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AAAS EPI Center and the Great Lakes St Lawrence Legislative Caucus PFAS and Drinking Water Roundtables

December 2 & 4, 2020

Agenda

Welcome, Background, Goals, Agenda Review and Protocols

- Lisa Janairo, Program Director, Council of State Governments, Manager, Great Lakes-St. Lawrence Legislative Caucus
- Rebecca Aicher, Project Director, EPI Center *(pages 3 – 7)*
- Abby Dilley, Vice President and Senior Mediator, RESOLVE

Scientific Overview of Per- and Polyfluoroalkyl Substances

- Laurel Schaider, Research Scientist, Silent Spring Institute *(pages 8 – 25)*

Addressing Community Risks Posed by PFAS Contaminants

- Phil Brown, Distinguished Professor, Northeastern University *(pages 25 – 47)*

Community Case Example from New Hampshire

- Hon Wendy Thomas, New Hampshire State Representative, Merrimack, NH *(pages 48 – 58)*
- Shaun Mulholland, City Manager, Lebanon, NH *(pages 58 – 63)*

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AAAS EPI Center Information Overview

AAAS: A Force for Science

120,000+
Members

6
Peer-reviewed Science family of journals offering the latest scientific evidence

250
Affiliate associations

3,000+
Science & Technology Policy Fellow alumni with experience in all branches of the federal government

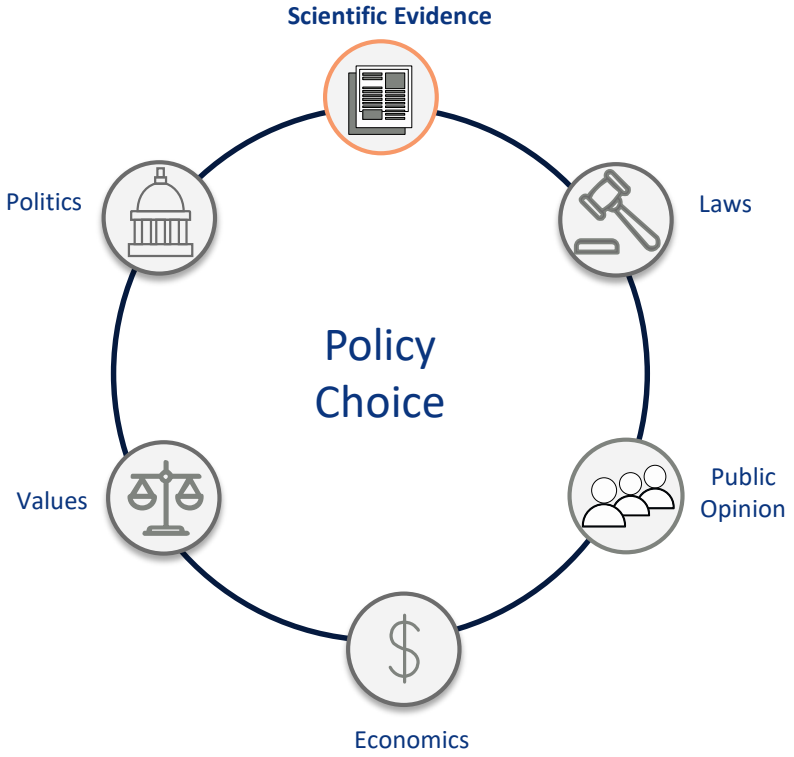
***170** years of communicating accurate science*

@AAASepiCenter www.AAAS.org/EPICenter

The AAAS EPI Center: Making Scientific Evidence Readily Available

The AAAS EPI Center is designed to provide scientific evidence to policymakers and other decision-makers in ways that are **clear, concise, and actionable.**

We make it easier for policymakers and other decision-makers to access scientific evidence and information and then integrate that evidence into their decision-making process.



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Environmental Focus Areas

PFAS & Drinking Water

Hydraulic Fracturing: Orphaned and Abandoned Wells

Green Stormwater Infrastructure and Environmental Justice

PFAS and Drinking Water Roundtable: Information Overview

Our goals for today's workshop are to…

- Provide a high-level overview of the scientific evidence for PFAS in drinking water;
- Connect decision-makers with scientific experts, as well as other colleagues addressing these issues;
- Discuss how scientific evidence is and is not informing decision-making around these issues; and
- Identify opportunities and challenges communities are facing based on disproportionate impacts from drinking water contamination.

PFAS: What are they and why are they a concern?

Laurel Schaider, PhD
Research Scientist, Silent Spring Institute

AAAS/GLLC Roundtable
December 4, 2020

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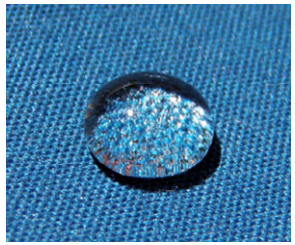
STEEP
Sources, Transport, Exposure & Effects of PFASs
UNIVERSITY OF RHODE ISLAND SUPERFUND RESEARCH PROGRAM

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

Overview



- What are PFAS?
- PFAS in drinking water
- Approaches to addressing PFAS

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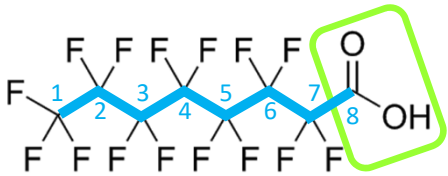
What are PFAS?
Per- and polyfluoroalkyl substances

- Class of over 9,000 compounds
- Chemical structures with C-F bonds
- Extremely resistant to degradation
- Used in consumer products since 1950s
- Emerged as drinking water pollutants around 2010-2015

PFOA ("C8")



8 carbon chain

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Unique properties of PFAS chemicals

- **Persistent**: "forever chemicals"
- **Mobile**: global pollutants
- **Bioaccumulative**: in people and wildlife
- **Toxic**: associated with adverse effects
- **Versatile**: many everyday uses

Other pollutants have some of these properties, but PFAS are unique in having them all

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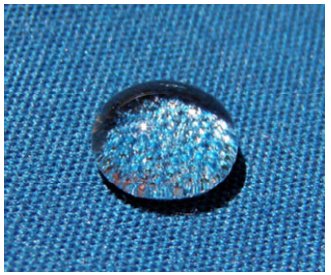
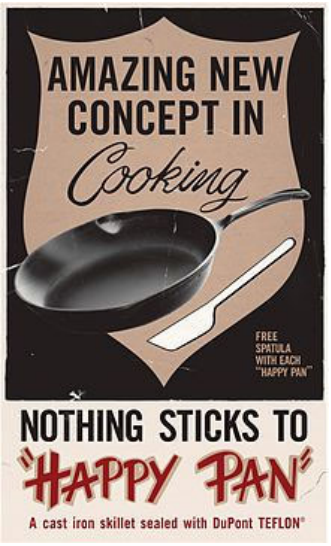
PFAS are common in everyday items

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





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Silent Spring Institute studies

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Branches of the PFAS family tree

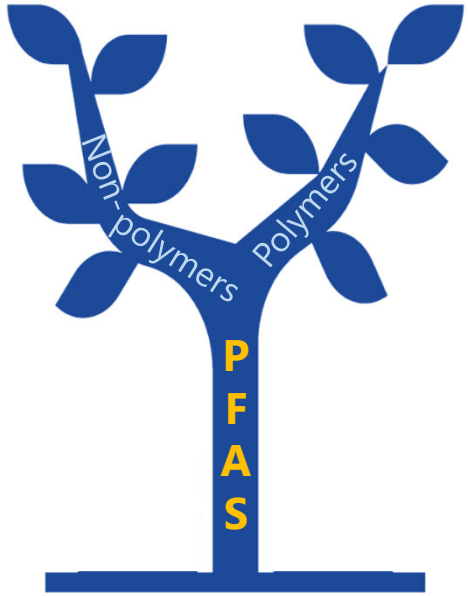
Non-polymers

Legacy PFAS

- Long-chain PFAS
- Examples: PFOS, PFOA (8 carbons)
- Manufacturing phased out in U.S. and Europe

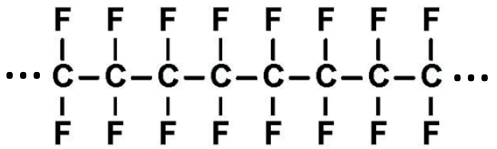
Current-use PFAS

- Short-chain and other PFAS
- Examples: GenX, PFBS
- Used as replacements for legacy PFAS



Polymers

- Very long carbon chains
- Example: Teflon
- Not readily absorbed by cells
- Created from smaller building blocks



Teflon (PTFE)

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PFAS exposures are ubiquitous

- Over 99% of Americans have detectable levels of PFAS in blood (CDC)

- Some PFAS are long-lived in the human body
  - Long-chain PFAS can stay in the body for years
  - Newer PFAS can stay in the body for weeks to months
  - Behavior of most PFAS in the body has not been studied

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PFAS health effects

How do we learn about PFAS health effects


Studies in people (epidemiological)


Studies in lab animals (toxicological)


Other types of lab studies (in vitro testing)

Combining multiple lines of evidence strengthens our confidence

Harmful health effects linked to PFAS exposures

- Elevated cholesterol
- Cancer (kidney, testicular)
- Ulcerative colitis
- Thyroid disease
- Lower birth weight
- Preeclampsia
- Immune system toxicity, including decreased vaccine response

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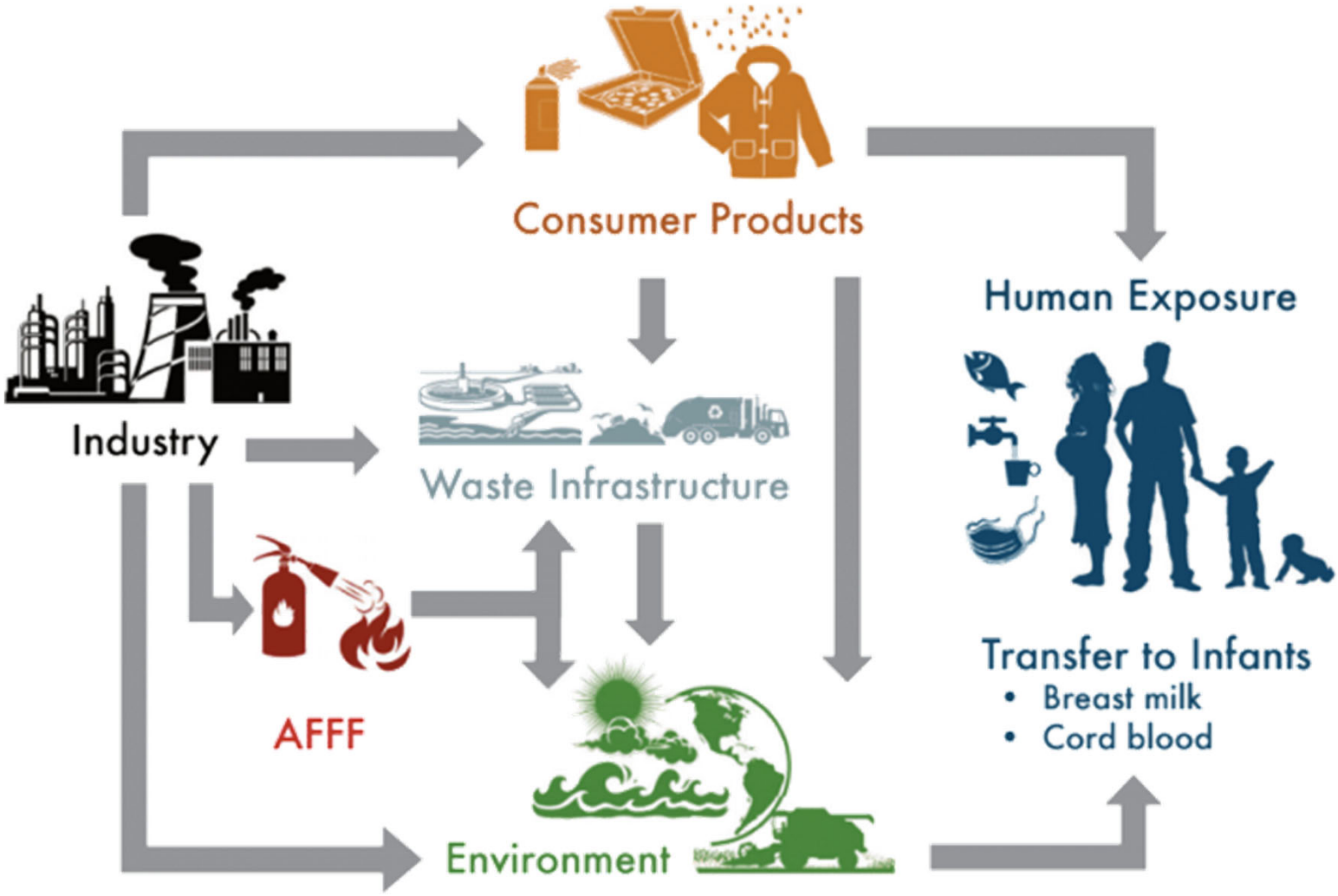
How are we exposed to PFAS?



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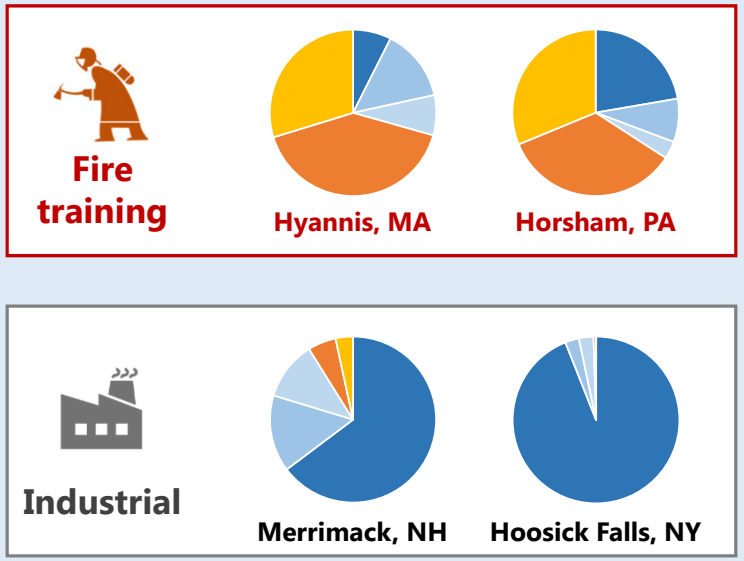
https://www.nature.com/articles/s41370-018-0094-1

Sources of PFAS water contamination

- Aqueous film-forming foam (AFFF)
- Fluoropolymer production facilities
- Other industries
- Wastewater treatment plants
- Landfills
- Land-applied biosolids

Different sources have different chemical "fingerprints"



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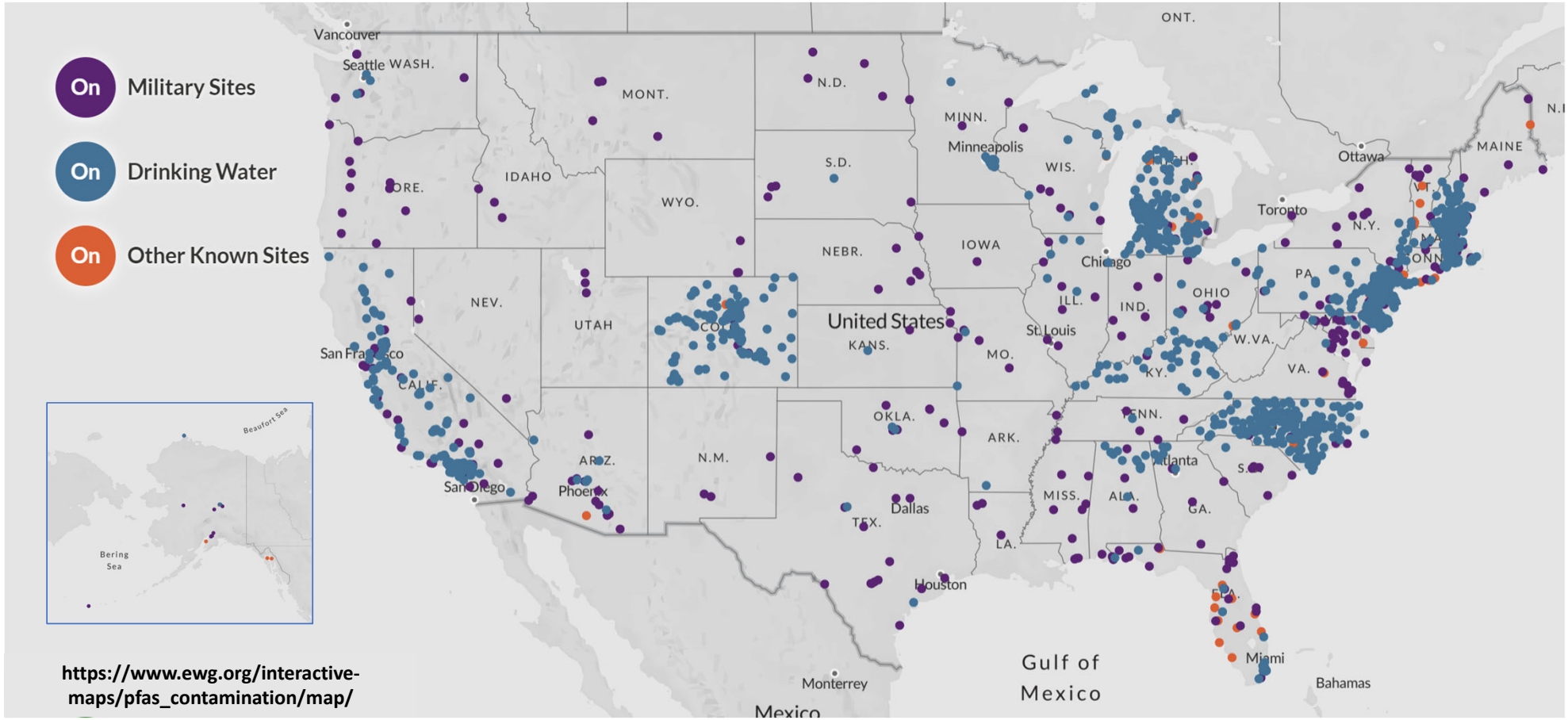
EWG: 2,230 contaminated sites in 49 U.S. states
Over 200 million Americans with PFAS in drinking water

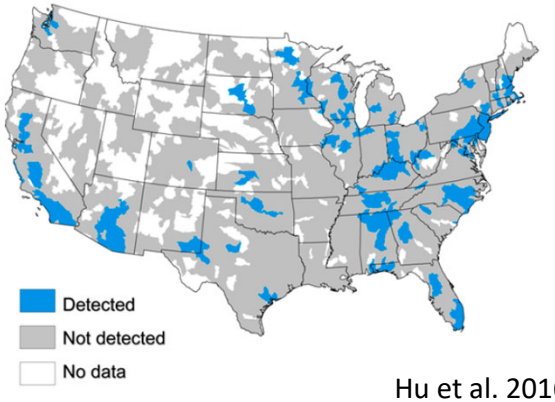


https://www.ewg.org/interactive-maps/pfas_contamination/map/

PFAS monitoring in drinking water

- No ongoing drinking water testing required by US EPA
- EPA testing of large public supplies (UCMR3)
- Some states doing additional testing
- Routine monitoring limited by:
  - Cost
  - Sensitivity of lab testing
  - Range of PFAS included in current testing
  - Hard to measure "total" PFAS – how much are we missing?

UCMR3 (2013-2015)



Hu et al. 2016. *ES&T Letters.* 3(10):344-50.

PFAS treatment

- **3 common options:**
  - Granular activated carbon (GAC)
  - Ion exchange
  - Reverse osmosis/nanofiltration
- **Issues and concerns:**
  - Cost
  - Not all PFAS are well-removed by all technologies
  - Life cycle consideration: long-term disposal, incineration

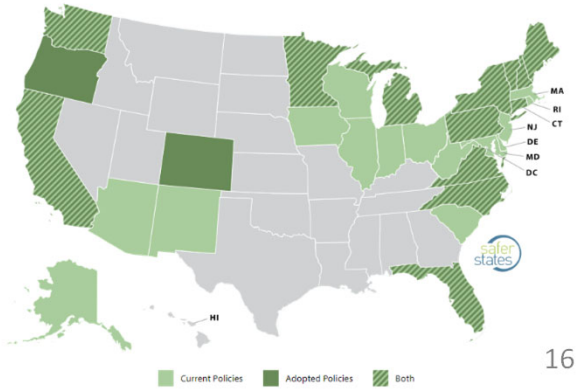
Approaches to addressing PFAS

- **Class-based approaches**
  - With 9,000 PFAS, we can never assess or regulate 1 at a time
  - When is it appropriate to treat PFAS as a single class or subgroups?
- **"Essentiality"** **(Cousins et al. 2019)**
  - What uses of PFAS are truly essential?
  - Which uses can be phased out that are not essential?
- **Extreme persistence and mobility as basis for concern**
  - EU considering "very persistent very mobile" under REACH criteria
  - Together, these alone form basis for concern

How have states responded?

- Establishing drinking water standards, requiring monitoring of public water supplies, funding testing and treatment design
- Requiring testing for PFAS in discharges from wastewater treatment plants and biosolids (sludge)
- Restricting use of PFAS-containing firefighting foams
- Banning use of PFAS in food packaging

Safer States tracks state-level PFAS policies
www.saferstates.com/toxic-chemicals/pfas/



Contact information:
Laurel Schaider, PhD
email: schaider@silentspring.org
twitter: @laurelschaider

RESOURCES:

- Silent Spring Institute
  www.silentspring.org
- URI STEEP Superfund Research Program
  web.uri.edu/steep
- PFAS Exchange, part of PFAS-REACH
  www.pfas-exchange.org

Community Concerns and Social Action on the PFAS Chemical Class

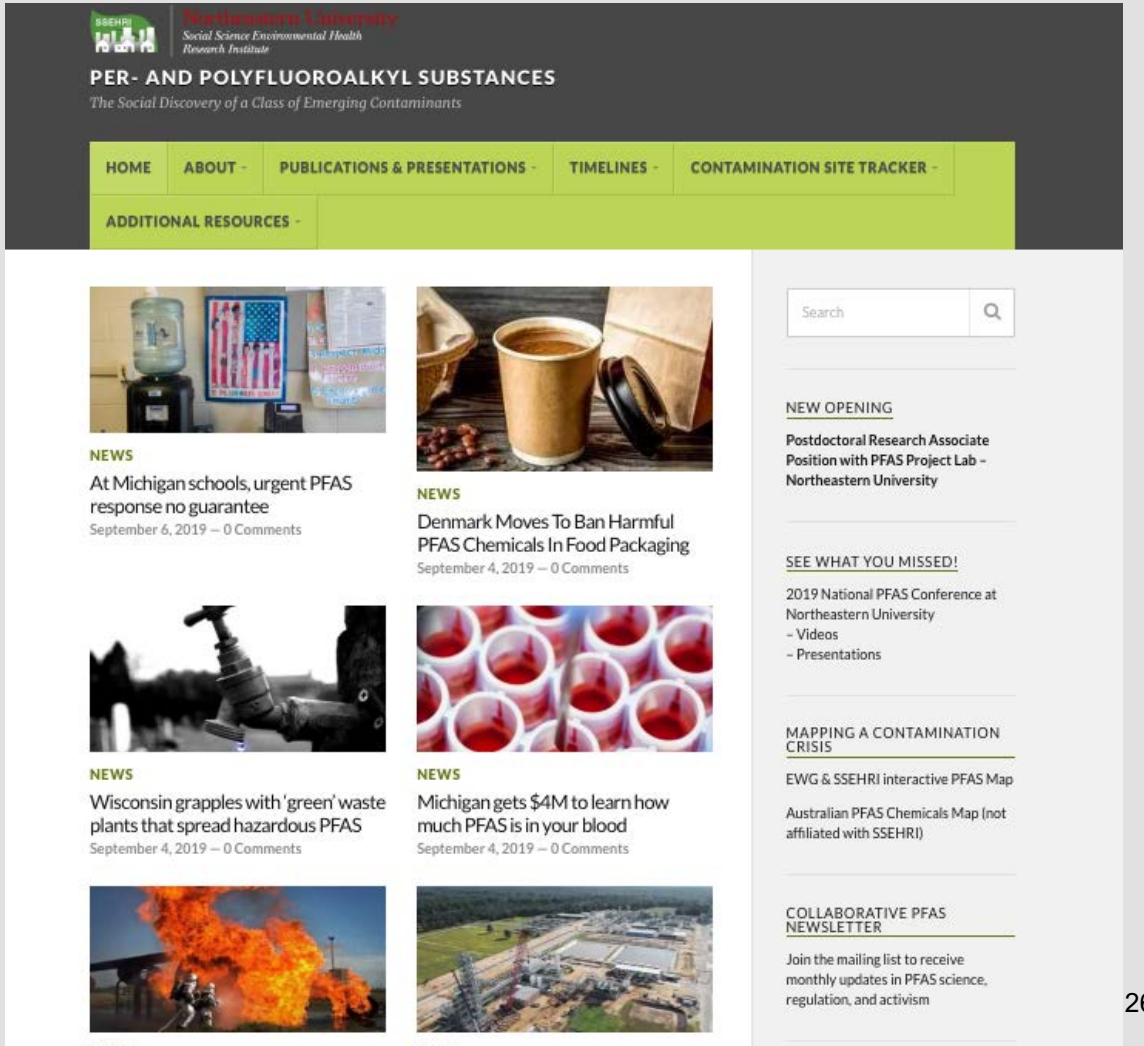
Phil Brown (Northeastern University)
and Alissa Cordner (Whitman College)

PFAS Project Lab of the Social Science Environmental Health Research Institute
Northeastern University
Presentation to AAAS EPI Center/Great Lakes-Saint Lawrence Legislative Caucus

Funding: NIEHS (1R01ES017514-01A1, P42ES027706, 1 R25 GM109447-01, 1 T32 ES023769-01, 1R13 ES028097-01, 1R13ES030609-01), NSF (SES-0924241, SES-1456897)

PFASProject.com

- **Website now a valuable resource with thousands of visitors**
- **Includes almost daily news updates**
- **Materials from our two conferences**
- **Timelines of contamination episodes**
- **www.pfasproject.com**



PFAS CENTRAL
A PROJECT OF GREEN SCIENCE POLICY

NEWS SCIENCE POLICY EVENTS PFAS BASICS ABOUT CONTACT

PFAS Central: sharing notable news, scientific papers & events

NEWS

PFAS toxins found in drinking water throughout Southern California

Wells of nearly two dozen Southern California water agencies have reportable levels of PFAS, a chemical family increasingly linked to cancer,

SCIENCE

Spatiotemporal distribution and isomer profiles of perfluoroalkyl acids in airborne particulate matter in Chengdu City, China

PFNA was the dominate airborne PFAS in

POLICY

Denmark becomes first country to ban all PFAS from food contact materials

Danish Food Minister Mogens Jensen moves to ban harmful PFAS in food packaging.

LEARN MORE

PFAS CENTRAL PARTNERS

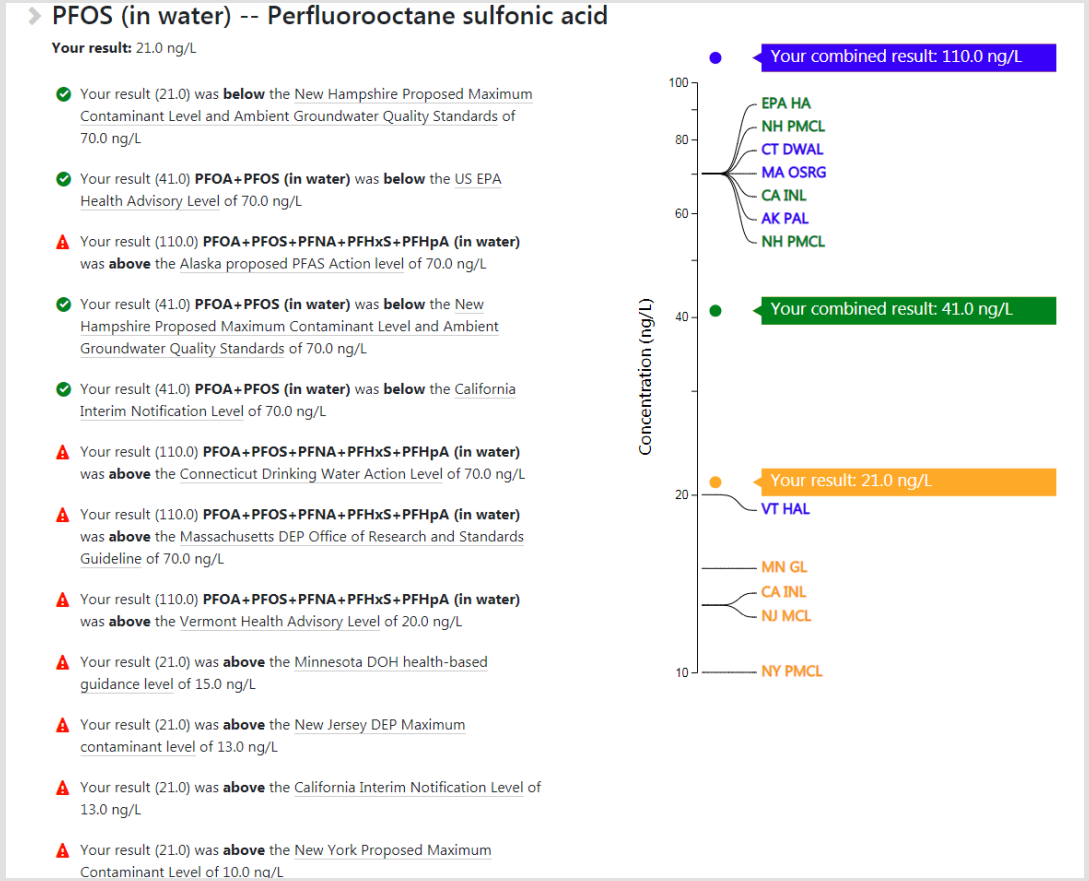
GREEN SCIENCE POLICY INSTITUTE

SSEHRI

Northeastern University
Social Science Environmental Health Research Institute

PFAS Exchange

- **Web platform for residents, water and health officials, medical professionals, firefighters**
- **Data interpretation for blood and water test results**
- **Water testing**
- **Supporting connections and knowledge sharing among communities**



Key Problems: Federal Inaction and Decades of Industry Research and Secrecy

- **1961 – DuPont finds evidence of liver toxicity in animals**
- **1962 – DuPont finds evidence of toxicity in humans**
- **1976 – 3M finds PFOA in workers' blood**
- **1981 – 3M finds PFOA causes rare birth defects in rats**
- **1981 – DuPont workers give birth to infants with similar rare birth defects; DuPont removes all women workers from Teflon unit but doesn't say why and doesn't share this data with EPA**
- **1984 – DuPont finds PFOA in community drinking water, doesn't disclose results**
- **1987 – 3M looks for uncontaminated blood samples to compare to their workers and finds widespread global contamination**

For more details: DuPont and 3M documents in Environmental Working Group's Chemical Industry Archives; Toxic Docs website; Rob Billot, *Exposure: Poisoned Water, Corporate Greed, and One Lawyer's Twenty-Year Battle against DuPont*; Callie Lyons, *Stain-Resistant, Nonstick, Waterproof, and Lethal: The Hidden Dangers of C8*

Community Action Has Always Been Central Since Love Canal

Affected residents are central to discovery, action, and science

1980 DuPont purchases land from Tennant family. DuPont dumps ~7,000 tons of PFOA waste by late 1990s.

1999 Tennants sue DuPont. Discovery includes internal documents on PFOA.

2004 DuPont settles class-action lawsuit for $235 million, including health study.

2005 DuPont settles with EPA for $16.5 million, 3M pays EPA $1.5 million, for TSCA violations

2006 PFOA Stewardship Program

Community Groups Take the Lead

Pushing for water and blood sampling, remediation, regulations, research, medical monitoring, education, corporate fines

TESTING *for* PEASE

CLEAN CAPE FEAR

NATIONAL PFAS CONTAMINATION COALITION

PFAS ALLIANCE

Community Exposure

Research | Open Access | Published: 30 August 2019

Making the invisible visible: results of a community-led health survey following PFAS contamination of drinking water in Merrimack, New Hampshire

Bindu Panikkar, Benjamin Lemmond, Laurene Allen, Carol DiPirro & Shaina Kasper

Environmental Health **18**, Article number: 79 (2019) | Cite this article

- 527 wells in Bedford and Merrimack near the Saint Gobain Performance Plastics plant were sampled for PFAS contamination
- 30% of wells had PFOA+PFOS contamination >70 ppt
- NHDES conducted human exposure survey of 596 residents (across 213 households) in the Merrimack area
- 28% of participants said they experienced new health concerns since living in the community
- 20% of participants had multiple health concerns
- Most common conditions reported fell into the categories of autoimmune, cardiovascular, reproductive, and developmental disorders

Environmental Inequalities

- Preliminary research on NJ water systems has revealed that Asian, Black, and Hispanic populations have higher rates of PFAS contamination in their water than non-Hispanic white populations (using Massachusetts MCLs for 6 PFAS).
- 495 wells sampled, serving population of almost 8 million

	Population	*Sum of 6 PFAS: Detect*	*Sum of 6 PFAS: Above 20ng/L*
Non-Hispanic White	4,128,266	2,755,634	1,550,720
%		66.75%	37.56%
Hispanic	1,439,286	1,172,541	879,414
%		**81.47%**	**61.10%**
Black	982,283	746,063	509,372
%		75.95%	**51.86%**
Asian	675,828	608,008	483,596
%		**89.96%**	**71.56%**
Poverty	848,917	623,330	416,845
%		73.43%	49.10%

MassDEP action on MCLs

Phil Brown, Northeastern

Laurel Schaider, Silent Spring Institute

- June 2018: Public health guideline (ORSG)
  70 ppt for sum of 5 PFASs
- October 2018: Petition from Conservation Law Foundation and Toxics Action, seeking:
  Treatment techniques, enforceable standards
- January 2019: Public hearing, comments on petition
- April 2019: Begin process of setting standards
  - Public stakeholder meeting for MCL process
  - Draft groundwater standards issued
- June 2019: Public comment, community meetings
- October 2020: MCLs formally enacted

State Regulations

State	Action
California	August 2019: Notification levels of 6.5 ng/L PFOS and 5.1 ng/L PFOA Response levels of 40 ng/L PFOS and 10 ng/L PFOA
Massachusetts	October 2020: Sum of 6 PFAS (PFOS, PFOA, PFHxS, PFNA, PFHpA, PFDA) 20 ng/L
Michigan	August 2020: 8 ng/L PFOA, 16 ng/L PFOS, and PFHpA, PFHxS, PFNA, PFBS, HFPO-DA set at variant levels
New Hampshire	July 2019: ▪ 12 ng/L PFOA ▪ 15 ng/L PFOS ▪ 11 ng/L PFNA ▪ 18 ng/L PFHxS
New Jersey	February 2020: PFNA 13 ng/L PFOA 14 ng/L PFOS 13ng/L
New York	July 2020: 1,4-dioxane 1,000 ng/L PFOA and PFOS of 10 ng/L
Pennsylvania	February 2019: Announced plan to begin process to set PFOS and PFOA MCL
Rhode Island	January 2020: Proposed sum of PFAS6 20 ng/L
Vermont	March 2020: Sum of PFOA, PFOS, PFHpA, PFHxS, PFNA 20 ng/L
Wisconsin	November 2019: Recommends sum of PFOA and PFOS 20 ng/L

State Regulations

- Arizona, Delaware, Florida, Illinois, Indiana, Ohio, North Carolina, South Carolina, and Washington have proposed standards or are in committee to set MCLs for at least PFOA and PFOS
- Some states included other PFAS chemicals including GenX
- Massachusetts, Michigan, Minnesota, North Carolina, and West Virginia have all established PFAS action response teams tasked with monitoring contamination and regulation

New Hampshire: Importance of community advocacy, combined with new Minnesota toxicological data, on high proposed maximum contamination limits (MCLs)

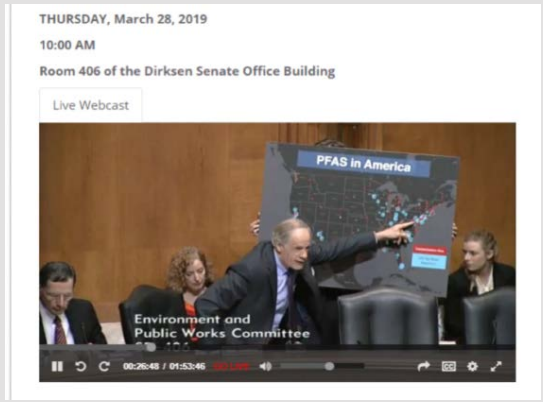
Ng/L [same as ppt]

	PFOA	PFOS	PFNA	PFHxS
Proposed January 2019	38	70	23	85
Promulgated July 2019	12	15	11	18

Contamination Site Tracker

- Contamination Site Tracker: https://pfasproject.com/pfas-contamination-site-tracker/
- 869 sites
- Can be used with our permission

A	B	C	D	E	F	G	
Please credit the Social Science Environmental Health Research Institute (SSEHRI) when using this doccument							
Country	*State/Providence*	*Contamination Site*	*Date of Discovery*	*Source of Discovery*	*Contamination Details*	*PFOA (ppt)*	*PFOS (*
USA	**Alabama**	**Decatur**	PFOA discovered is all samples collected 2005-2006. EPA received analytical results in 2008	Water samples taken by the West Morgan-East Lawrence Water and Sewer Authority.	Above 70 ppt at Gadsden Water Works and Sewer Board, Centre Water and Sewer Board, V.A.W., Water Systems Inc., West Lawrence Water Co-op, Northeast Alabama Water, District, Rainbow City Utilities Board, Southside Water Works and Sewer Board. Don Sims, manager of Morgan East Lawrence Water and Sewer Authority, claims that PFOA/PFOS levels reached 300 ppt in years preceding new EPA PHA (12/20/16).	Break down of numbers unavailable.	Break d unavaila

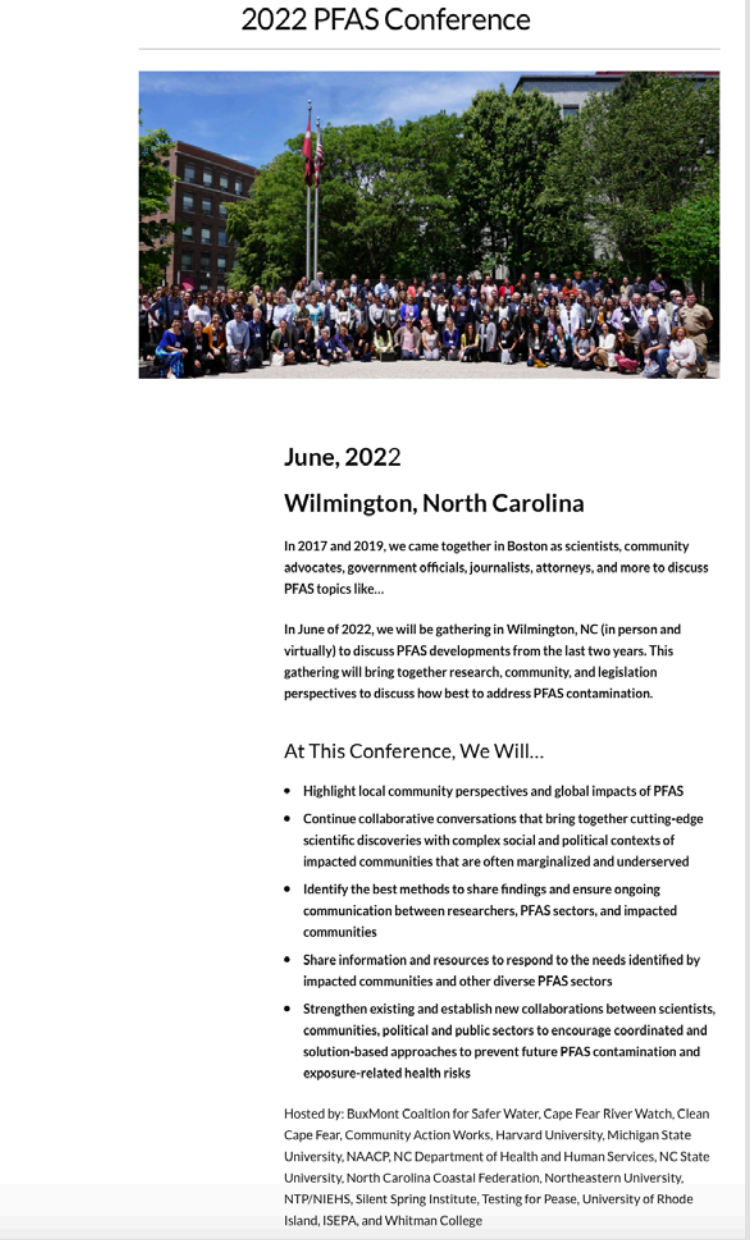


What legislatures can do

- Work with state/provincial environmental agencies on MCLs
  - Sometimes legislatures need to pass MCLs in case companies sue the environmental agency on procedural grounds – e.g. New Hampshire
  - Use a class-based approach and don't be fooled into thinking that one or two chemicals at a time is OK
- Provide funds for statewide research, education, testing and surveillance, and remediation
  - Examples: North Carolina, Massachusetts, Michigan
- Learn from the experts: Our international conferences (past presentations on our website pfasproject.com), Interstate Technology and Regulatory Council (itrcweb.org), National Academy of Science, Green Science Policy Institute (greensciencepolicy.org), Safer States (saferstates.com), Environmental Working Group (ewg.org)
- Work with the EPA for national action, including MCLs, Superfund (CERCLA) listing, abolish corporate withholding of data and Confidential Business Information claims
- Work with academics in life sciences, natural sciences, and social sciences
- Work with community groups who have always been at the forefront
- Work with your Congressional delegation – Representatives and Senators are playing important

What legislatures can do (continued)

- Provide aid to municipalities
- Regulate AFFF firefighting foam, e.g. California ban
- Regulate food packaging, e.g. Washington ban
- Help state/provincial agencies upgrade information on their websites
- Pay attention to European regulations – far ahead of US
- Pay special attention to environmental justice implications as shown in race and class differences in exposure
- Attend our 2022 conference



2022 PFAS Conference

June, 2022

Wilmington, North Carolina

In 2017 and 2019, we came together in Boston as scientists, community advocates, government officials, journalists, attorneys, and more to discuss PFAS topics like...

In June of 2022, we will be gathering in Wilmington, NC (in person and virtually) to discuss PFAS developments from the last two years. This gathering will bring together research, community, and legislation perspectives to discuss how best to address PFAS contamination.

At This Conference, We Will...

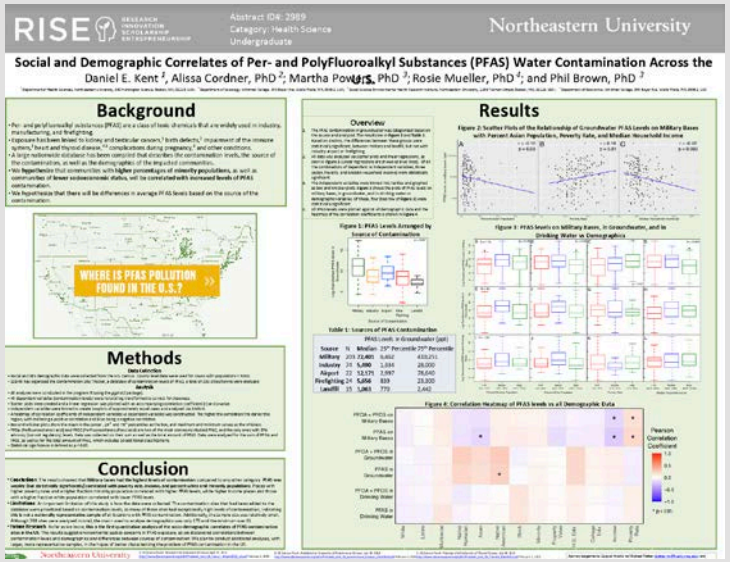
- Highlight local community perspectives and global impacts of PFAS
- Continue collaborative conversations that bring together cutting-edge scientific discoveries with complex social and political contexts of impacted communities that are often marginalized and underserved
- Identify the best methods to share findings and ensure ongoing communication between researchers, PFAS sectors, and impacted communities
- Share information and resources to respond to the needs identified by impacted communities and other diverse PFAS sectors
- Strengthen existing and establish new collaborations between scientists, communities, political and public sectors to encourage coordinated and solution-based approaches to prevent future PFAS contamination and exposure-related health risks

Hosted by: BuxMont Coaltion for Safer Water, Cape Fear River Watch, Clean Cape Fear, Community Action Works, Harvard University, Michigan State University, NAACP, NC Department of Health and Human Services, NC State University, North Carolina Coastal Federation, Northeastern University, NTP/NIEHS, Silent Spring Institute, Testing for Pease, University of Rhode Island, ISEPA, and Whitman College

RESOURCES

- p.brown@northeastern.edu

OUR OTHER PROJECTS THAT CAN BENEFIT YOU


RISE — Northeastern University

Social and Demographic Correlates of Per- and PolyFluoroalkyl Substances (PFAS) Water Contamination Across the U.S.

Daniel E. Kent [2], Alissa Cordner, PhD [2]; Martha Powis, PhD [3]; Rosie Mueller, PhD [4]; and Phil Brown, PhD [3]

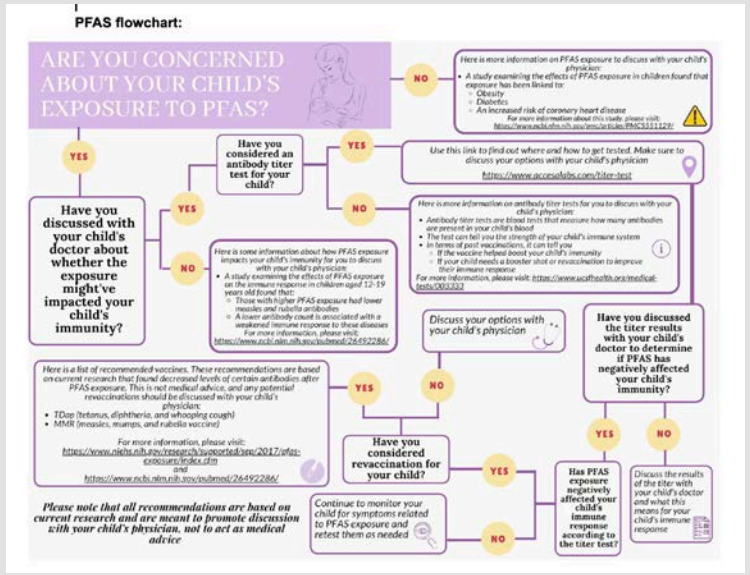
Background

Methods

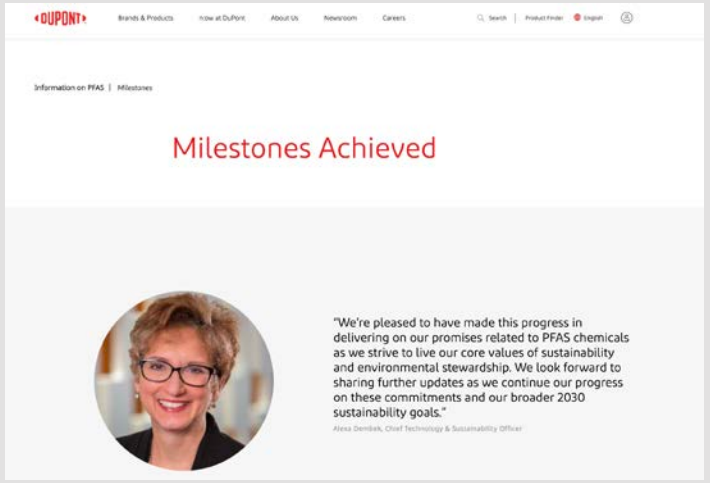
Results

Conclusion

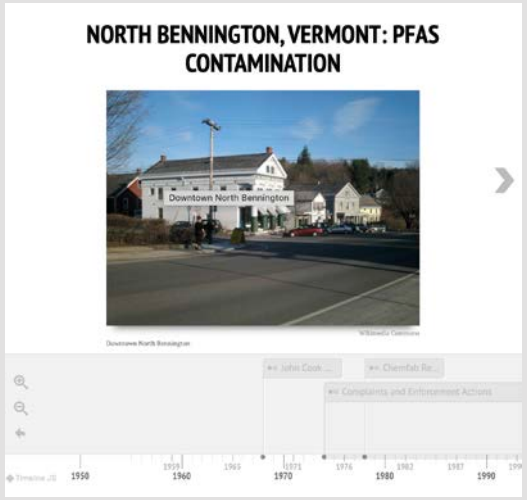
Analysis of race and class correlates



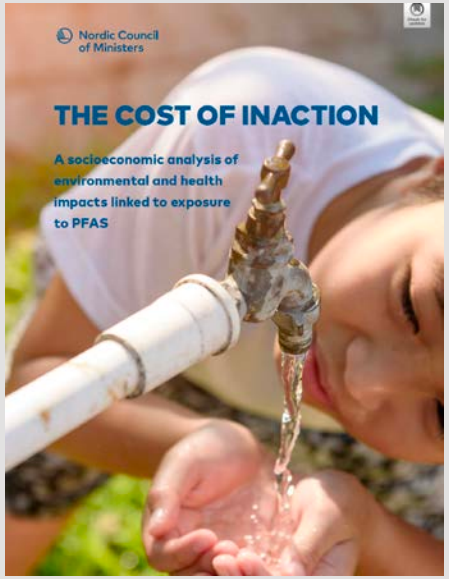
Health professionals resources



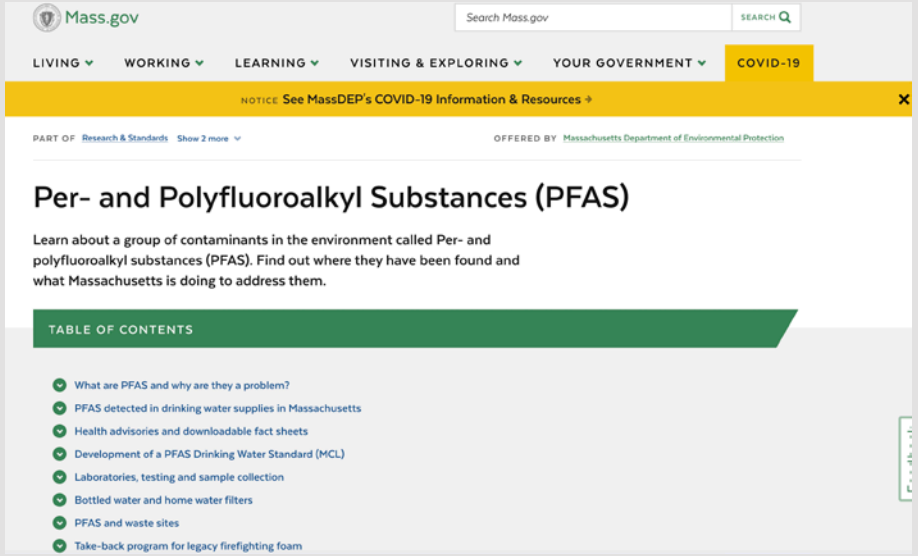
Analysis of industry self-presentation



Timelines



Economic costs of PFAS



Analysis of state agency websites

Multisector Alliance

Because there are so many stakeholders interested in reducing PFAS exposure and remediating contamination, you have many allies to work with.

- Affected communities
- Academic and regulatory scientists
- Scientist-advocates
- Active military and veterans
- Environmental and health social movement organizations
- Water utilities
- State and federal legislators and regulators
- Federal research funders
- Supply chain manufacturers
- Lawyers
- Journalists

Our Team's Engagement with Government

This shows you the benefits of working with scientists in academic and other settings

Federal

- **Advise House staffers for Subcommittee on Environment of Committee on Oversight and Reform – hearing July 24, 2019**
- **Serve on the review panel for the ATSDR Multi-Site Study**
- **Collaborate with ATSDR on sharing recruitment and data with their Pease study**
- **Technical consultant to ATSDR's Pease Community Advisory Panel**

State

- **Serve on Washington State Department of Ecology's PFAS Chemical Action Plan**
- **Testify at Mass DEP to support MCLs**
- **Provide commentary to NY DOH on their public information strategy and their proposed MCLs**
- **Testify at RI legislature on proposed ban on PFAS in food packaging**
- **Assist Connecticut Academy of Science and Engineering to advise the Connecticut Department of Energy and Environment on how to approach state investigations of PFAS**
- **Assist the research team assembled by a $5 million North Carolina state legislature program to examine water exposure throughout the state, by reviewing their approach to community engagement**

PUBLICATIONS from PFAS Project Lab

Published

Matthew Judge, Phil Brown, Julia Brody, Ruthann Rudel, and Serena Ryan, "The Exposure Experience: Participant Responses to a Biomonitoring Study of Perfluorooctanoic Acid (PFOA)." *Journal of Health and Social Behavior*. 2016 57: 333-350,

Alissa Cordner, Vanessa Y. De La Rosa, Laurel A. Schaider, Ruthann A. Rudel, Lauren Richter, and Phil Brown "PFAS Drinking Water Guideline Levels: The Role of Scientific Uncertainty, Risk Assessment Decisions, and Social Factors" *Journal Of Exposure Science And Environmental Epidemiology* 2019. 29: 157–171

Lauren Richter, Alissa Cordner, and Phil Brown, "Non-Stick Science: Sixty Years of Research and (In)Action on Fluorinated Compounds" *Social Studies of Science* 2018 45(5):691-714

Alissa Cordner, Lauren Richter, and Phil Brown, "Can Chemical-class Based Approaches Replace Chemical-by-chemical Strategies?: Lessons from Recent FDA Regulatory Action on Perfluorinated Compounds." *Environmental Science & Technology* 2016 50 (23), pp 12584–12591

Clare Malone, Gülnaz Çiğ, Phil Brown, and Alan Ducatman "Participant Satisfaction in the C8 Study of PFOA" *New Solutions* 2019 29(2): 186–204.

Alissa Cordner, Phil Brown, and Lauren Richter "Environmental Chemicals and Public Sociology: Engaged Scholarship on Highly Fluorinated Compounds" *Environmental Sociology* 2019 5(4):339-351

Elicia Cousins, Lauren Richter, Alissa Cordner, Phil Brown, and Sokona Diallo. "Risky Business? Manufacturer and Retailer Action to Remove Per- and Polyfluorinated Chemicals from Consumer Products" *New Solutions* 2019 29(2): 242-265

Lauren Richter, Alissa Cordner, and Phil Brown "Producing Environmental Ignorance Under the Toxic Substances Control Act: The Case of Per-and Polyfluoroalkyl Substances (PFAS)" *Sociological Perspectives* 2020

Under Review

Martha Powers, Phil Brown, Grace Poudrier, Jennifer Ohayon, Alissa Cordner, Cole Alder, and Marina Atlas "COVID-19 as Eco-Pandemic Injustice: Exploitation of a Crisis and Opportunities for Collective and Anti-racist Approaches to Environmental Health"

Being prepared for submission

Jennifer Ohayon, Alissa Cordner, Lauren Richter, and Phil Brown, "Persistent Chemicals, Persistent Activism: Scientific Opportunity Structures and Social Movement Organizing on Contamination by Per-and Polyfluoroalkyl Substances"

PFAS Project Lab – www.pfasproject.com

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Alissa Cordner – Whitman College

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- Isabella Raponi – Northeastern
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- Helena Zindel-Whitman College

Community and Organizational Collaborators

Testing for Pease

Massachusetts Breast Cancer Coalition

Community Action Works (previously Toxics Action Center)

Green Science Policy Institute

National PFAS Contamination Coalition

SSEHRI Northeastern University Social Science Environmental Health Research Institute

Honorable Wendy Thomas

NEW HAMPSHIRE STATE LEGISLATOR(FORMER)

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Educate yourself

Attend PFAS conferences/workshops

Read *Exposure* by Rob Bilott

Watch the documentaries, *Dark Waters* and *The Devil We Know*

Connect with groups that are already working on PFAS at the community, state, and national levels

Educate your constituents

Most important thing

- people will say that the water is clear, doesn't smell and it tastes good, they'll say that they've lived here their whole lives and are not sick
- to which I say "yet"

Here are some things you can do:

Connect with the community - find out if there is a local advocacy group and find out what they are up to

Find out if there is a Facebook page to local water/contamination issues

Hold a PFAS fair with DES and DHHS

Hold a movie (The Devil you know) viewing with question and answer afterward

Post articles about PFAS on your legislative page

Join in the discussion online

Here are some things you can do:

Send out an email newsletter - progress, what's been done, what needs to be done

Ask for meetings with leaders and organizers in your town

In my case, the local polluter - a wealthy company - wasn't listening to our town's demands so I organized a protest. Bad news is bad news, as a direct result of that protest St. Gobain formed a Community Advisory Committee (CAC) with our town to bring community leaders to the table

Write letters to the Editor

Write Op-eds

Here are some things you can do:

Drive education to the public - there is a lot of confusion and most people don't need to know the details of information that we do - I worked with the state University and the Superfund group to develop simple sheets of education on what PFAS Is, Why it's bad, and how you can protect yourself

Stress the importance of private well testing - private wells always get left behind

If you have a landfill look into the testing results for leachate

If you have a bio-solid plant talk to them about PFAS testing

Collect stories that have an impact and share them:

In my case we have a private well, we live 3 miles from the polluter and we were told we were safe and had nothing to worry about. I got our well privately tested and our water is too contaminated to drink. The company is supplying us (along with 700 other families) bottled water. Once a month we get a delivery of 164 gallons of water. They anticipate that we will not get hooked up to public filtered water for at least 7 - 9 years. Think of the illness that my family has endured, think of the plastic waste we will create, think of the de-valuation on our property. PFAS contamination hits deep.

Legislative work:

Connect with other legislators to see what has already been done. Combine forces. Don’t re-invent the wheel

Be in touch with your federal delegation - Senator Hassan and Representative Dingell are interested in submitting a PFAS food container bill. PFAS remediation is going to be important in the Biden administration - keep each other up to date with progress

In NH this is what we did in the last term:

Commission to study the effects of PFAS on Communities

Testing private well prior to purchase

Having private wells regularly tested and results available for renters.

Lowered 4 MCLS and got it into law

Tried to get medical monitoring in

Extend the statute of limitations for PFAS injury from 3 - 6 years

Eliminate food containers that have PFAS from schools and hospitals

Create a registry of firefighter PFAS foam dispersal

Raise fines for polluting

A word of warning - although you may get it, you might have to and most probably will have to go at this a little slowly with regard to the public. You will be accused of fearmongering. People will accuse you of lowering house and property values. Sometimes it’s important to enter a bill knowing that it won’t pass but that will educate people about an idea.

Know also that Business Groups are likely to oppose you. Business does not want to pay penalties or remediation that would cut into their profit. This is why it’s so important to be armed with facts.

You will have to decide what fires to fight first. As an example- we are an agricultural community, and I am very worried about PFAS in our produce, meat, and eggs. We don't have the science to support identifying PFAS in food and so while I know it's a problem, and I know that Europe has done a lot of work in this area, I don't bring it up often as I know it could put small businesses in our community out of business. In this case, I drop a few points here and there - I question it at PFAS events, but I'm not going to push it until we have proof that it's an issue (and even then it will still be a community issues)

PFAS/PFOA City of Lebanon, NH

Problem identification and Strategy for Mitigation

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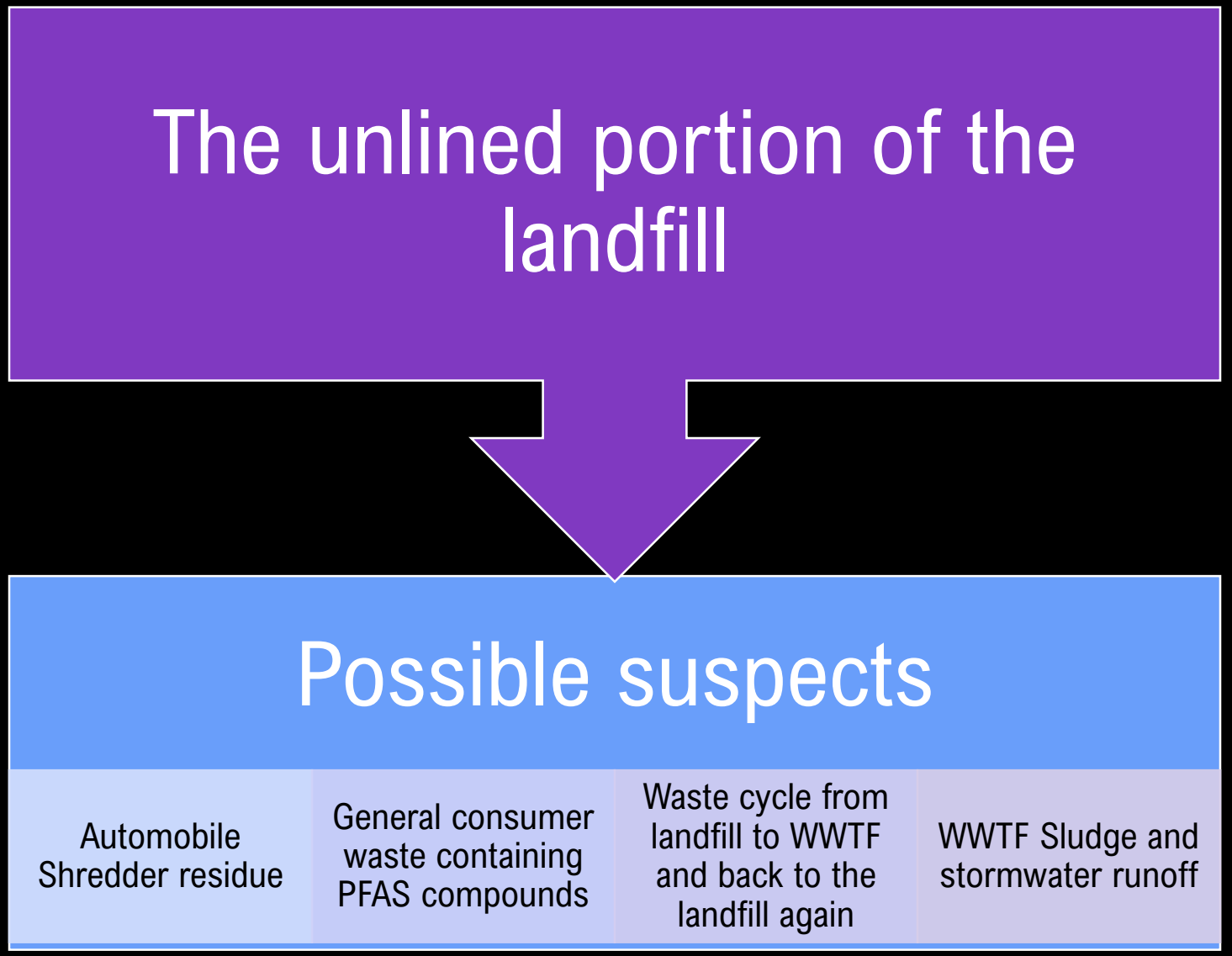
In Summary

- City Landfill serves 22 municipalities in NH & VT approx. 90,000 people
- Landfill Leachate contains 1,700 ppt one PFAS compound
- Presently treated at WWTF resulting in 15.6 ppt of PFOA in effluent
- Test wells show 58 ppt for PFOA compounds
- City drinking water testing shows no PFAS

Source Identification



Mitigation Strategy

Discontinue acceptance of auto shredder residue (temporary)

Reclaim unlined landfill and line that landfill cell

Treat the landfill leachate by removing the PFAS compounds

Consider becoming a regional leachate treatment facility

State Aid to Municipalities- PFAS