

PFAS UPDATE

CHEE THAO, Environmental Health Specialist June 27, 2024



Updated EPA MCLs

- EPA released new standards for publicly available, municipal drinking water in April, 2024
 - Does not apply to groundwater and private wells
- Department of Health Services recommendations for groundwater from 2022
 - Reviewing EPA drinking water standards

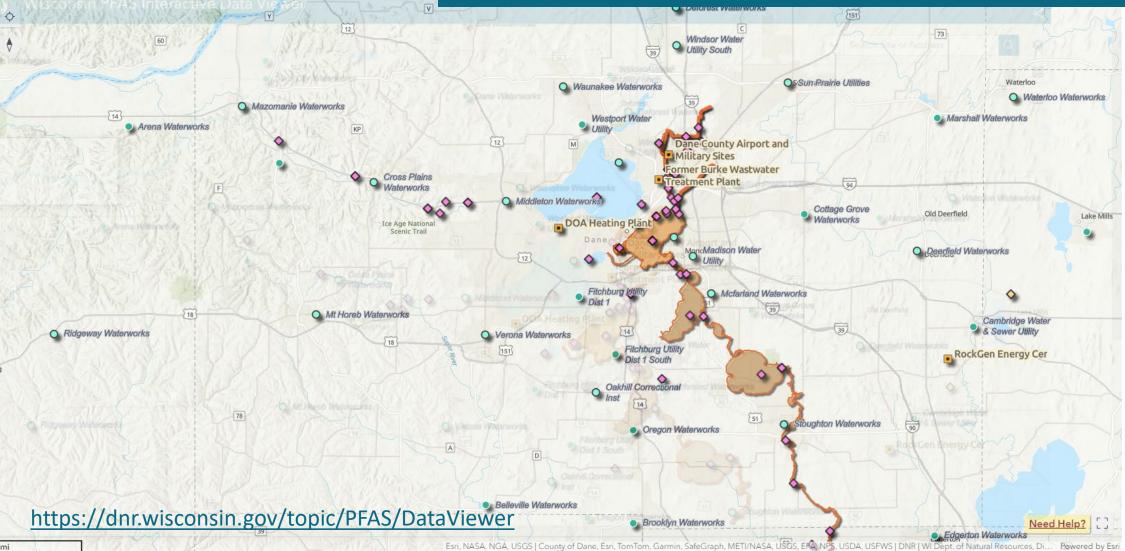
		Maximum Contaminant Limit (ng L ⁻¹ or PPT)				
		EPA Drinking Water		Groundwater	Surface Water	
Analyte Name	CAS No	Pre-2024	2024+			
11CI-PF3OUdS	763051-92-9	NA	NA	NA	NA	
4:2 FTS	757124-72-4	NA	NA	NA	NA	
6:2 FTS	27619-97-2	NA	NA	NA	NA	
8:2 FTS	39108-34-4	NA	NA	NA	NA	
9CI-PF3ONS	746426-58-1	NA	NA	NA	NA	
ADONA	919005-14-4	NA	NA	3,000	NA	
HFPO-DA	13252-13-6	NA	10*,**	300	NA	
NETFOSAA	2991-50-6	NA	NA	20**	NA	
NETFOSAA	4151-50-2	NA	NA	20**	NA	
NETFOSE	1691-99-2	NA	NA	20**	NA	
NMeFOSAA	2355-31-9	NA	NA	NA	NA	
NMeF0SAA	31506-32-8	NA	NA	NA	NA	
NMeFOSE	24448-09-7	NA	NA	NA	NA	
Perfluorobutansulfonic Acid	375-73-5	NA	NA	450,000	NA	
Perfluorodecanoic Acid	335-76-2	NA	NA	300	NA	
Perfluorohexanoic Acid	307-24-4	NA	NA	150,000	NA	
PFBA	375-22-4	NA	2000	10,000	NA	
PFDS	335-77-3	NA	NA	NA	NA	
PFDoS	79780-39-5	NA	NA	NA	NA	
PFHpS	375-92-8	NA	NA	NA	NA	
PFNS	68259-12-1	NA	NA	NA	NA	
PFOSA	754-91-6	NA	NA	20**	NA	
PFPeA	2706-90-3	NA	NA	NA	NA	
PFPeS	2706-91-4	NA	NA	NA	NA	
Perfluordodecanoic Acid	307-55-1	NA	NA	500	NA	
Perfluoroheptanoic Acid	375-85-9	NA	NA	NA	NA	
Perfluorohexanesulfonic Acid	355-46-4	NA	10*,**	40	NA	
Perfluorononanoic Acid	375-95-1	NA	10*,**	30	NA	
Perfluorooctanesulfonic Acid	1763-23-1	70,	4*	20**	8*	
Perfluorooctanoic Acid	335-67-1	70,	4*	20**	20 or 95*,***	
Perfluorotetradecanoic Acid	376-06-07	NA	NA	10,000	NA	
Perfluorotridecanoic Acid	72629-94-8	NA	NA	NA	NA	
Perfluoroundecanoic Acid	2058-94-8	NA	NA	3,000	NA	
ženfereshle sublidu susilable.	water					

*enforcable publicly available water

** combined total

*** If the water is intended for public water use then the lower standard applies

Sauk City Waterworks PFAS in Dane County

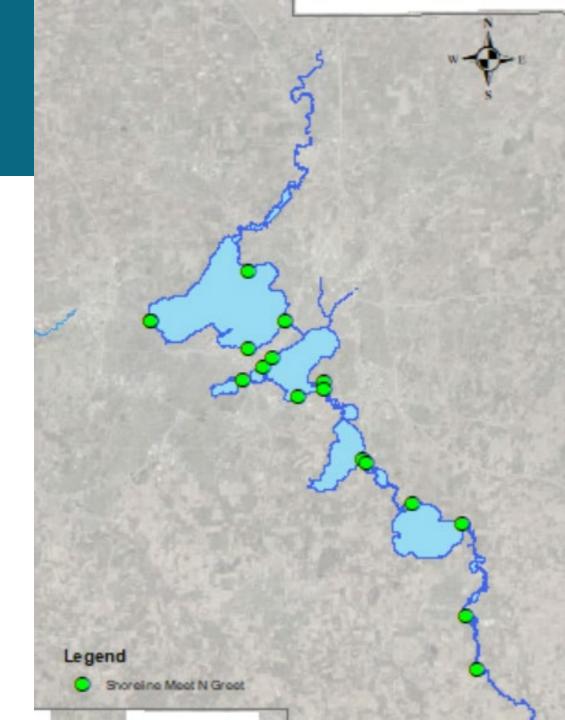


in Waterworks

in

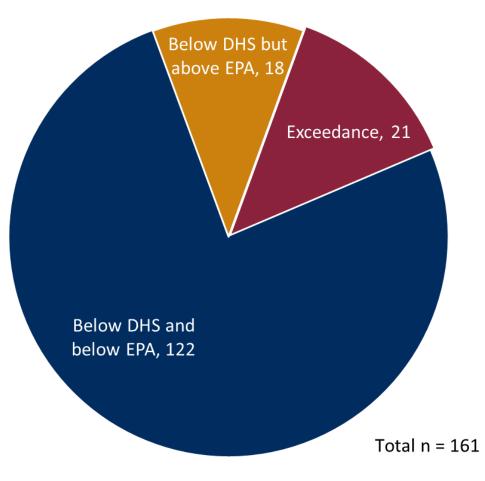
Angler Outreach

- 17 different locations around Chain of Lakes
- n = 89
 - 57% Caucasian
 - 18% African American
 - 13% AAPI
 - 13% LatinX



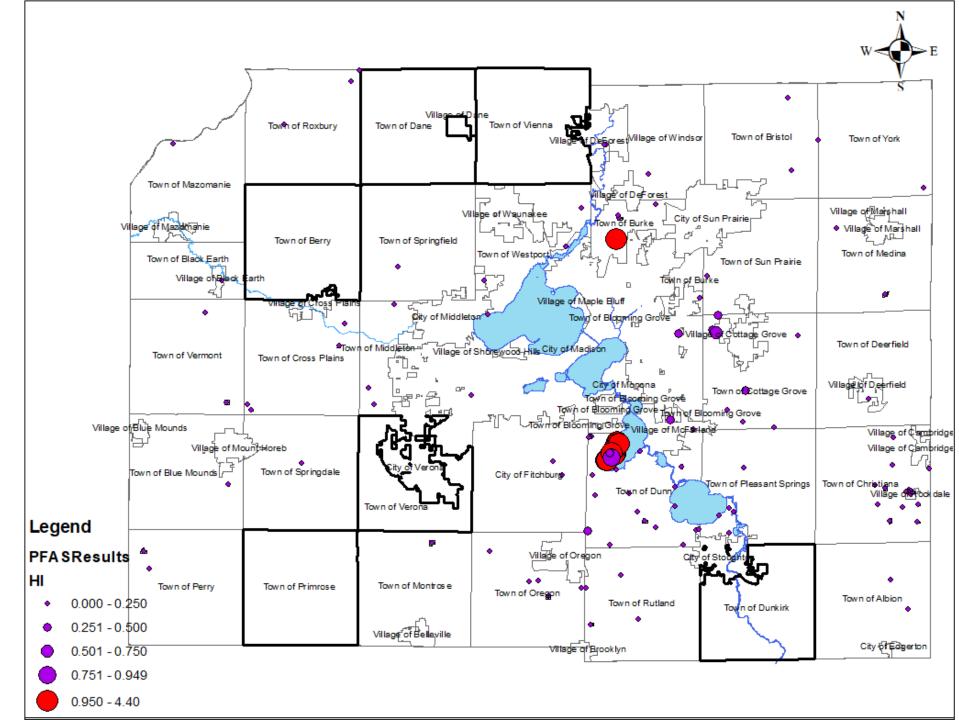
Private Well Testing

13% of tests exceeding DHS Recommendations



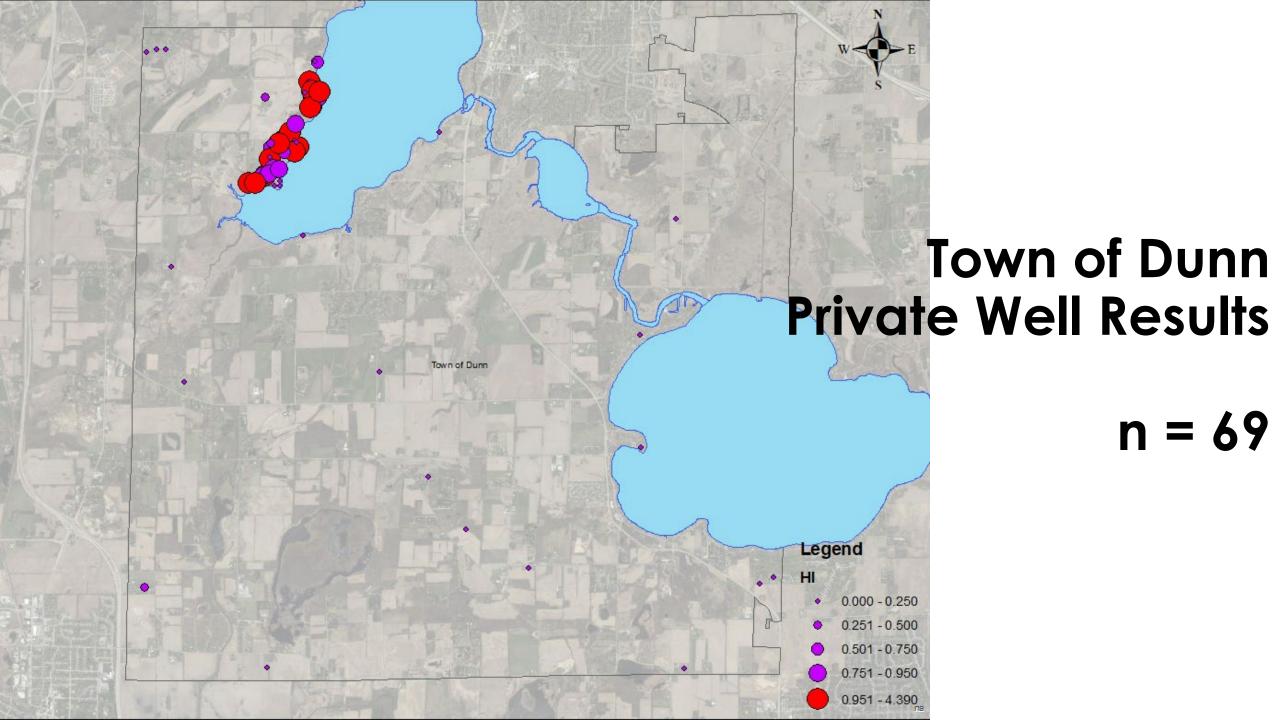
Private Well Results around the County

n = 161



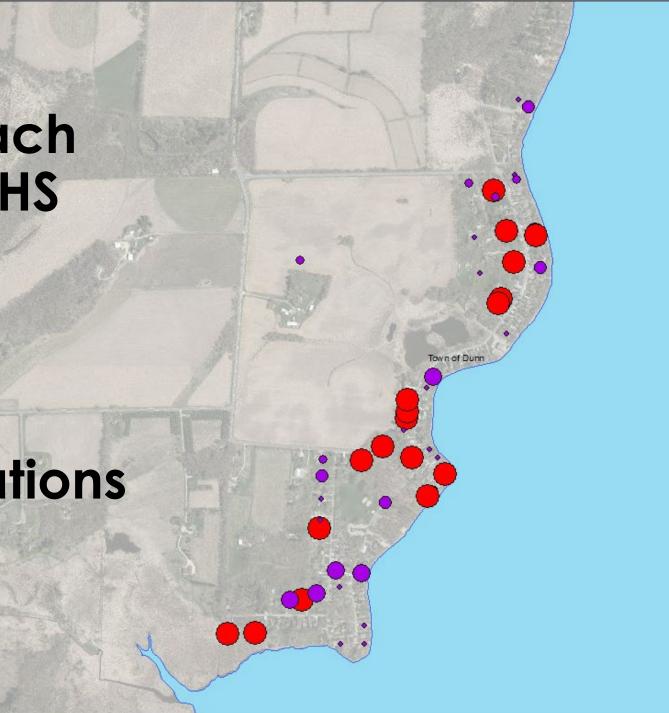
Dane Co including those above new EPA DW MCLs

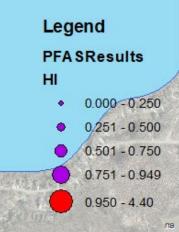
n = 161



Waubesa Beach Area under DHS Guidelines

19 of 50 sites exceed DHS recommendations (38%)

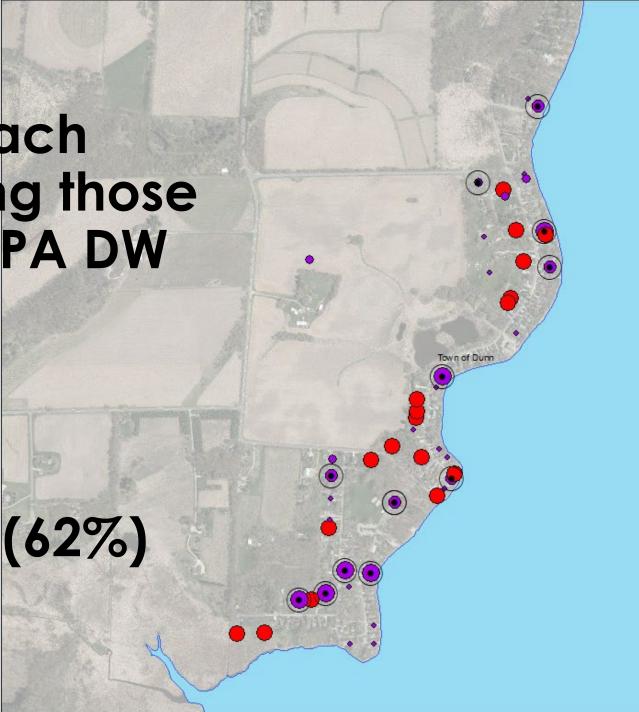


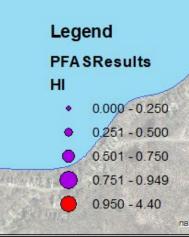


Waubesa Beach Area including those above new EPA DW MCLs

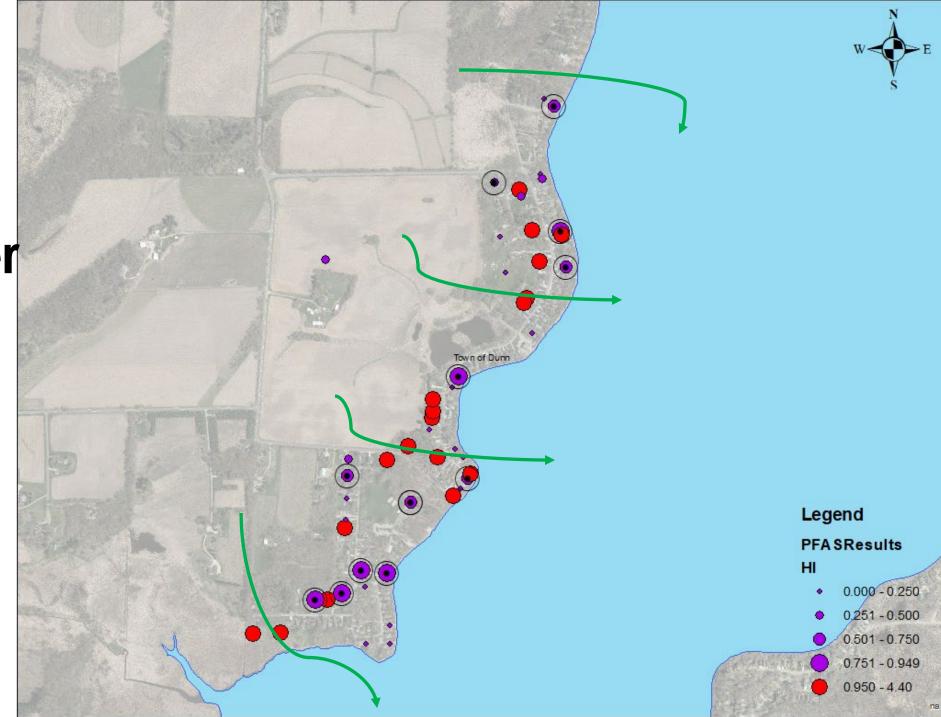
n = 12

31 of 50 sites (62%)





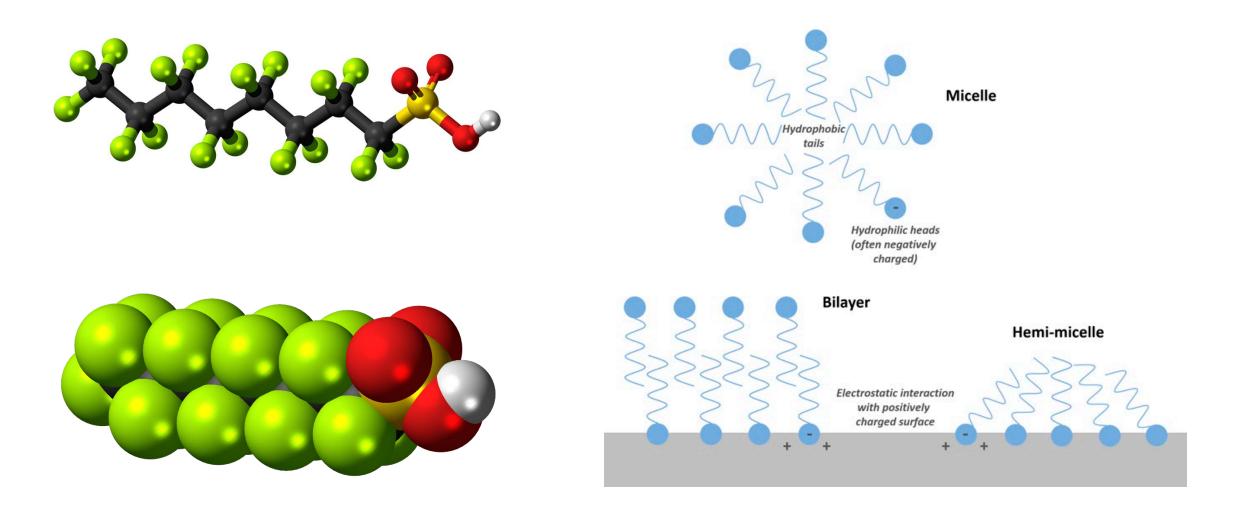
Groundwater flows into Lake in this area



Next Steps

- Public Health PFAS Private Well Testing extended until end of September, 2024
- Continue Angler Outreach
- EPA guidance on Biosolids expected Q4, 2024

What are PFAS



Standards and Recommendations

- EPA released new standards for publicly available, municipal drinking water in April, 2024
 - Does not apply to groundwater and private wells
- Department of Health Services recommendations for groundwater from 2022
 - Reviewing EPA drinking water standards

		Maximum Contaminant Limit (ng L ⁻¹ or PPT)			
		EPA Drinking Water		Groundwater	Surface Water
Analyte Name CAS	S No	Pre-2024	2024+		
11Cl-PF3OUdS 763	051-92-9	NA	NA	NA	NA
4:2 FTS 757	124-72-4	NA	NA	NA	NA
6:2 FTS 276	19-97-2	NA	NA	NA	NA
8:2 FTS 391	08-34-4	NA	NA	NA	NA
9CI-PF3ONS 746	426-58-1	NA	NA	NA	NA
ADONA 919	005-14-4	NA	NA	3,000	NA
HFPO-DA 132	52-13-6	NA	10*,**	300	NA
NETFOSAA 299	1-50-6	NA	NA	20**	NA
NEtFOSAA 415	1-50-2	NA	NA	20**	NA
NETFOSE 169	1-99-2	NA	NA	20**	NA
NMeFOSAA 235	5-31-9	NA	NA	NA	NA
NMeFOSAA 315	06-32-8	NA	NA	NA	NA
NMeFOSE 244	48-09-7	NA	NA	NA	NA
Perfluorobutansulfonic Acid 375	-73-5	NA	NA	450,000	NA
Perfluorodecanoic Acid 335	-76-2	NA	NA	300	NA
Perfluorohexanoic Acid 307-	-24-4	NA	NA	150,000	NA
PFBA 375	-22-4	NA	2000	10,000	NA
PFDS 335	-77-3	NA	NA	NA	NA
PFDoS 797	80-39-5	NA	NA	NA	NA
PFHpS 375	-92-8	NA	NA	NA	NA
PFNS 682	59-12-1	NA	NA	NA	NA
PFOSA 754	-91-6	NA	NA	20**	NA
PFPeA 270	6-90-3	NA	NA	NA	NA
PFPeS 270	6-91-4	NA	NA	NA	NA
Perfluordodecanoic Acid 307	-55-1	NA	NA	500	NA
Perfluoroheptanoic Acid 375	-85-9	NA	NA	NA	NA
Perfluorohexanesulfonic Acid 355	-46-4	NA	10*,**	40	NA
Perfluorononanoic Acid 375	-95-1	NA	10*,**	30	NA
Perfluorooctanesulfonic Acid 176	3-23-1	70****	4*	20**	8*
Perfluorooctanoic Acid 335	-67-1	70 ^{*,**}	4*	20**	20 or 95*,***
Perfluorotetradecanoic Acid 376	-06-07	NA	NA	10,000	NA
Perfluorotridecanoic Acid 726	29-94-8	NA	NA	NA	NA
Perfluoroundecanoic Acid 205	8-94-8	NA	NA	3,000	NA

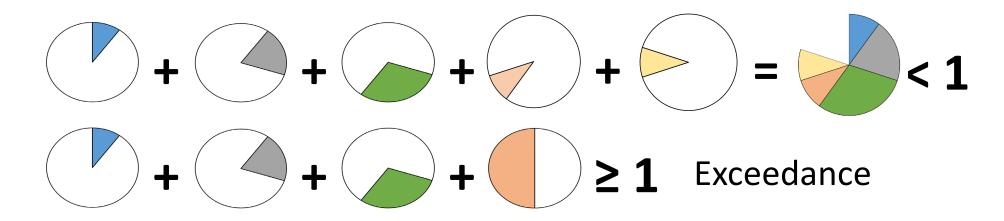
*enforcable publicly available water

** combined total

*** If the water is intended for public water use then the lower standard applies

The Hazard Index

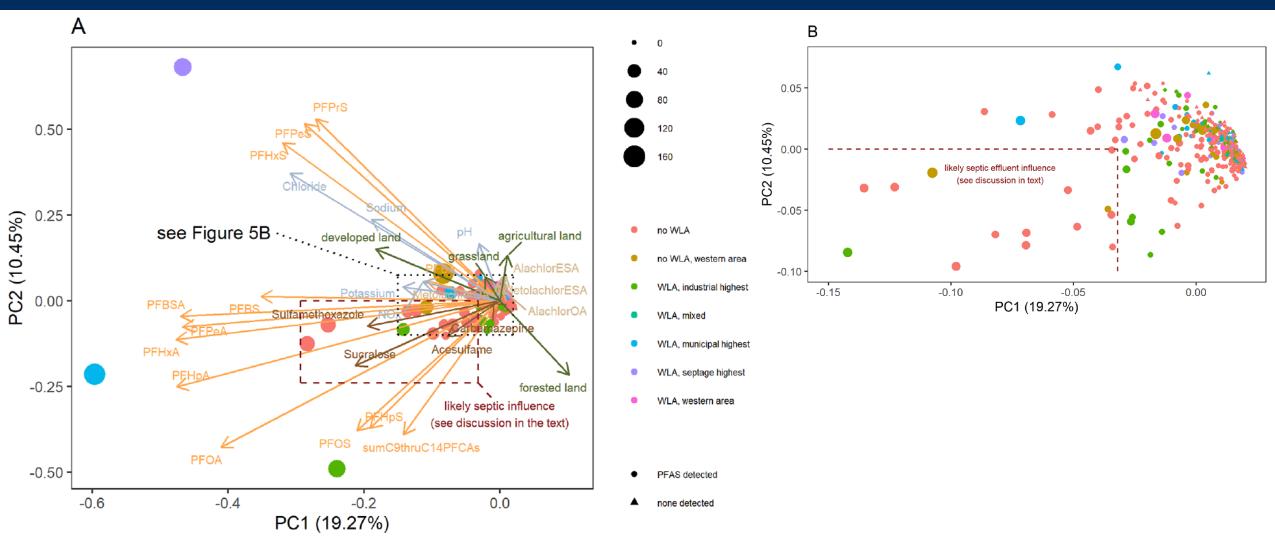
- Recommended calculation by the Wisconsin Department of Health Services (DHS)
- Recognizes that most exposures are to a mix of chemicals
- While no individual chemical may be above their recommended health guideline, the mix may still prove harmful
- Formal calculation: $HI = \sum_{i=1}^{n} \frac{PFAS Results_i}{PFAS Limit_i}$
 - -t-t *PFAS Limit*_i
- Anything above a 1 is considered an exceedance



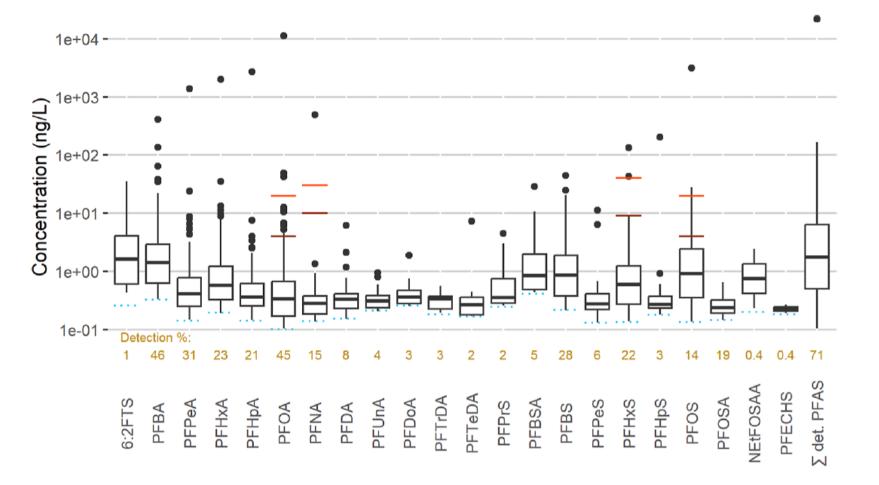
DNR Shallow Groundwater Study 2023

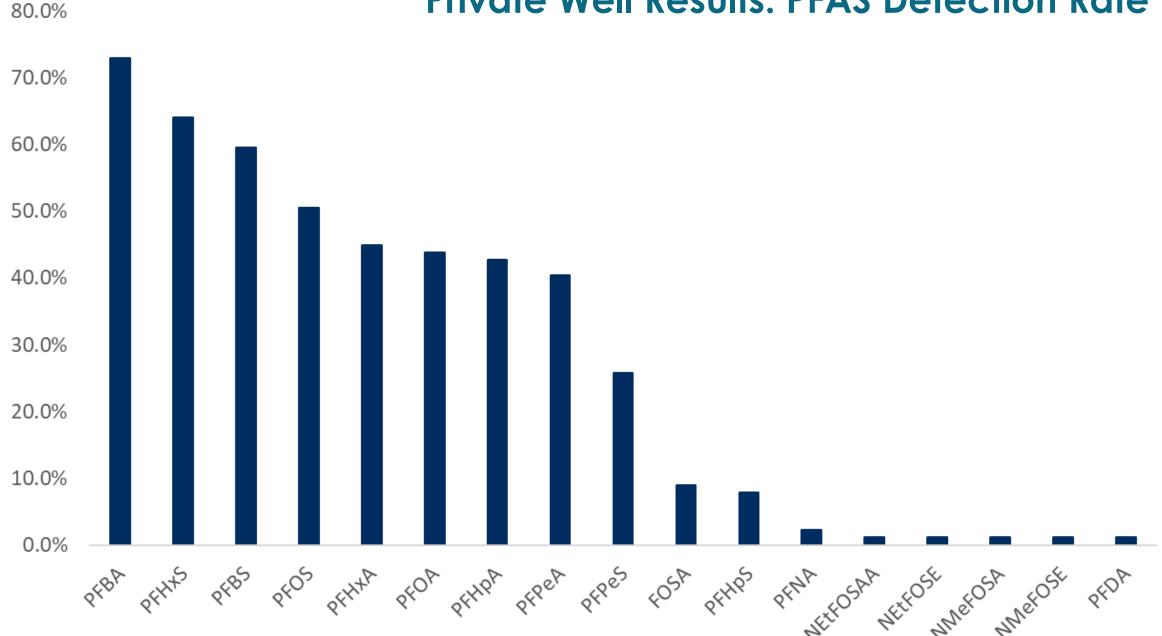
- 450 wells all across WI
- 71% of wells with PFAS detected
- 1% above DHS recommendations
- 4% above EPA proposed MCLs

DNR Shallow Groundwater and Source Tracing study Nov, 2023



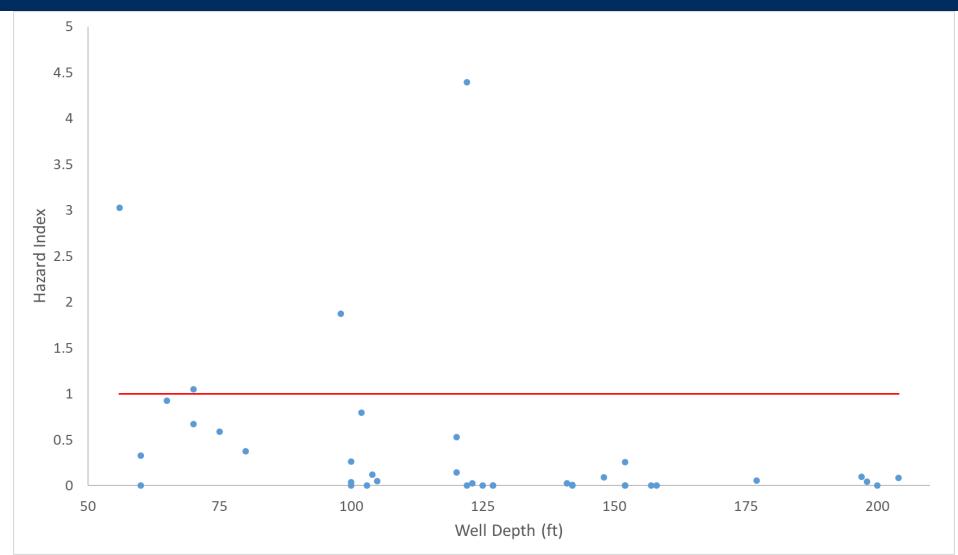
DNR Shallow Groundwater and Source Tracing study Nov, 2023



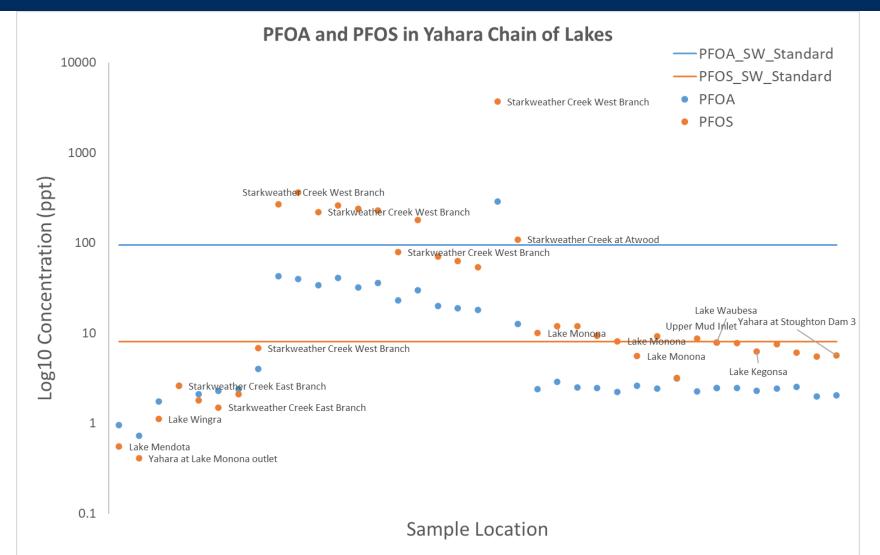


Private Well Results: PFAS Detection Rate

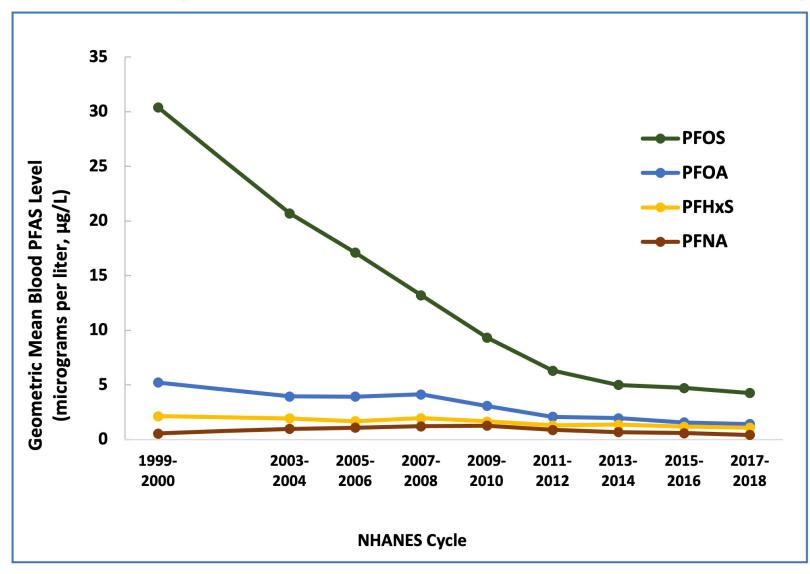
Private Wells Testing around Dane County (n=34)* need to update

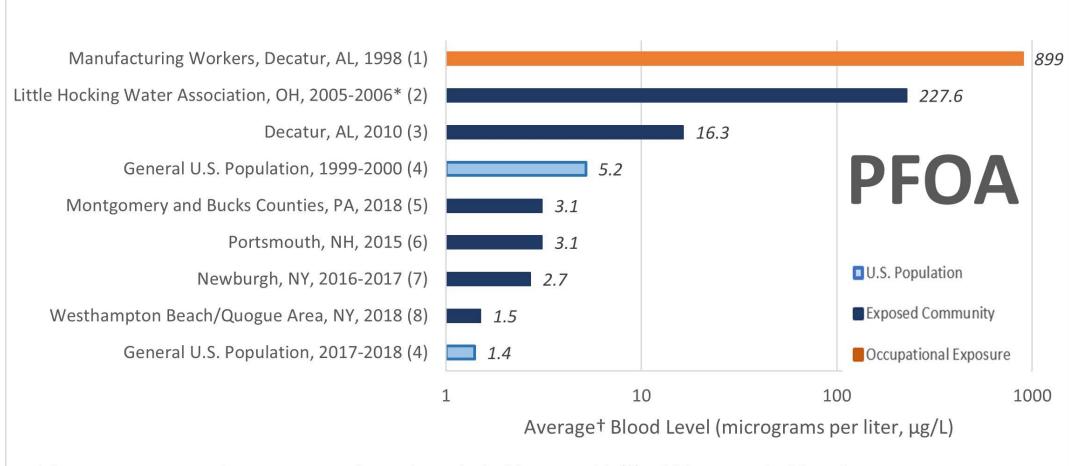


DNR Surface Water Data Yahara Chain of Lakes

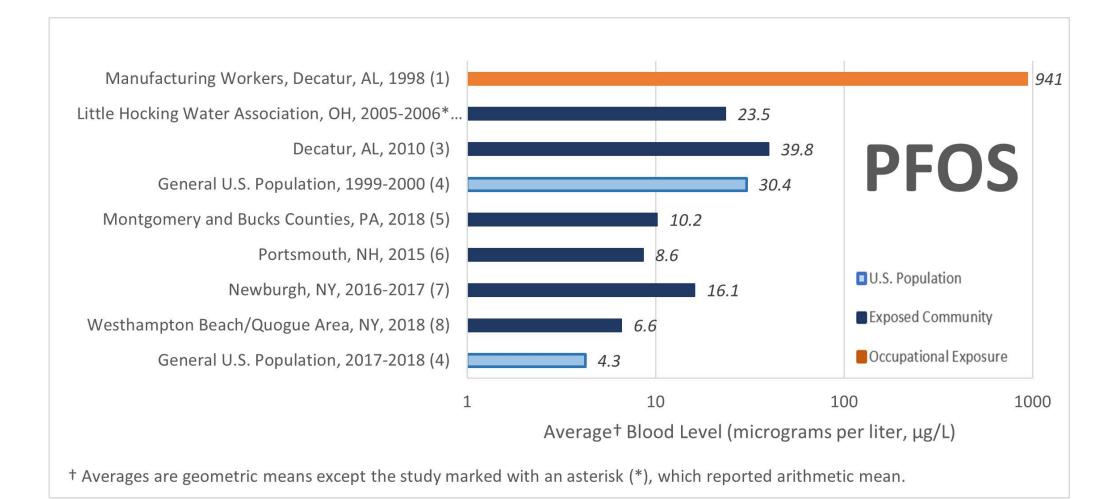


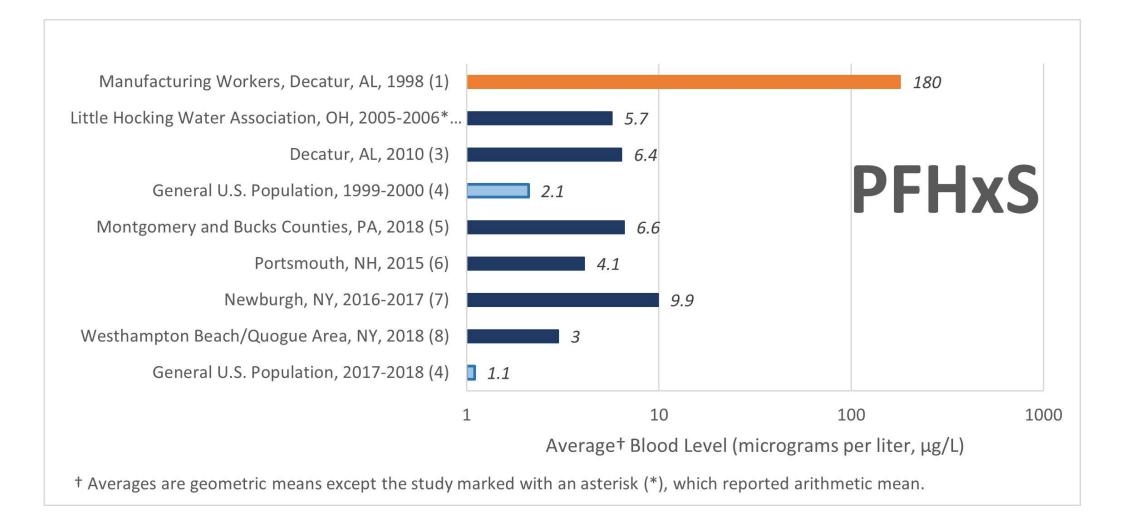
NHANES Cycle Blood serum study





+ Averages are geometric means except the study marked with an asterisk (*), which reported arithmetic mean.





National Academy of Sciences Clinical Guidance on blood serum testing

$$1\frac{ug}{L} = \frac{1ng}{mL} = ppb$$

\geq 20 (ng/mL) PFAS* Encourage PFAS exposure reduction if a source of exposure is identified, especially for pregnant persons. In addition to the usual standard of care, clinicians should: Prioritize screening for dyslipidemia with a lipid panel (for patients over age 2) following American Academy of Pediatrics (AAP) recommendations for high-risk children and American Heart Association (AHA) guidance for high-risk adults. At all well visits: Conduct thyroid function testing (for patients over age 18) with serum thyroid stimulating hormone (TSH), Assess for signs and symptoms of kidney cancer (for patients over) age 45), including with urinalysis, and For patients over age 15, assess for signs and symptoms of testicular cancer and ulcerative colitis. 2-<20 (ng/mL) PFAS* Encourage PFAS exposure reduction if a source has been identified, especially for pregnant persons. Within the usual standard of care clinicians should: Prioritize screening for dyslipidemia with a lipid panel (once between 9) and 11 years of age, and once every 4 to 6 years over age 20) as recommended by the AAP and AHA. Screen for hypertensive disorders of pregnancy at all prenatal visits per the American College of Obstetricians and Gynecologists (ACOG). Screen for breast cancer based on clinical practice guidelines based on age and other risk factors such as those recommended by U.S. Preventive Services Task Force (USPSTF).

Provide usual standard of care

* Simple additive sum of MeFOSAA, PFHxS, PFOA (linear and branched isomers), PFDA, PFUnDA, PFOS (linear and branched isomers), and PFNA in serum or plasma

FIGURE S-6 Clinical guidance for follow-up with patients after PFAS testing.

NOTE: MeFOSAA = methylperfluorooctane sulfonamidoacetic acid; PFDA = perfluorodecanoic acid; PFHxS = perfluorohexane sulfonic acid, PFNA = perfluorononanoic acid; PFOA = perfluorooctanoic acid; PFOS = perfluorooctanesulfonic acid; PFUnDA = perfluoroundecanoic acid.