

January 23, 2024

# PFAS in Biosolids: How to Be Part of the Conversation



Presented by the Northeast Biosolids and Residuals Association



Janine Burke-Wells,  
NEBRA Executive Director  
603.323.7654  
Janine@nebiosolids.org

Deborah Mahoney,  
NEBRA Past President  
978.983.2069  
Dmahoney@BrwnCald.com



# Presentation Overview



Who is NEBRA and what do we do?



PFAS: Why is it so Difficult to Talk About And Why We Need You to Be Part of the Discussion.



Communications and Public Outreach Strategies



Resources and Examples

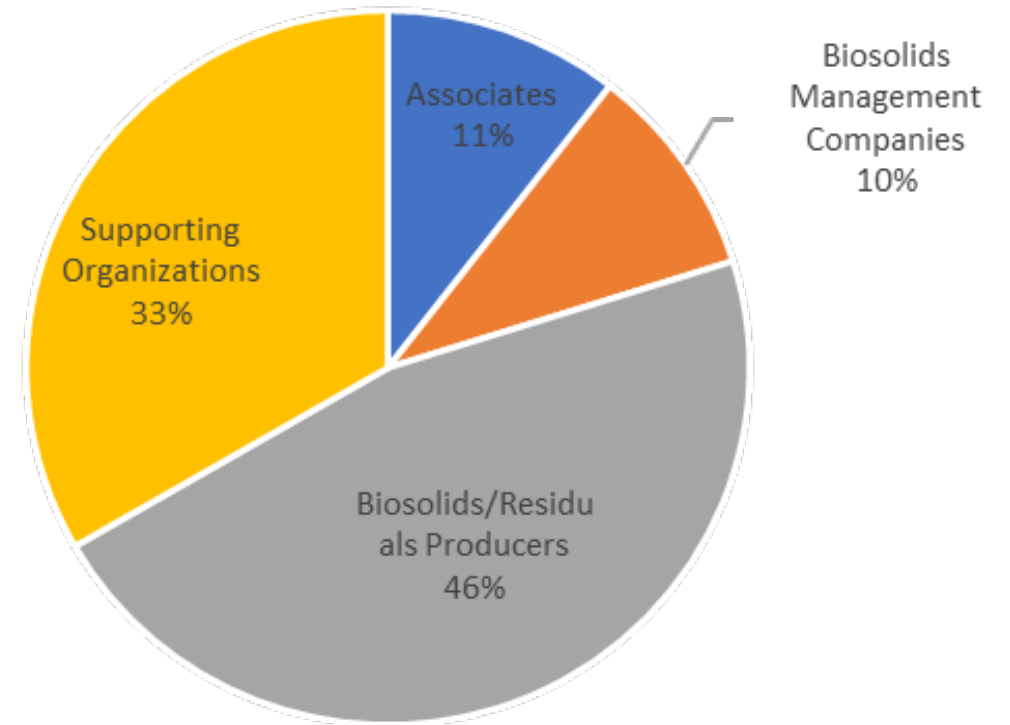


# Who is NEBRA and What Do We Do?



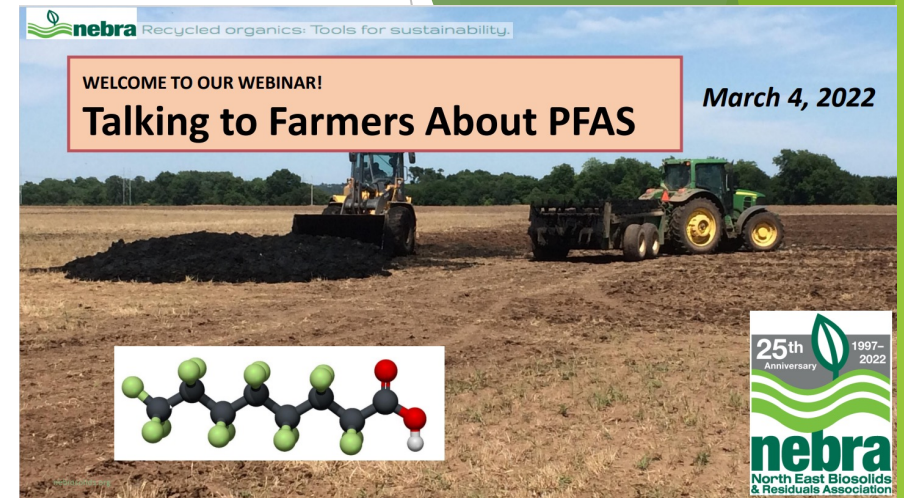
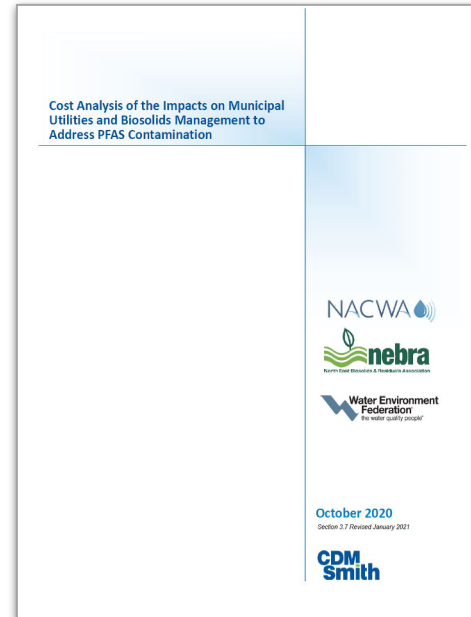
- ▶ ***NEBRA's mission is to cooperatively promote sustainable diversion, recycling and beneficial use of biosolids and residuals from the municipal and industrial sectors.***

NEBRA Membership (2023)



# NEBRA and PFAS

- ▶ Early focus on PFAS (2017) due to major contamination issues in the region
- ▶ NEBRA-funded study on PFAS fate and transport in Maine soils (2019)
- ▶ NEBRA/NACWA/WEF cost impacts study (2020)
- ▶ PFAS education, communications, and advocacy for members (ongoing)



PFAS: Why is it so Difficult to  
Talk About And Why We Need  
You to Be Part of the Discussion



# You Cannot Avoid Talking About Emerging Contaminants



# The Communication Challenges with PFAS

- ▶ Regulations - not uniform, vary by contaminant, inconsistent and confusing
- ▶ Fate & Transport - very complicated for PFAS!
- ▶ Toxicological/Epidemiological - lots of unknowns, gaps in research. No known medical interventions.
- ▶ Technical - identifying source(s) of pollutants, determining effective removal/destruction methods
- ▶ Analytical Abilities - still limited for PFAS
- ▶ Quality of Life Issues - community outrage, misinformation

Adopted from: 14 Risk Communication - PFAS — Per- and Polyfluoroalkyl Substances ([itrcweb.org](http://itrcweb.org))





# Why You Need to Get Involved in the Conversation

<https://www.unwater.org/bethechange/>



It's your responsibility as a member of the clean water community and as a citizen of the world



If you have to raise rates, your customers might not like it but they will understand it

***“What you do makes a difference, and you have to decide what kind of difference you want to make.” – Jane Goodall***

# Others Are Framing the Debate

## Toxic chemicals 'Forever chemicals' are found in MWRA River, fertilizer, drawing alarm

By [David Abel](#) Globe Staff, December 1, 2019, 7:32 p.m.

     60



on Sept. 27.



the organization  
dayfields found

4

se in their  
toxic sludge  
ewer Division



# Communication and Public Outreach Strategies



# Steps To Take to Tackle PFAS

Understand

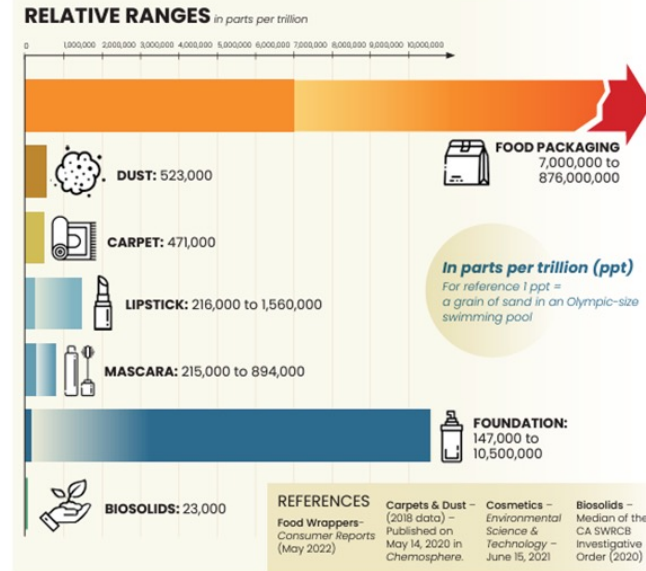
Mitigate

Educate and Outreach

# PFAS BY THE NUMBERS

Per and polyfluoroalkyl substances (PFAS) are a group of manmade fluorinated compounds that have been in commercial use since the 1940's and are abundant in today's society. These chemicals are widely used for their resistance to heat, water, and oil. PFAS are found in every American household, and in products as shown in the bar graph with typical concentrations. Entities providing essential public services such as safe drinking water, wastewater treatment, water recycling, biosolids recycling, and municipal solid waste management are not "users" or "producers" of PFAS but receive them as a function of their prevalent use in society.

Our collective essential public service mission is to ensure safe drinking water, wastewater treatment, and sanitation services. We embrace our role as environmental and public health stewards and our continued responsibility and commitment to providing a clean environment now and for future generations. To ensure successful achievement of our mission, we must transition away from use of PFAS in our society.



# 10 things you can do about toxic PFAS chemicals

PFAS are a family of almost 9,000 human-made chemicals that are effective at repelling grease, water, and stains, as well as combating certain types of fires. PFASs are in cookware, food packaging, stain resistant carpets and clothing, some cosmetics, outdoor gear, and even dental floss. You may know them as Teflon®, or Scotchguard®. Virtually all Americans have them in their bodies. They've been detected in San Francisco Bay and the fish that people catch and consume from those waters. They've also been detected in California drinking water sources serving 19 million people.

PFAS chemicals have been linked to cancer, high cholesterol, birth defects, suppression of vaccines, and other serious health effects. They all persist in the environment and are virtually indestructible. Even if we stopped using all of them tomorrow, we would still have an on-going problem.

Because it is difficult to completely avoid exposure to PFAS, Clean Water Action is working to stop the use of these toxic chemicals. In the meantime, there are some simple things that you can do to limit your exposure:

- 1 Ditch the non-stick cookware — even if it says PFOA (a type of PFAS) Free.** When heated at high temperatures, PFAS-containing cookware gives off fumes that are serious enough to cause flu-like symptoms in people and even kill pet birds. Don't be fooled by PFOA-free labels, as that may just mean that the PFOA was replaced by another PFAS. Stainless steel and cast iron cookware are great alternatives.
- 2 Can't replace the cookware? Reduce the heat.** Don't preheat non-stick cookware and never use it in an oven heated at or above 400 degrees. Also never use steel wool or other scraping cleaners on non-stick items; this can release the coating into your food or the environment.
- 3 Pop your own corn.** Microwave popcorn bags, including organic products, usually have PFAS coatings inside that can leach into your snack and are released into the air when you open the bag. Instead, buy loose popping corn and pop it on the stove. Alternatively, pop loose kernels in a covered bowl or paper bag in the microwave.
- 4 Bring your own container for to-go food.** Eating out? Bring your own metal or glass container to bring home your leftovers. You'll avoid PFAS in take-out containers and reduce trash. Also limit foods like hamburgers, pastries, or french fries that come in grease-resistant packaging. Studies have detected PFAS in almost half of tested wrappers or pastry bags.



# PFAS

## FACTSHEET



### What Are PFAS?

Per and polyfluoroalkyl substances (PFAS)<sup>1</sup> are a group of manmade fluorinated compounds which are used for a variety of applications by both industry and residential households. PFAS have been in commercial use since the 1940's and are abundant in today's society. These chemicals are widely in use because of their exceptional resistance to heat, water, and oil.

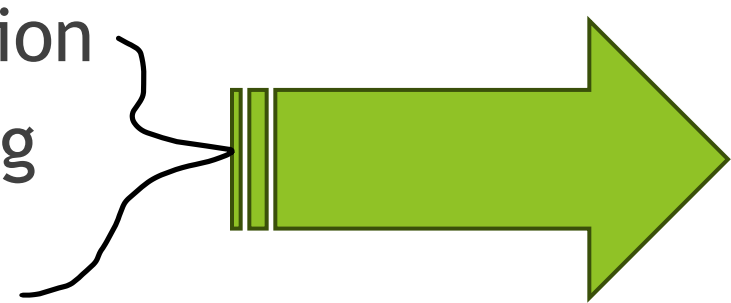
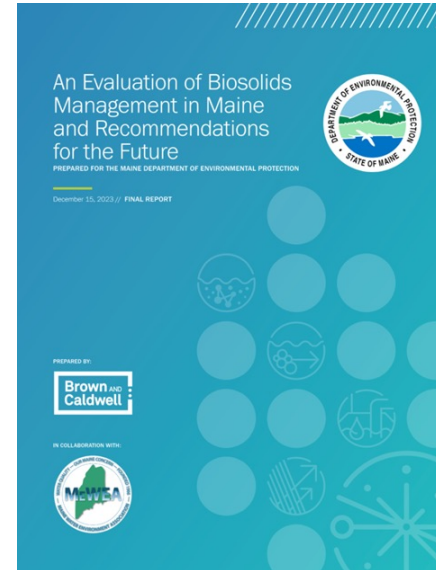
**PFAS are commonly found in every American household, and in products as diverse as non-stick cookware, stain resistant furniture and carpets, wrinkle free and water repellent clothing,**

# Understand What You Know and What You Don't Know

# "PFAS Producers Are Not Same as Receivers"

# What You Know and What You Don't Know

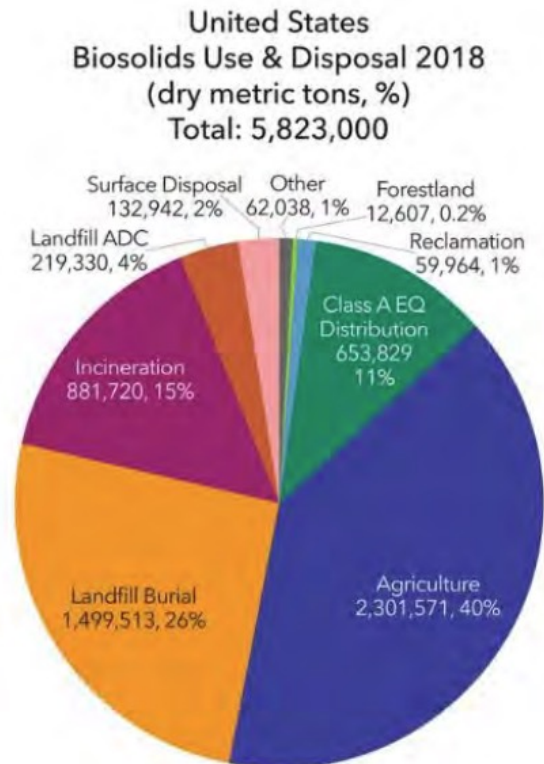
- ▶ Test Influent, Effluent, and Biosolids
- ▶ Potential Upstream PFAS Sources
- ▶ State Biosolids Master Plan
- ▶ Regulations and Legislation
- ▶ PFAS Treatment Emerging Technologies and Solids Reduction Technologies



**Leverage Professional Organizations: NEBRA, NEWEA, ASAs, NEIWPC**

# Mitigation

- ▶ Identify Potential PFAS Sources and Consider Source Control
  - ▶ IPP Investigations
  - ▶ SIU Reductions
- ▶ Evaluate Solids Management
  - ▶ Biosolids Master Plan
  - ▶ Reduce Solids
- ▶ PFAS Treatment Emerging Technologies and Solids Reduction Technologies



[www.biosolidsdata.org/state-summaries](http://www.biosolidsdata.org/state-summaries)



Huber Belt Dryer



CHAR Technologies High Temperature Pyrolysis



Mid-Atlantic Biosolids Association



# Develop and Implement a PFAS Communications Plan to Educate and Inform

- ▶ Identify Stakeholders
- ▶ Develop Messaging  
*(we can help – it's not that scary!)*
- ▶ Basic Information for Customers:
  - ▶ What is PFAS and Why are PFAS a Health Concern?
  - ▶ What Can I Do?
  - ▶ What are you doing to reduce risks?

## PFAS

Per- and polyfluoroalkyl substances (PFAS) are a large family of human-made chemicals in use since the 1950s to make a wide variety of stain-resistant, water-resistant, and non-stick consumer products. Watch our videos and read more about PFAS below.

What Are PFAS?



Why are PFAS a Health Concern?



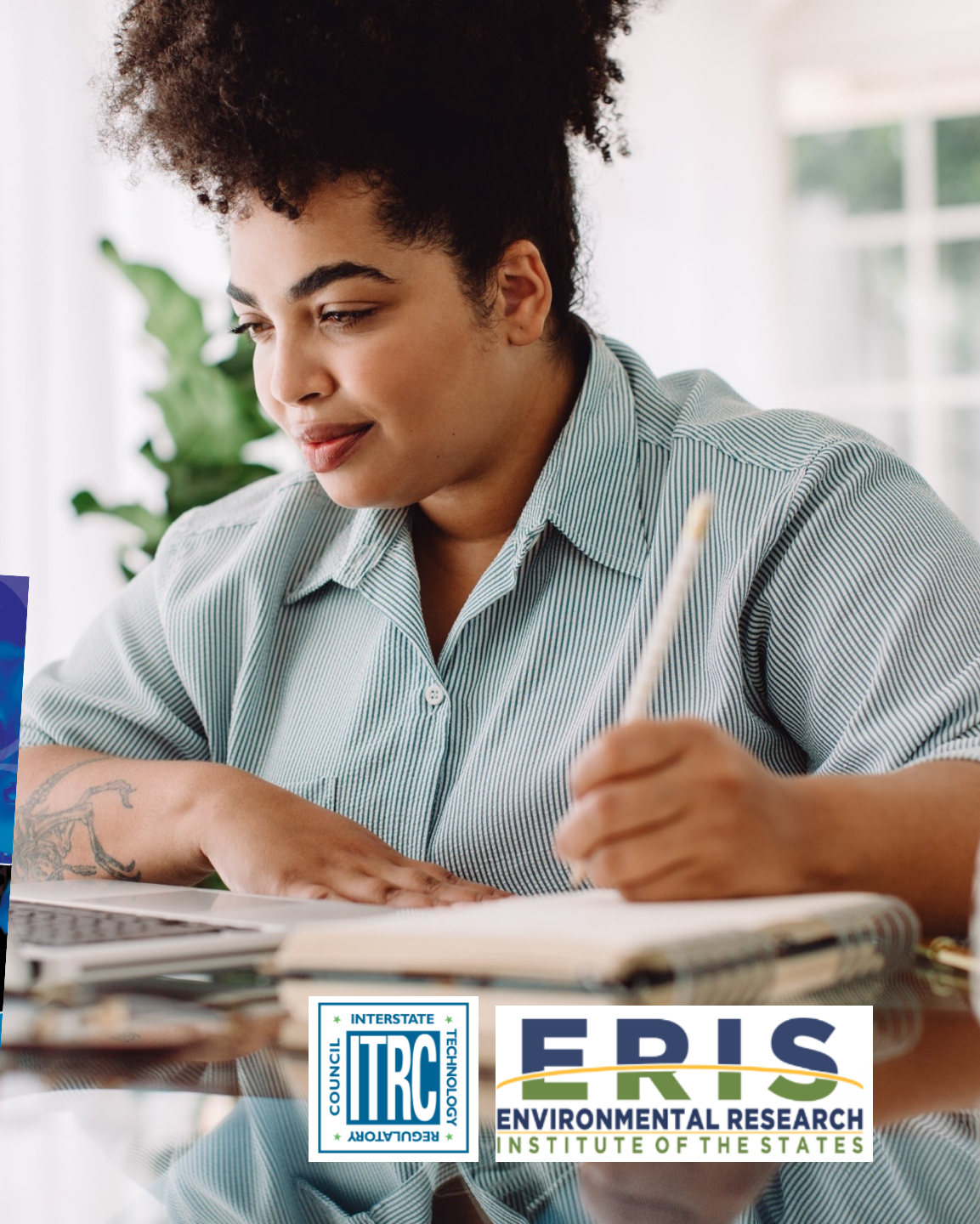
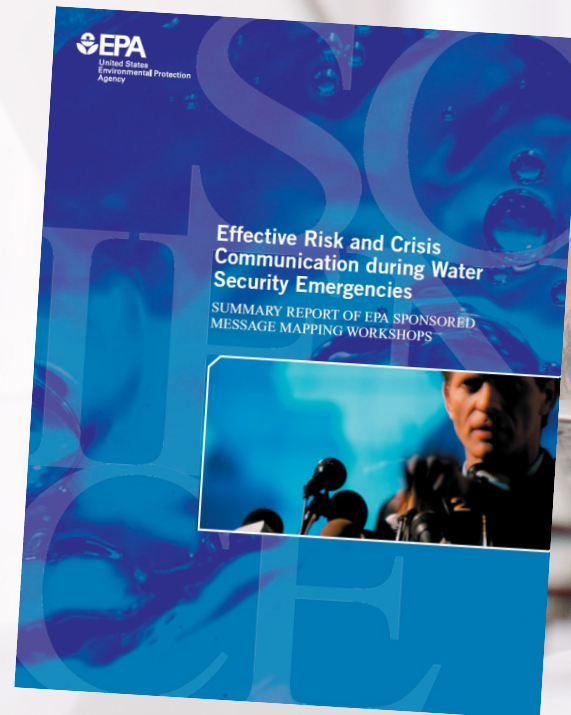
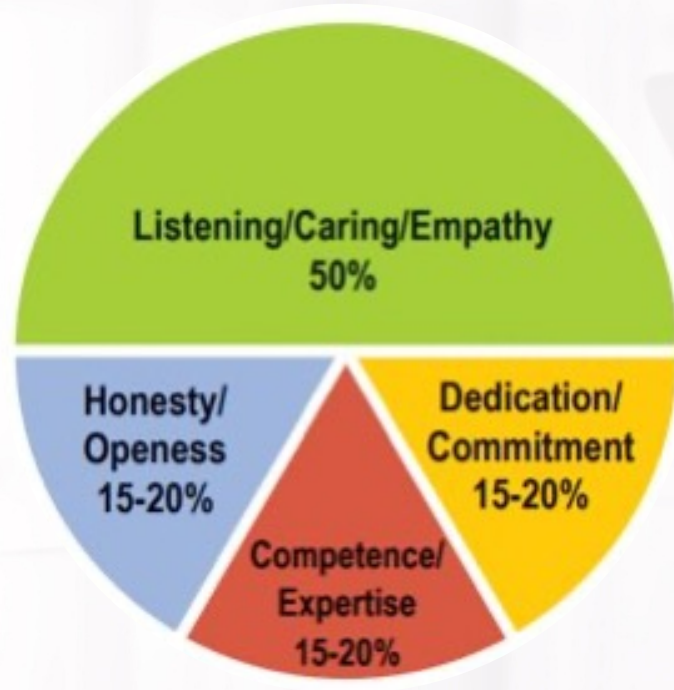
Lowering Exposure From Drinking Water



[PFAS | Washington State Department of Health](#)



# Risk Communication Requires



# BC PFAS Communications Guide

## DO



### Show your commitment.

Take this opportunity to support and share local PFAS data and connect and build positive relationships. Show up, listen, and describe action. Utilities can play a key role in educating the public and increasing public confidence through their direct connection with customers.

### Acknowledge concerns.

Hear customers' fears about potential exposure and health impacts.

### Address the issue.

Share commonly accepted information and local data about PFAS sources, potential health risks, ways to minimize exposure, and how to learn more.

## DON'T



### Be defensive.

While reactivity on the topic of PFAS is understandable, given changing regulatory guidelines and common public misperceptions, it does not build trust.

### Minimize concerns.

People are legitimately worried about their health and the health of their families and loved ones.

### Ignore the issue.

PFAS have reached a level of heightened concern, given their presence throughout the environment and inability to break down easily.

# BC PFAS Communications Guide

## DO

### Share information that's understandable.

Use clear visuals and simple figures. Minimize text.

### Share relevant information.

Connect directly to interests, common concerns, and most likely exposure channels.

### Show your work.

Explain concrete actions that your utility or organization is taking to proactively understand PFAS levels in your community and address PFAS.

### Use available resources.

Consult reputable organizations for help in developing a communications approach and effective tools.

## DON'T

### Get too technical.

Avoid industry jargon and acronyms. Provide definitions for technical or complex terms.

### Forget the context.

Provide information that connects directly with your audience's experience.

### Over-promise.

Clarify the time and resources needed to effectively address PFAS.

### Go it alone.

Connect with other utility leaders facing similar challenges. Consult materials and toolkits developed by local and national organizations.




# Resources and Examples

# Some Regional Efforts on PFAS




- ▶ NEBRA/NEWEA Collaboration on outreach materials

Water quality Professionals deliver safe water for Families and the environment, Addressing contaminants that modern living adds to the water cycle.



**SAFETY. SCIENCE. SOLUTIONS.**

How can you help limit or manage contaminants before they enter the water cycle? Talk to your local water quality professional about **PFAS.**



TaxPayers count on saFe and responsible recycling of water and organic matter using cost effective, sustainable practices that support drinking water, recreation, business use, And improved Soil quality.

**SAFETY. SCIENCE. SOLUTIONS.**

Synthetic chemicals in household cleaning Products, firefighting Foam, food packaging, clothing, and beauty products Are driven by consumer demand for Safer living.



Are you making informed choices? Talk to your local water quality professional about **PFAS.**

**SAFETY. SCIENCE. SOLUTIONS.**



[PFAS - NEWEA - New England Water Environment Association](https://www.newea.org/resources/pfas/pfas-campaign-partner/)

<https://www.newea.org/resources/pfas/pfas-campaign-partner/>



# Some Regional Efforts on PFAS

## ► NEBRA/NEWEA Collaboration on State PFAS Legislation Tracking

NEWEA PFAS Task Force Legislative Tracking								19-Jan-24
State	Bill Summary	Bill Number	Link for Bill Text	Committee	Position	Status	Person Assigned to Watch	Disposition
CT	An Act Requiring The Testing Of Water For The Presence Of PFAS During The Home Inspection Conducted In Connection With The Sale Of A Home. To inform prospective homeowners about the presence of PFAS contaminants in water.	SB101	<a href="https://www.cga.ct.gov/asp/cgabillstatus/cgabillstatus.asp?selBillType=Bill&amp;which_year=2023&amp;bill_num=101">https://www.cga.ct.gov/asp/cgabillstatus/cgabillstatus.asp?selBillType=Bill&amp;which_year=2023&amp;bill_num=101</a>	Joint Committee on Environment			Vanessa McPherson	No action taken in 2023
CT	An Act Establishing A Grant Program To Reimburse Municipalities For Costs Related To Removal Of PFAS From Fire Apparatus. To establish a grant program to reimburse municipalities for costs related to removal of PFAS from fire apparatus.	HB5250	<a href="https://www.cga.ct.gov/asp/cgabillstatus/cgabillstatus.asp?selBillType=Bill&amp;which_year=2023&amp;bill_num=5250">https://www.cga.ct.gov/asp/cgabillstatus/cgabillstatus.asp?selBillType=Bill&amp;which_year=2023&amp;bill_num=5250</a>	Public Safety & Security		Passed?	Vanessa McPherson	Some activity but no vote in 2023
MA	Moratorium on PFAS Emitting Structures	S2053	<a href="https://malegislature.gov/Bills/193/SD1716">https://malegislature.gov/Bills/193/SD1716</a>	Referred to Senate Ways and Means	OPPOSED	Passed out of joint administrative committee in 2023	Mickey Nowak	
X	MA	Providing farmers with immunity from claims caused by PFAS in soil, water, or agricultural products as a result of standard practices. Require testing of all biosolids and retail fertilizer, compost, mulch, topsoil and soil amendments for PFAS.	S39 - H101	<a href="https://malegislature.gov/Bills/193/HD1171">https://malegislature.gov/Bills/193/HD1171</a>	Referred to the Joint Committee on Agriculture		Mickey Nowak	Hearing on 5/5/23 but no further action
	MA	Create PFAS Remediation Trust Fund from manufacturing/marketing AFFP settlement funds, transfer of funds or other private/public donations. Use fund to issue grants for drinking water, groundwater, and soil cleanups. Surface water and groundwater discharge permits to included BMPs for discharge of PFAS. Ban of intentionally added PFAS in food packaging and consumer products.	S1356 H2197	<a href="https://malegislature.gov/Bills/193/HD3324">https://malegislature.gov/Bills/193/HD3324</a>	Referred to the Joint Committee on Public Health			Hearing held on 6/21/23; no further action
	MA	DEP to develop regulations for best practices regarding proper disposal of products containing PFAS.	HD389	<a href="https://malegislature.gov/Bills/193/HD389">https://malegislature.gov/Bills/193/HD389</a>	Referred to Joint Committee on Environment and Natural Resources			Scheduled for hearing on 6/14/23; no further action
X	MA	An Act to protect Massachusetts public health from PFAS; see lines 79 to 89 where they are requiring quarterly PFAS testing for groundwater discharge permits. Not much to worry about here?	HD3324; SD2053	<a href="https://malegislature.gov/Bills/193/HD3324">https://malegislature.gov/Bills/193/HD3324</a>	Public Health		Mickey Nowak	Hearing held on 6/21/23; no further action
X	ME	An Act to Support Farming in Maine by Extending the Deadline for Manufacturers of Products Containing Perfluoroalkyl and Polyfluoroalkyl Substances to Report on Those Products	LD1960	<a href="https://legislature.maine.gov/LawMakerWeb/summary.asp?ID=280089482">https://legislature.maine.gov/LawMakerWeb/summary.asp?ID=280089482</a>	ENR	Carried over		Carried over to next session

# BioHub

Scan the QR code to learn more  
and get involved:



## Some Regional Efforts on PFAS

- ▶ NEIWPC Residuals Workgroup and BioHub



Biosolids improve soil health and increase crop yields better than chemical fertilizers do.



Using biosolids saves farmers money, creates jobs, and lowers treatment costs.

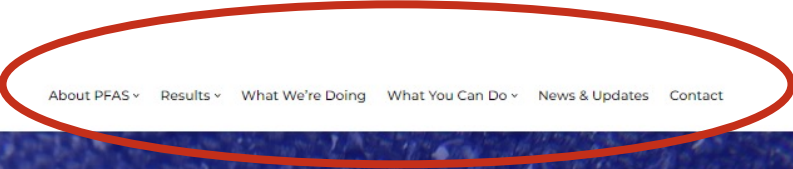
# Selected Resources

- ▶ [PFAS Team - ITRC \(itrcweb.org\)](https://www.itrcweb.org)
- ▶ [Stop PFAS at the Source! \(wef.org\)](https://www.wef.org)
- ▶ [Per- and Polyfluoroalkyl Substances \(PFAS\) - List of Scientific and Technical Studies Related to Solid Waste \(erefndn.org\)](https://www.erefndn.org)
- ▶ [Biosolids | US EPA](https://www.epa.gov)
- ▶ [Resources: Key Topics of Interest – NEBRA \(nebiosolids.org\)](https://www.nebiosolids.org)

<https://www.wef.org/globalassets/assets-wef/3---resources/topics/a-n/biosolids/biosolids-communications-toolkit.pdf>



# Examples to Follow



## WHAT YOU CAN DO

PFAS are abundant in our society as it's found in a wide variety of consumer products and industrial products, which means we all have a role to play in reducing PFAS in our air, water and soil.

Learn what you can do to reduce or eliminate PFAS in your life, home and business.

### FOR CONSUMERS

Click each toggle to learn more.

- LEARN WHAT'S IN YOUR DRINKING WATER
- BEWARE OF CERTAIN FOOD PACKAGING
- AVOID WATER-PROOF, WATER-RESISTANT AND STAIN-RESISTANT PRODUCTS
- INVESTIGATE PRODUCTS

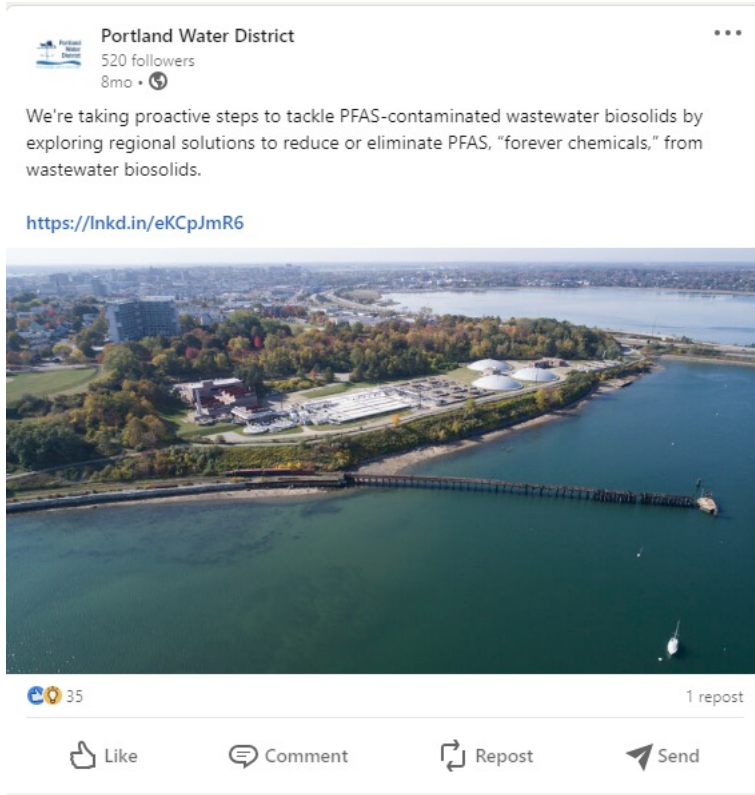


► Madison Metropolitan Sewerage District (Madison, Wisconsin)  
<https://madsewerpfasinitiative.org/>



# Examples to Follow


- ▶ Social Media and Website
  - ▶ Many NEBRA members in Maine doing great work!



**Portland Water District**  
520 followers  
8mo •

We're taking proactive steps to tackle PFAS-contaminated wastewater biosolids by exploring regional solutions to reduce or eliminate PFAS, "forever chemicals," from wastewater biosolids.

<https://lnkd.in/eKCpJmR6>



35 1 repost

Like Comment Repost Send



LEWISTON-AUBURN  
WATER POLLUTION CONTROL AUTHORITY

- HOME
- ABOUT US
- PUBLIC INFORMATION
- RESOURCES

## PFAS FAQs

### Frequently Asked Questions About PFAS

- + What are PFAS?
- + Does LAWPCA test for PFAS?
- + Does LAWPCA have PFAS in its product?
- + What impacts has LAWPCA seen as a result of PFAS contamination?
- + What is LAWPCA doing about PFAS?
- + Where can I find more information about PFAS?

[1] <https://www.niehs.nih.gov/health/topics/agents/pfc/index.cfm#footnote1>

[2] <https://www.atsdr.cdc.gov/pfas/health-effects/us-population.html#:~:text=As%20the%20use%20of%20some,declined%20by%20more%20than%2060%25>



Philip Tucker reposted this

**North East Biosolids and Residuals Association (NEBRA)** • 1st  
Recycled Organics: Tools for Sustainability  
5mo •

This should be a lively discussion on PFAS and Water Quality, featuring clean water leaders in Maine! Be sure to tune in on August 24th at 11 am EST with a rebroadcast at 7 pm EST.  
<https://lnkd.in/eh2KnRTc>



**MAINE CALLING**  
maine public

Maine Calling  
mainepublic.org • 2 min read



# Examples to Follow

## ▶ Letters and Print Media

District Office  
Telephone: 324-5313  
Fax 324-5087

Treatment Plant  
Telephone: 324-0047  
Fax: 324-9830

**SANFORD SEWERAGE DISTRICT**  
281 River Street \* P.O. Box 338  
SPRINGVALE, ME 04083-0338

June 1, 2023

Town of Wells  
Attn: Michael **Pardue**, Manager  
208 Sanford Road  
Wells Maine 04090

Dear Mr. **Pardue**,

The Sanford Sewerage District (SSD) would like to inform you of our position regarding *Per- and polyfluoroalkyl substances (PFAS)* found in many products eventually making its way into the wastewater stream. In 2022, the 130<sup>th</sup> Legislative body passed two substantial PFAS bills that impacted biosolids disposal options. LD 1911 prohibits any beneficial reuse of biosolids products. LD 1639 prohibits out of state construction demolition debris. Since the passage of these laws, costs of handling this sludge are increasing and reductions in licensing facilities to handle sludge are why our rates for sewerage and septage recently increased. We are continuing to monitor the cost fluctuations. If we are forced to reduce the amount of biosolids due to the lack of disposal options, we may need to make a hard decision to stop accepting out-of-town septage.

Created in 1947, the primary function of the SSD is to treat waste carried through our municipal system to protect our public waterways. In addition to treating our municipal waste, we also accept septage from many private septic systems. We are one of the few plants in southern Maine capable of receiving large volumes of septage.

In 2022, SSD received and treated over **8.1 million gallons** of septage throughout York and Cumberland Counties. Your community alone generated **1,163,084 gallons**. Treatment costs are rising with state legislation intended to protect us from PFAS. SSD was forced to raise rates which in turn is passed on to the septic haulers as well as our 4,700 in city customers.

With rising costs for biosolids disposal, the Trustees felt it was crucial to inform our neighbors of a greater challenge we face. The news has also reported the few licensed facilities accepting treated sludge are quickly filling up. Our district has NO plans to suspend receiving septage. However, if we are ever required to reduce our sludge generation, we may also need to reduce our ability to accept septage to continue safely treating our municipal sewerage.

This letter is to educate those with septic systems because PFAS involves more than just public sewer systems rate payers. The PFAS compounds are ubiquitous in society and it is very important we all remain informed and work with our legislators as they deal with the crucial issues of handling PFAS. Your help is important and there are ways to minimize your exposure which may reduce PFAS in your wastewater.

We have enclosed more detailed information highlighting the history of this subject, legislation regarding this, and how the SSD has been dealing with it. Please contact us with any questions.

Sincerely,  
André Brousseau- Superintendent

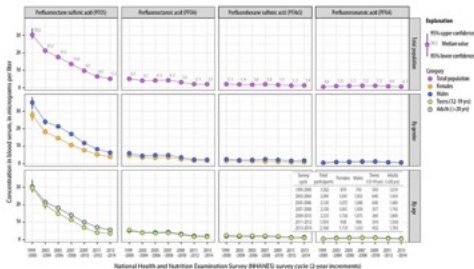
Encl.

LD 1911  
<http://www.mainelegislature.org/legis/bills/getPDF.asp?paper=HP1417&item=1&snum=130>  
LD 1639  
<http://www.mainelegislature.org/legis/bills/getPDF.asp?paper=SP0523&item=1&snum=130p>

Presentation last saved: Just now

## Product Stewardship Yields Results

Median concentration of selected per- and polyfluoroalkyl substances (PFAS) in blood serum (1999-2014) in the United States



**80% Drop in Blood Levels** after Voluntary Termination of PFOA/PFAS (2015)

Written Notice on its use in products with an **ultimate ban on intentionally added PFAS in products** will continue to reduce presence of these compounds.



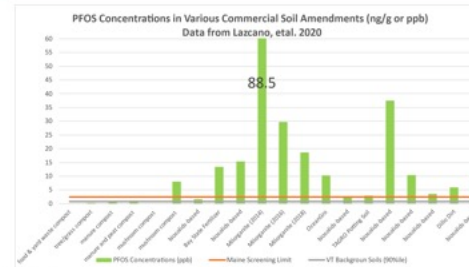
**Source Reduction** is the key to **PFAS Elimination**

Sampling at Wastewater Treatment Facilities should be focused on the goal of understanding PFAS where it is generated and how to manage reduction/elimination at the source.

**Land Application of Biosolids is generally not practiced in Connecticut.**

**Requiring excessive testing at Treatment Facilities increases cost to rate payers!**

*\*However, based on available data, many commercially available soil amendment products have higher levels than biosolid based products\**



**Regulating Wastewater and Biosolids Does Not Achieve the Goal**

# In Closing.....

- ▶ Educate Yourself...PFAS is complicated, and the industry and legislation is always changing
- ▶ Develop an outreach plan
- ▶ You are NOT alone
  - ▶ Professional Organizations
  - ▶ Resources and Examples are available
- ▶ Take Your Head Out of the Sand!

Ask Me About  
PFAS





# Thank you. Questions?



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