Local partners

Mass. Breast Cancer Coalition
People of Ayer Concerned about
the Environment (PACE)



MA PFAS & Your Health Study milestones

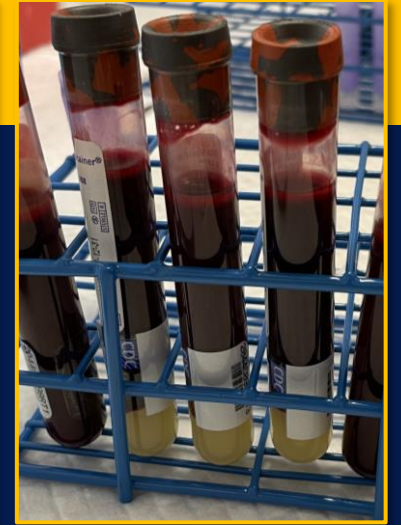
- Sept. 2019:** Silent Spring awarded grant from CDC/ATSDR
- Sept. 2021:** CDC/ATSDR receives approval for study protocols
- Nov. 2021:** Launch of enrollment in Hyannis
- Sept. 2023:** End of data collection across all sites
- Jan. 2024:** All report-back letters sent to participants
- June 2024:** Community meetings with initial PFAS results





Massachusetts PFAS & Your Health Study in Hyannis and Ayer

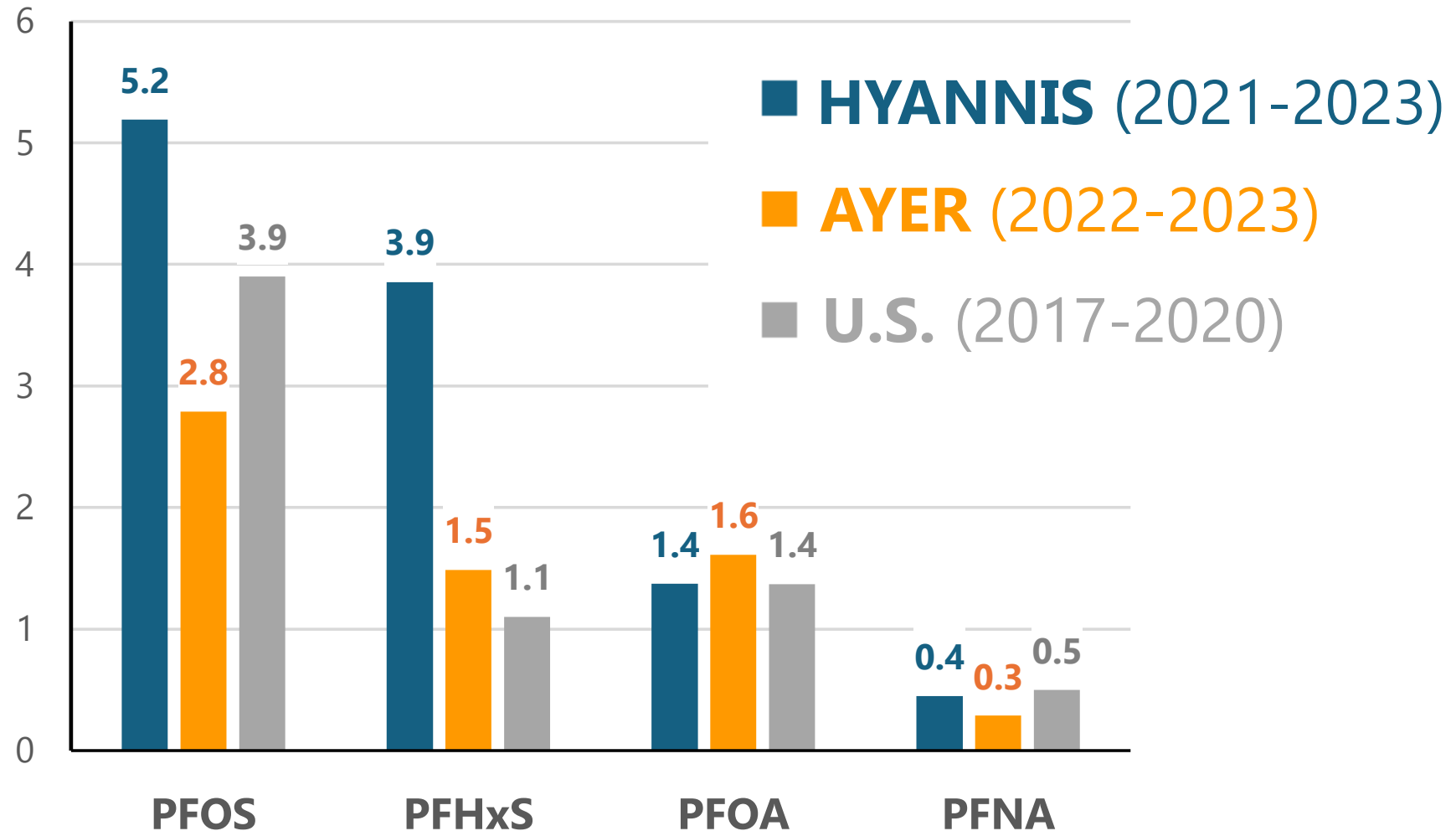
- **Hyannis enrollment:**
385 adults and 41 children (4-17)
- **Study components:**
 1. Blood draw and clinical visit
 2. Questionnaire
 3. Neurobehavioral tests (children only)
- **Blood samples tested for PFAS and clinical lab tests**



Median levels of 4 PFAS in blood (Hyannis adults) compared to Ayer and the general population

MEDIAN
concentration
micrograms per liter
($\mu\text{g/L}$)

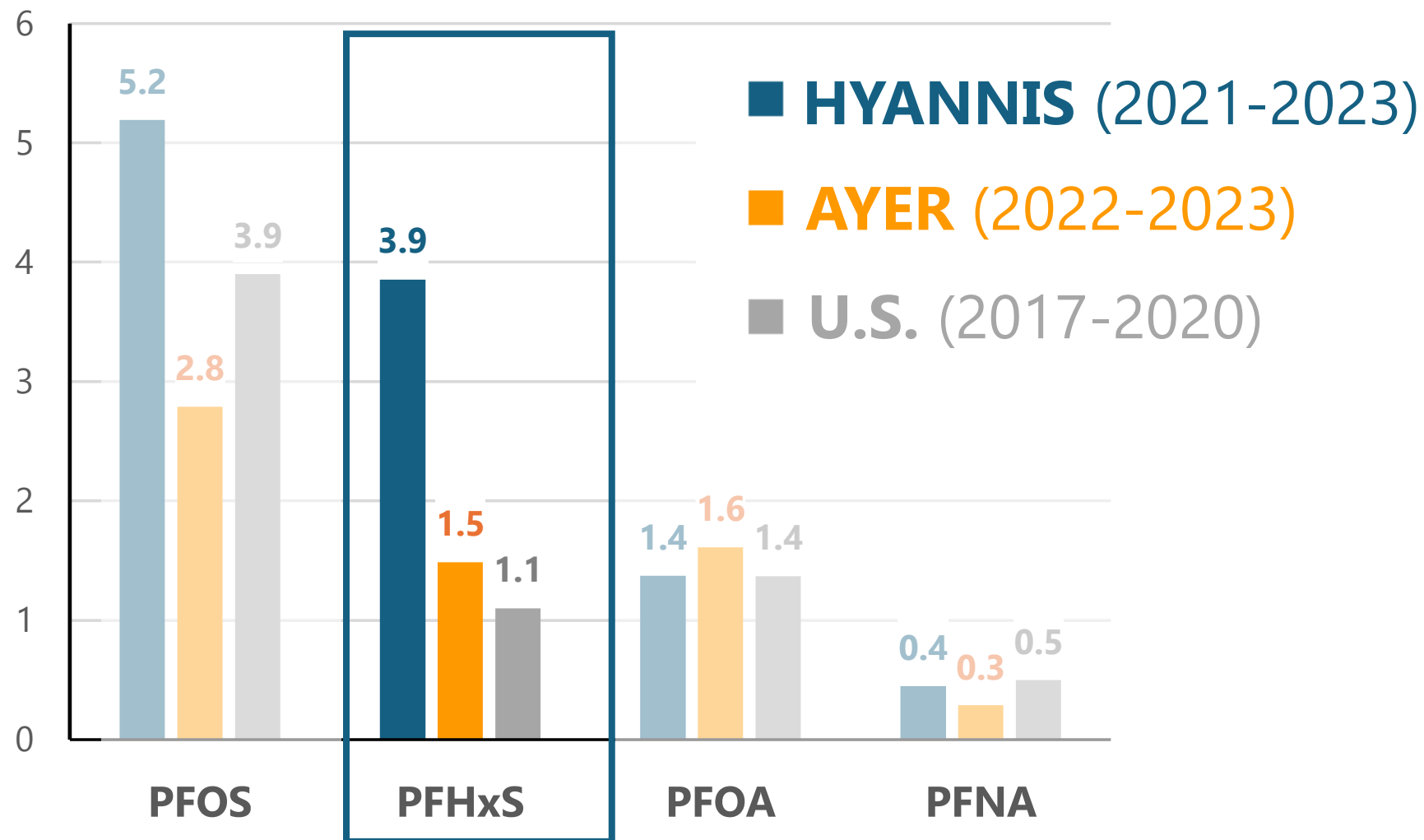
Note: Hyannis and Ayer medians are adjusted to the age distribution of NHANES



Hyannis median for PFHxS was 3.5 times higher than the general population

MEDIAN
concentration
micrograms per liter
($\mu\text{g}/\text{L}$)

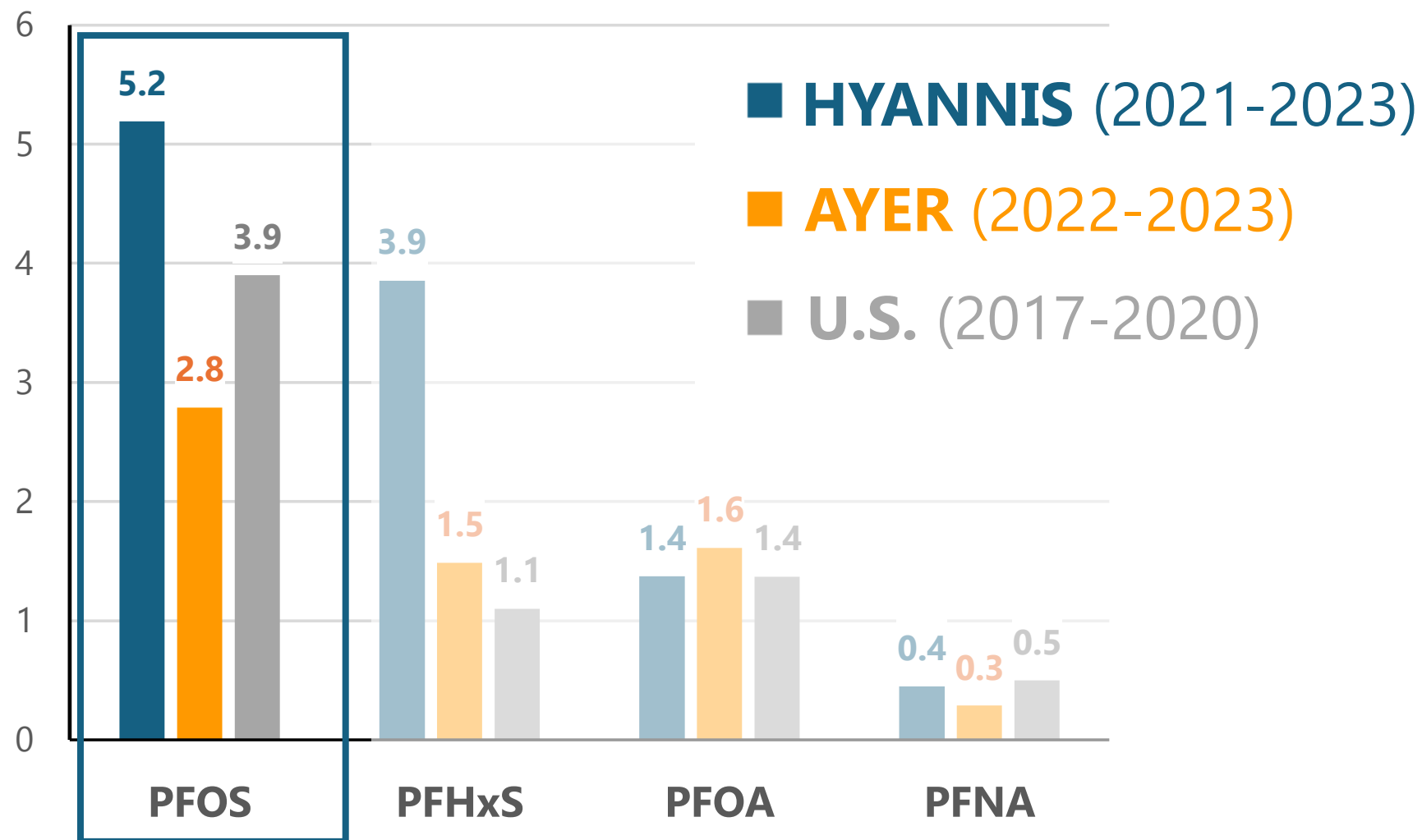
Note: Hyannis and Ayer medians are adjusted to the age distribution of NHANES



Hyannis median for PFOS was 33% higher than the general population

MEDIAN
concentration
micrograms per liter
($\mu\text{g/L}$)

Note: Hyannis and Ayer medians are adjusted to the age distribution of NHANES



For more information about our findings

Scan this code or visit

<https://silentspring.org/event/ma-pfas-your-health-study-community-meeting-i>

- Videorecording of community meeting on 6/3/2024
- Slides of presentation

COMMUNITY MEETING!

Massachusetts **PFAS & Your Health Study: Hyannis**

MONDAY, JUNE 3, 2024
BARNSTABLE TOWN HALL

12:00 PM &
5:00 PM



What's next for the study?

- Groundwater modeling to reconstruct PFAS in Hyannis water and estimate historical blood levels among our participants back to 2000
- Data analysis underway
 - Cross-site paper close to being published comparing blood levels across sites
 - Effects of PFAS on blood pressure/hypertension and metabolic syndrome (led by MA site, using data from all sites)
 - Relationships between residential history, water-related behaviors, and PFAS blood levels (led by MA site, data from Hyannis and Ayer)
 - MA data informing data analysis led by other sites on diabetes, high lipids, cardiovascular disease, neurobehavioral test results, and thyroid function



Learn more! PFAS Exchange

- Fact sheets
- Community map
- Data interpretation tool
- Resources for clinicians

www.pfas-exchange.org

How to Reduce Your Exposure to PFAS

PFAS-REACH
PFAS Research, Education, and Action for Community Health

PFAS (per- and polyfluoroalkyl) substances are a class of chemicals that companies add to consumer products to make them nonstick, waterproof, and stain-resistant. They are found in carpets and upholstery, waterproof apparel, non-stick cookware, grease-proof food packaging, and even dental floss. They are also used in firefighting foams for putting out fuel fires.

Unfortunately, studies have linked these chemicals with a range of health problems including the disease, cancer, high cholesterol, obesity, an effects on the immune system. Luckily, there are simple steps you can take to reduce your exposure to PFAS and create a healthier environment for you and your loved ones.

In your personal life:

- ✓ Avoid stain-resistant carpets and upholstery, as well as stain-resistant treatments and waterproofing sprays.
- ✓ Avoid products with the ingredient PTFE or other "fluoro" ingredients listed on the label.
- ✓ Choose steel.
- ✓ Filter carbons.
- ✓ Eat non-contaminated.
- ✓ Avoid wraps.
- ✓ Look for uncoated.

In your community:

- ✓ Tell retailers and manufacturers you want products made without PFAS.
- ✓ Urge your local water utility to test for PFAS.
- ✓ Ask your state legislators to set up a statewide water and blood testing program.

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PFAS: A Word About Drinking Water Guidelines

PFAS-REACH
PFAS Research, Education, and Action for Community Health

Are PFAS regulated in drinking water?

PFAS (per- and polyfluoroalkyl) substances are currently not regulated under the Safe Drinking Water Act. This means there are no federal drinking water standards and public water supplies do not have to test or treat their water for PFAS under federal law. The U.S. Environmental Protection Agency (EPA) has set a non-enforceable health-based guideline level of 100 parts per trillion (ppt) for PFOA and PFOS.

Why do guidelines vary?

Guideline levels are created when regulators, after reviewing the science, calculate a level of exposure below which health effects are not expected to occur. Regulators consider different types of evidence and factors when developing guideline levels:

- Studies linking exposure to PFAS with various health effects (for instance, effects on the immune system, liver, or mammary gland development).
- The impact on vulnerable populations such as infants or pregnant women.
- How much water people drink in a day.
- How much exposure likely comes from drinking water versus diet and consumer products.
- Molecular studies that show what happens to PFAS after the chemicals enter the body.

Although some variation is expected among the

How Can PFAS Affect Your Health?

PFAS-REACH
PFAS Research, Education, and Action for Community Health

PFAS (per- and polyfluoroalkyl) substances are among the most ubiquitous synthetic chemicals in the world. Approximately 98 percent of Americans have PFAS in their bodies. People can be exposed to these chemicals in many different ways—through the water they drink, the products they use, the air they breathe, and the food they eat. During pregnancy, PFAS can pass from the mother to the fetus through the umbilical cord, and babies can be exposed through breast milk or formula made with contaminated water.

Although the science on health effects is still evolving, scientists are increasingly concerned about low-dose exposures, as they continue to find health effects at lower and lower levels. More research is needed on other PFAS chemicals, in particular ones that companies have developed to replace PFOA and PFOS. Because people are exposed to multiple PFAS from multiple sources, researchers are beginning to investigate the effects of mixtures of PFAS on human health.

Scientific studies have linked exposure to PFAS with:

Human studies

- High cholesterol
- Ulcerative colitis
- Cancer
- Liver
- Thyroid
- Diabetes
- Asthma
- Depression
- Liver

Animal studies

- Cancer
- Liver
- Diabetes
- Depression
- Immune system
- Cholesterol
- Liver

Learn more: www.pfas-exchange.org

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TOOL

Learn about the Hazard Index
EPA's tool for regulating PFAS in drinking water

PFNA PFHxS PFBS GenX

URI STEEP's website has resources for a variety of audiences on PFAS, their health effects, and tips to minimize exposures



web.uri.edu/stEEP/resources



UPCOMING WEBINAR!



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

PFAS on Cape Cod –
Connecting Communities
with Science for Solutions:

Addressing
Contamination in
Water and Fish

Featuring...



Heidi
Pickard,
Ramboll



Mark Ells,
Town of
Barnstable, MA



Laurel
Schaider,
STEER &
Silent Spring

Webinar Series #2:

17 April
2025

[More Info](#)

[https://web.uri.edu/
stEEP/cape_webinar/](https://web.uri.edu/stEEP/cape_webinar/)



Noon – 1:00P.M.



Next steps and challenges ahead

- **Future research and community engagement**
 - Yard soils and homegrown produce
 - Additional fish and shellfish testing
 - Outreach to clinicians
 - High school classroom visits
- **Upcoming challenges**
 - Possible rollbacks of EPA drinking water standards and other regulations
 - We rely heavily on federal research grants, which are now in jeopardy
 - Uncertainties in CDC/ATSDR staff support for Multi-Site Study
- **Discussion questions**
 - How can we work together?
 - How can Silent Spring address the concerns of Barnstable residents?

Thank you!

Laurel Schaider, PhD
Senior Scientist
Silent Spring Institute
schaider@silentspring.org

www.silentspring.org

