Update on Silent Spring Institute MA PFAS & Your Health Study

SILENT SPRING INSTITUTE
Researching the Environment and Women's Health

Laurel Schaider, PhD
Senior Scientist
Silent Spring Institute

Barnstable Town Council | April 30, 2026

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

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"

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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

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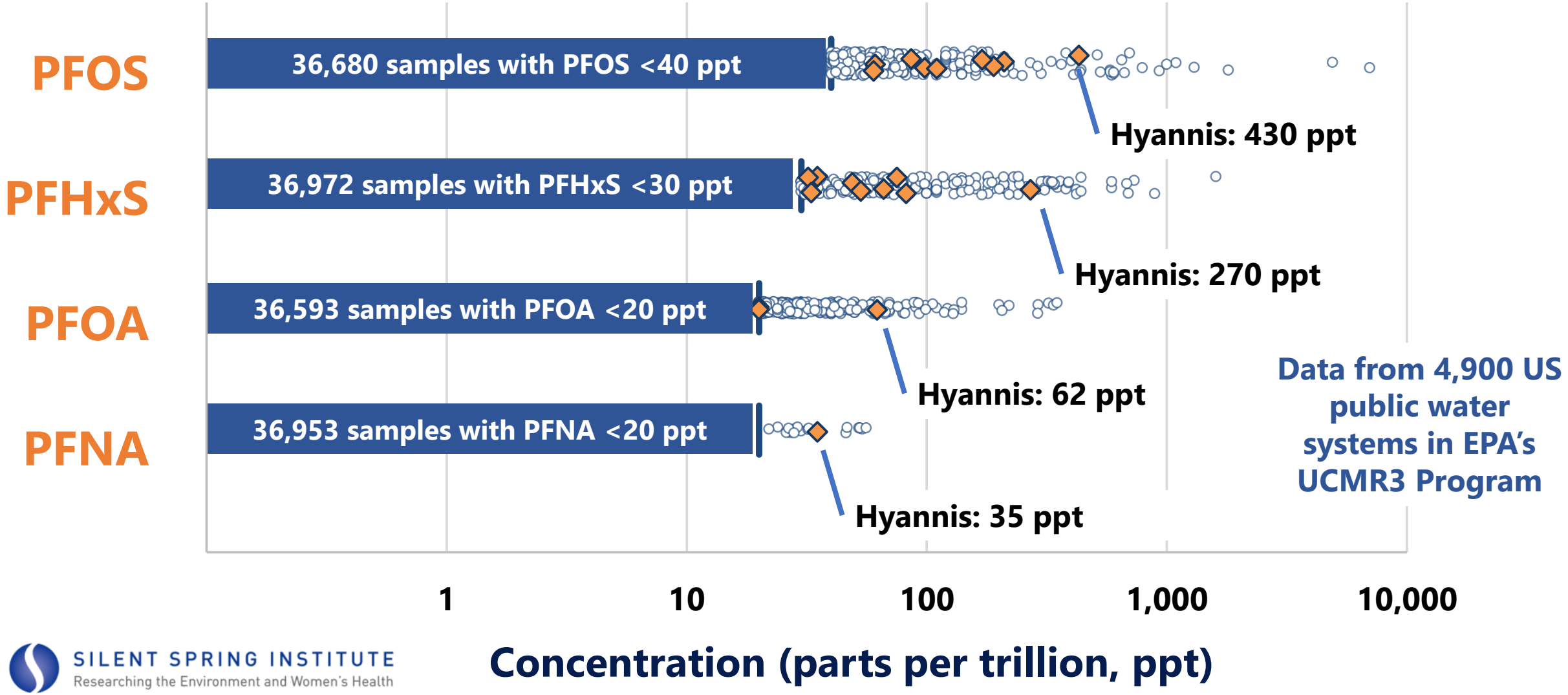
PFAS in Hyannis drinking water


Firefighters attack an oil tanker fire at the academy in September 1964.

- 2010: Silent Spring first discovered PFAS in Hyannis water
- In 2013-2015, Hyannis had higher PFAS than any other water supply in MA
- In 2016, Hyannis started filtering water to remove PFAS
- All Hyannis water is now filtered to remove PFAS

2013-2015: Some samples from Hyannis (and 1 from Mashpee) were in top 1% of samples in the US



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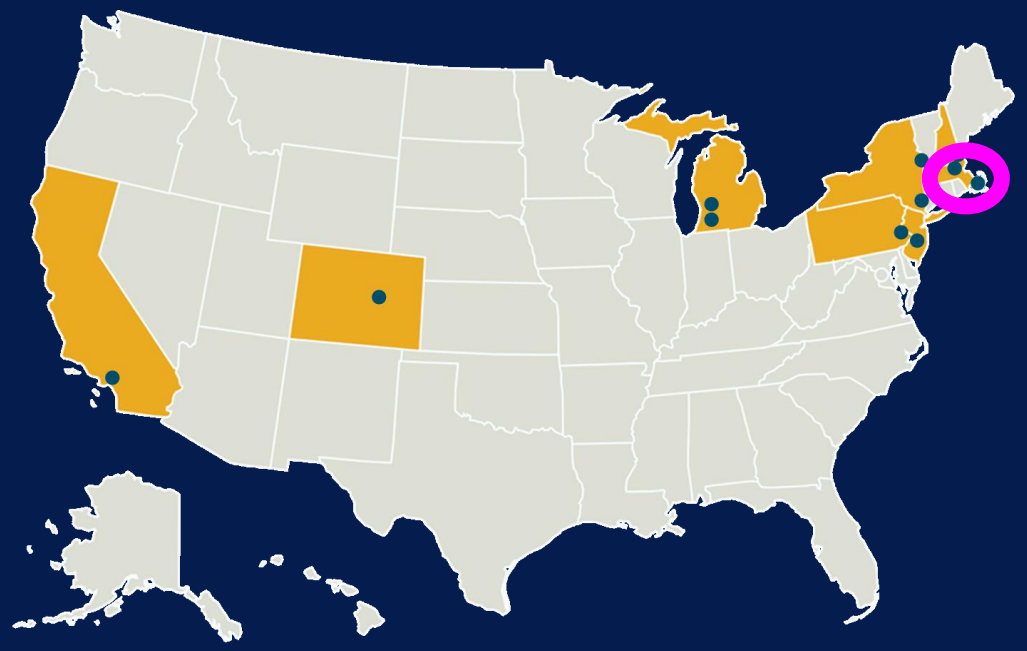
CDC PFAS Multi-site Health Study

- Funded by **CDC** and Agency for Toxic Substances and Disease Registry (**ATSDR**)
- Goal: improve understanding of PFAS-related health effects
- Includes adults and children from communities with a history of PFAS drinking water contamination

Includes communities in 8 states: CA, CO, MA, MI, NH, 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)

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https://bit.ly/ma-pfas

Massachusetts PFAS & Your Health Study in Hyannis and Ayer

- **Hyannis enrollment (2021-2023):**
  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**

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Contents lists available at ScienceDirect

Environment International

journal homepage: www.elsevier.com/locate/envint

Full length article

Multi-site study of communities with PFAS-contaminated drinking water: Methods, demographics, and PFAS serum concentrations

Marian Pavuk [a,*], John L. Adgate [b], Scott M. Bartell [c], Erin Bell [d], Linda M. Brown [e], Robert J. Laumbach [f], Laurel A. Schaider [g], Thomas J. van t' Erve [h], Jordan M. Bailey [h], Julianne Cook Botelho [i], Antonia M. Calafat [i], Chris R. Cutler [j], Steven Forand [d], Judith M. Graber [f], Tamarra James-Todd [k], Zuha Jeddy [j], Kayoko Kato [i], Nayara Mowry [j], Anil S. Nair [e], Pamela Ohman-Strickland [f], Patrick Rago [a,l], Adam M. Schaefer [j], Anne P. Starling [b,m], Veronica M. Vieira [c], Meghan M. Weems [a], Kristine F. Wiant [e], Frank J. Bove [a]

Peer-reviewed paper describing Multi-site Study protocols and blood test results

https://doi.org/10.1016/j.envint.2025.109589

SCAN QR CODE

PFAS Multi-site Study: Community-Level Blood Test Results

based on the paper by Pavuk and others (2025)

KEY FINDINGS

- We found 4 PFAS compounds in the blood of almost every adult and child in the study.
- The levels of these 4 PFAS varied from site to site, as different sites had different PFAS sources and levels of contamination.
- Adults in the study had higher average levels of PFOA and PFHxS than adults in the general U.S. population.
- Children in the study had higher average levels of PFHxS than children in the general U.S. population.
- Among participants ages 12 to 49 years, males had higher levels of most PFAS than females.

Fact sheet with summary of paper's key findings

www.atsdr.cdc.gov/media/pdfs/2025/07/MSS-Community-PFAS-Blood-Levels-Fact-Sheet-508.pdf

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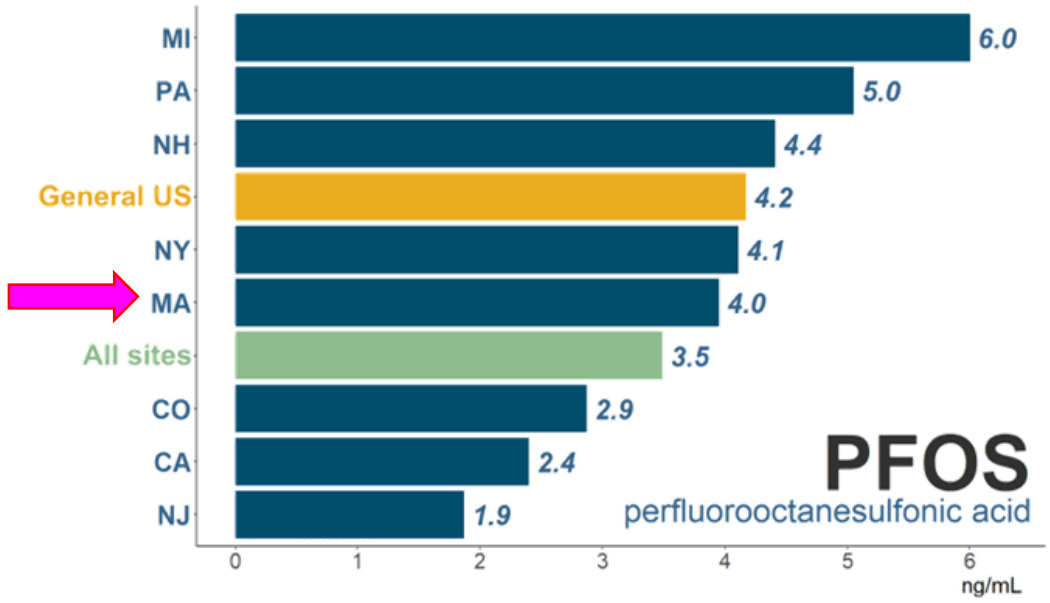
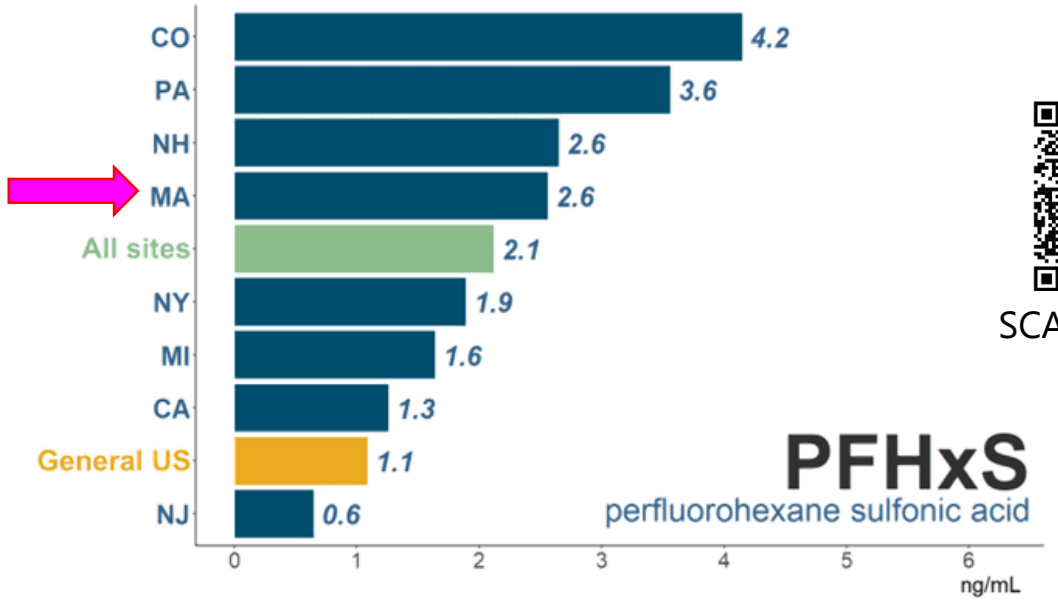
Average (geometric mean) PFAS blood levels by site





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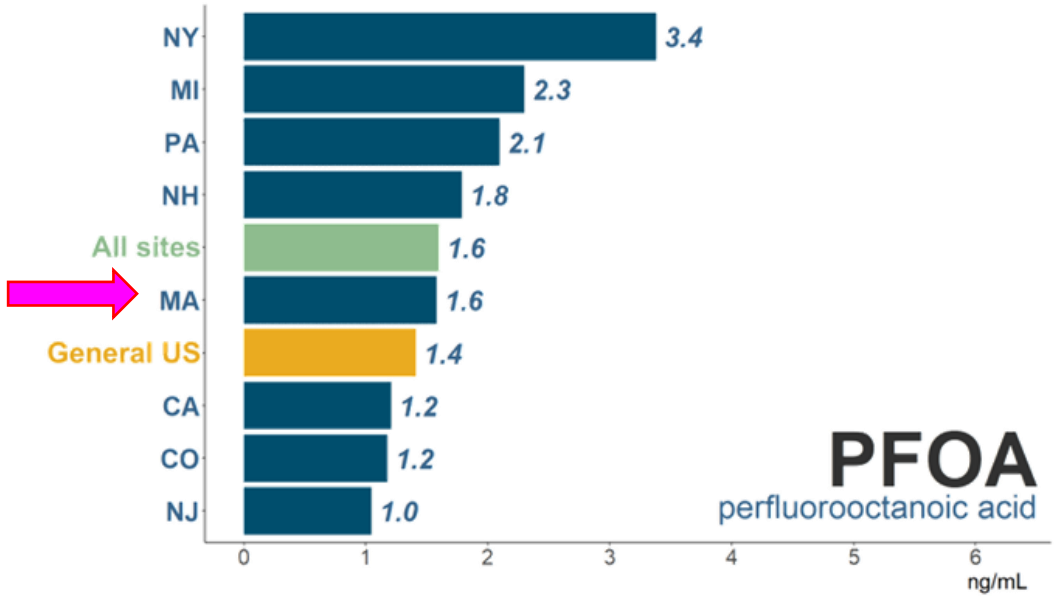
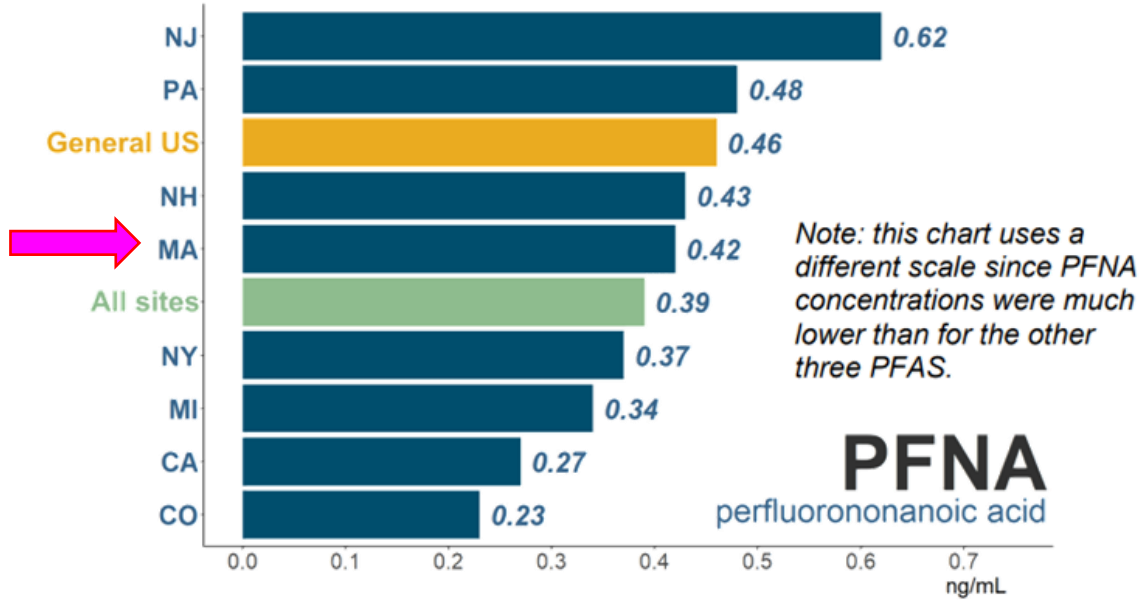




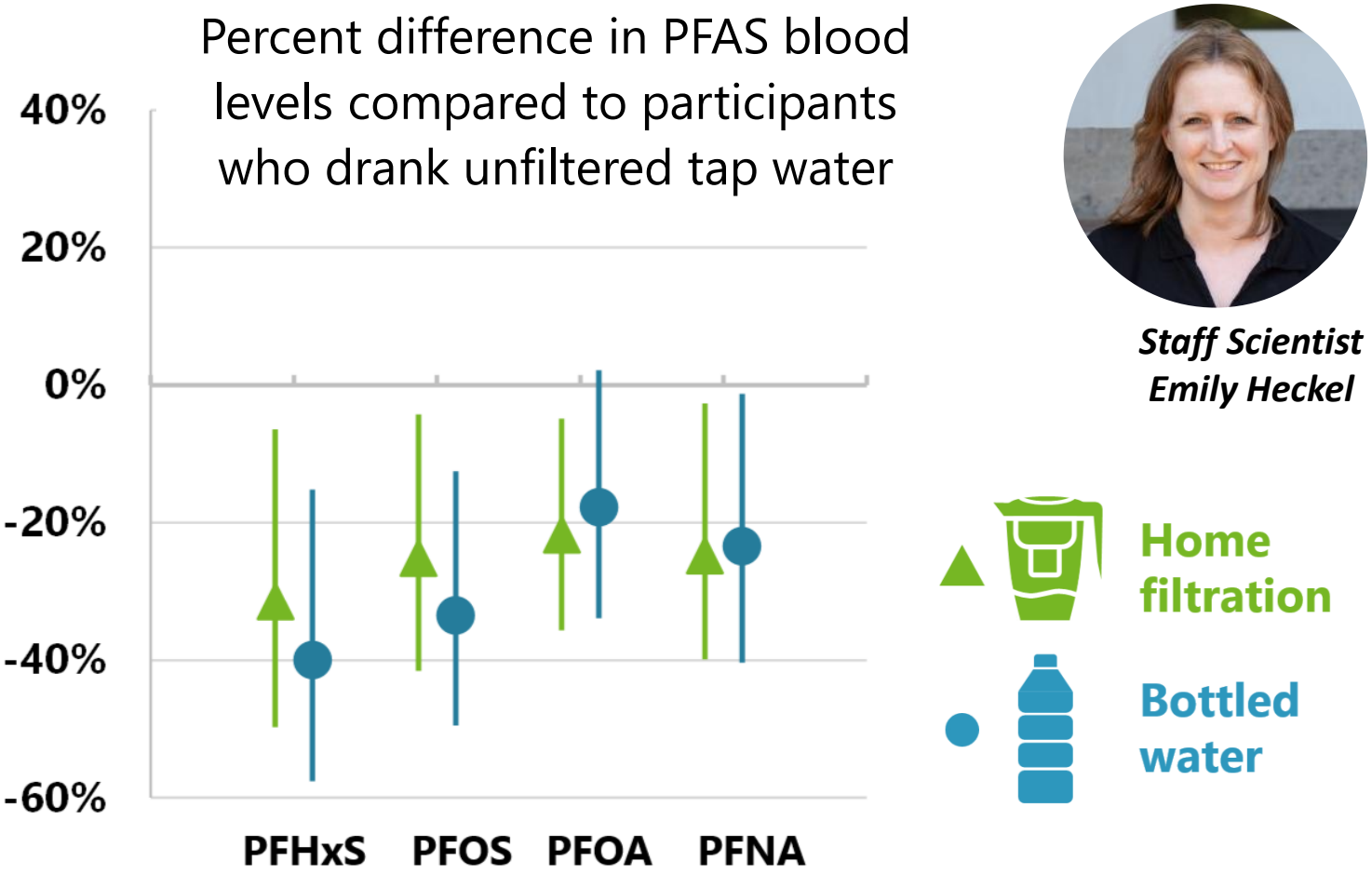
Note: this chart uses a different scale since PFNA concentrations were much lower than for the other three PFAS.

www.atsdr.cdc.gov/media/pdfs/2025/07/MSS-Community-PFAS-Blood-Levels-Fact-Sheet-508.pdf

Past water contamination still influences PFAS blood levels 4-7 years after municipal treatment

In Hyannis, participants who used home water filters or drank mostly bottled water had 18-40% lower PFAS in their blood than people who drank unfiltered tap water even years after municipal treatment.

Heckel et al. In review
J Expo Sci Env Epidemiol.



Staff Scientist Emily Heckel

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Results from Hyannis participants are part of analyses across 8 states in Multi-site Study

Lipids
(Marian Pavuk, MD, PhD)

Thyroid
(Michael Bloom, PhD)

Diabetes
(Anne Starling, PhD)

Blood Pressure
(Yuting Wang, PhD, MPH)

Metabolic Syndrome
(Abby Bline, PhD)

Heart Disease
(Celina Phillipson, MS)

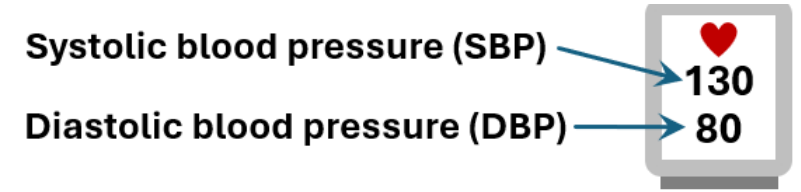
Obesity
(Yerin Jung, PhD)

https://www.atsdr.cdc.gov/media/pdfs/2025/08/Open-House-Slides-508.pdf

Investigating links between PFAS and blood pressure

Postdoctoral Fellow
Dr. Yuting Wang

- Analyzed results from 5,826 adults
- Higher levels of some PFAS in blood were associated with higher blood pressure
  - Strongest effects for PFOS and PFHxS
- Associations were strongest in younger adults



High blood pressure (HBP): SBP>130 or DBP>80

	SBP	DBP	HBP
PFHxS	↑	↑	↑
PFOS	↑	↑	↑
PFOA		↑	
PFNA	↑		
PFDA	↑		
PFUnDA			
MeFOSAA	↑		
PFAS Mixture	↑	↑	↑

↑ Positive associations ($p<0.05$)

Wang et al. In preparation

Current work

- **Reconstructing past PFAS exposures**
  - Groundwater modeling to estimate PFAS in Hyannis water to 2000
  - Applying a model to convert drinking water levels to blood levels
  - Understanding effects of chronic long-term exposures

- **Investigating links to other health effects**
  - COVID-19 antibodies, diabetes, lipids, cardiovascular disease, obesity, neurobehavioral test results (children), and thyroid function

- **Sharing results**
  - Email update to participants, fact sheets and videos, outreach to clinicians, and Multi-site Study webinar in September 2026

Funding is needed to continue the MA PFAS & Your Health Study

Additional funding would allow us to collect new data to answer important questions:

- How have blood levels changed in Hyannis over time?
- Are there any dietary factors that may promote faster release of PFAS from the body?
- What are long-term health effects from PFAS exposures among adults and children?

Thank you to Rep. Xiarhos and Rep. Vieira

Amendment #1012 to H.5500

Amendment #1012 to H5500

Silent Spring Institute PFAS Research and Study

Mr. Xiarhos of Barnstable moves to amend the bill in section 2, in item 7008-1116, by inserting after "projects" the following:- "provided further, that not less than $25,000 shall be expended to the Silent Spring Institute for the research and study of PFAS exposure"

Additional co-sponsor(s) added to Amendment #1012 to H5500

Silent Spring Institute PFAS Research and Study

REPRESENTATIVE:

David T. Vieira

To learn more, visit: PFAS Exchange

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

www.pfas-exchange.org

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

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Thank you!

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www.silentspring.org