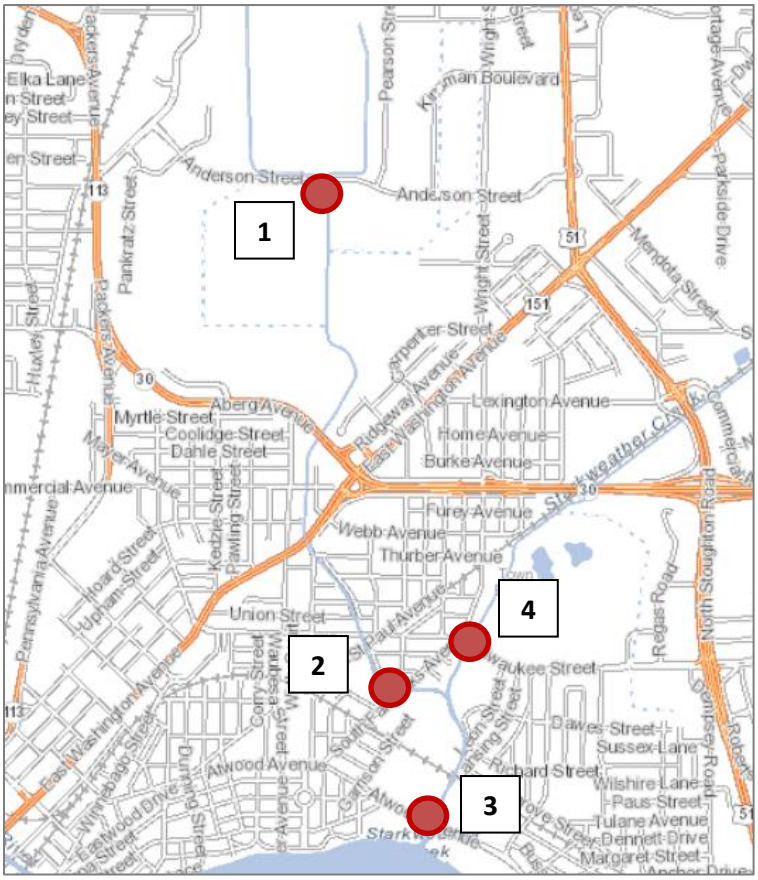
Waterbody: Starkweather Creek (WBICs: 805100 & 805200)
County: Dane
Water chemistry sampling rounds reported: 3 of 3
Fish tissue results reported: None

Why Starkweather Creek was selected for monitoring: PFAS were found in drinking water wells in the City of Madison in proximity to Starkweather Creek. Additionally, Truax Field Air National Guard Base historically held fire suppression training activities with AFFF, a now-known source of PFAS contamination. The headwaters of the West Branch of Starkweather Creek originate on or near Truax Field and the Dane County Regional Airport. Other historical sources of contamination are likely located in the Starkweather Creek watershed.

Monitoring Locations: Four locations were selected for monitoring in Starkweather Creek. Three locations were selected on the West Branch and Mainstem of Starkweather Creek to cover the longitudinal span of the Creek. A fourth monitoring location was selected on the East Brach of Starkweather Creek to determine background conditions of PFAS in the watershed. Additionally, fish tissue samples were collected in the mainstem of Starkweather Creek near the mouth of Lake Monona. Water chemistry results will be paired with fish tissue analysis for PFAS to aid in the potential development of a water quality standard.



1) West Branch Starkweather at Anderson St
2) West Branch Starkweather Creek at Fair Oaks Ave
3) Starkweather Creek at Atwood Ave
4) East Branch Starkweather Creek at Milwaukee St

06/20/19	1) Starkweather Creek	2) W Br Starkweather	3) W Br Starkweather	4) E Br Starkweather	Field Blank
Analyte (ng/l)	Anderson St	Fair Oaks Ave	Atwood Ave	Milwaukee St	
10:2 FTSA	ND	ND	ND	ND	ND
11Cl-PF3OUdS	ND	ND	ND	ND	ND
4:2 FTSA	0.11*	0.42	0.22*	ND	ND
6:2 FTSA	16	56	31	0.18*	ND
8:2 FTSA	4.1	7.9	3.3	ND	ND
9Cl-PF3ONS	ND	ND	ND	ND	ND
DONA	ND	ND	ND	ND	ND
FOSA	0.93	0.94	0.57	ND	ND
HFPO-DA	ND	ND	ND	ND	ND
N-EtFOSA	ND	ND	ND	ND	ND
N-EtFOSAA	ND	ND	ND	ND	ND
N-EtFOSE	0.56	ND	0.88	ND	ND
N-MeFOSA	ND	ND	ND	ND	ND
N-MeFOSAA	ND	ND	0.11*	0.072*	ND
N-MeFOSE	ND	ND	ND	ND	ND
PFBA	7.9	13	20	16	ND
PFBS	10	24	20	9	ND
PFDA	1.5	5.6	2	0.3*	ND
PFDoA	0.54	0.79	0.25*	ND	ND
PFDoS	ND	ND	ND	ND	ND
PFDS	ND	ND	ND	ND	ND
PFHpA	6.3	11	6.7	1.1	ND
PFHpS	2.2	7.9	4	ND	ND
PFHxA	21	42	26	4.3	ND
PFHxDA	ND	ND	ND	ND	ND
PFHxS	71	160	96	2.6	ND
PFNA	1.1	2.9	1.8	0.31	ND
PFNS	0.047*	0.17	ND	ND	ND
PFOA	23	43	27	2.6	ND
PFODA	ND	ND	ND	ND	ND
PFOS	79	270	160	2.6	ND
PFPeA	11	14	ND	ND	ND
PFPeS	8.7	20	12	ND	ND
PFTeDA	ND	ND	ND	ND	ND
PFTrDA	ND	ND	ND	ND	ND
PFUnA	0.15*	0.46	0.2*	ND	ND

*Between LOD and LOQ

ND =Non-Detect

07/17/19	1) Starkweather Creek	2) W Br Starkweather	3) W Br Starkweather	4) E Br Starkweather	Field Blank
Analyte (ng/l)	Anderson St	Fair Oaks Ave	Atwood Ave	Milwaukee St	
10:2 FTSA	ND	ND	ND	ND	ND
11Cl-PF3OUdS	ND	ND	ND	ND	ND
4:2 FTSA	0.21*	0.82	0.46	ND	ND
6:2 FTSA	25	56	28	ND	ND
8:2 FTSA	11	2.4	0.93	ND	ND
9Cl-PF3ONS	ND	ND	ND	ND	ND
DONA	ND	ND	ND	ND	ND
FOSA	2.3	1.0	0.59	0.13*	ND
HFPO-DA	ND	ND	ND	ND	ND
N-EtFOSA	ND	ND	ND	ND	ND
N-EtFOSAA	ND	ND	ND	ND	ND
N-EtFOSE	45	0.25*	0.38*	0.46	0.18*
N-MeFOSA	ND	ND	ND	ND	ND
N-MeFOSAA	ND	ND	ND	ND	ND
N-MeFOSE	ND	ND	ND	ND	ND
PFBA	17	17	13	8	ND
PFBS	13	21	14	2.3	ND
PFDA	2.2	0.82	0.43*	ND	ND
PFDoA	0.47	0.2*	0.12*	ND	ND
PFDoS	ND	ND	ND	ND	ND
PFDS	ND	ND	ND	ND	ND
PFHpA	8.6	10	6.7	0.93	ND
PFHpS	4.4	9.8	4.7	ND	ND
PFHxA	28	43	29	2.3	0.15*
PFHxDA	ND	ND	ND	ND	ND
PFHxS	86	210	120	3.1	ND
PFNA	3	2.5	1.3	0.21*	ND
PFNS	0.18	0.12*	ND	ND	ND
PFOA	30	40	24	2.1	ND
PFODA	ND	ND	ND	ND	ND
PFOS	180	360	180	1.8	ND
PFPeA	11	19	12	ND	ND
PFPeS	13	28	15	0.38	ND
PFTeDA	ND	ND	ND	ND	ND
PFTrDA	ND	ND	ND	ND	ND
PFUnA	0.18*	ND	ND	ND	ND

*Between LOD and LOQ
ND =Non-Detect

08/16/19	1) Starkweather Creek	2) W Br Starkweather	3) W Br Starkweather	4) E Br Starkweather	Field Blank
Analyte (ng/l)	Anderson St	Fair Oaks Ave	Atwood Ave	Milwaukee St	
10:2 FTSA	ND	ND	ND	ND	ND
11Cl-PF3OUdS	ND	ND	ND	ND	ND
4:2 FTSA	ND	0.49	0.15*	ND	ND
6:2 FTSA	7.8	44	24	0.35*	ND
8:2 FTSA	1.4	2.3	1.2	ND	ND
9Cl-PF3ONS	ND	ND	ND	ND	ND
DONA	ND	ND	ND	ND	ND
FOSA	0.81	0.79	0.47*	ND	ND
HFPO-DA	ND	ND	ND	ND	ND
N-EtFOSA	ND	ND	ND	ND	ND
N-EtFOSAA	ND	ND	ND	ND	ND
N-EtFOSE	ND	ND	ND	ND	ND
N-MeFOSA	ND	ND	ND	ND	ND
N-MeFOSAA	ND	ND	ND	ND	ND
N-MeFOSE	ND	ND	ND	ND	ND
PFBA	9.7	15	11	8.6	ND
PFBS	7.3	23	10	2.5	ND
PFDA	0.71*	0.91	0.63*	ND	ND
PFDoA	0.19*	ND	ND	ND	ND
PFDoS	ND	ND	ND	ND	ND
PFDS	ND	ND	ND	ND	ND
PFHpA	6.5	11	6.2	0.98	ND
PFHpS	1.8	6.4	3.1	ND	ND
PFHxA	16	40	21	2.4	0.42*
PFHxDA	ND	ND	ND	ND	ND
PFHxS	64	140	72	2.7	ND
PFNA	1.1	1.9	1.1	0.29*	ND
PFNS	ND	0.098*	ND	ND	ND
PFOA	20	34	18	2.3	ND
PFODA	ND	ND	ND	ND	ND
PFOS	71	220	120	1.5	ND
PFPeA	13	20	13	ND	ND
PFPeS	6.9	23	11	ND	ND
PFTeDA	ND	ND	ND	ND	ND
PFTrDA	ND	ND	ND	ND	ND
PFUnA	ND	ND	ND	ND	ND

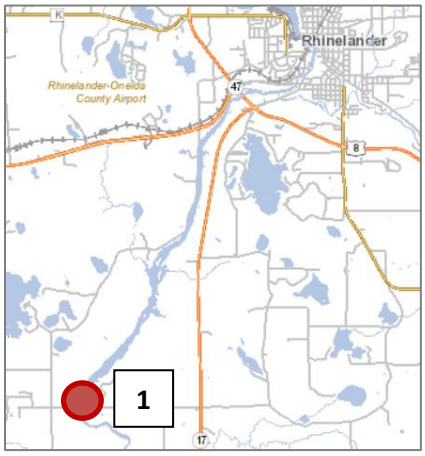
*Between LOD and LOQ
ND =Non-Detect

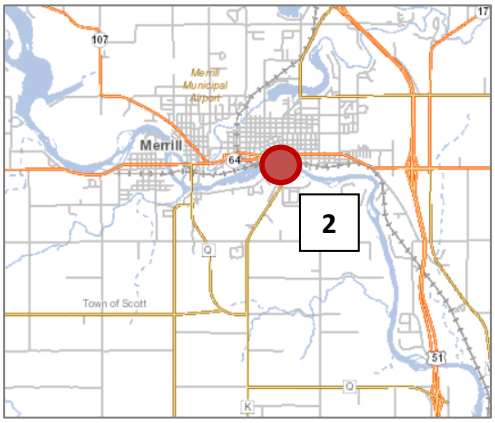
Waterbody: Wisconsin River (WBIC: 1179900)
County: Oneida, Lincoln and Wood
Water chemistry sampling rounds reported: 3 of 3
Fish tissue results reported: None

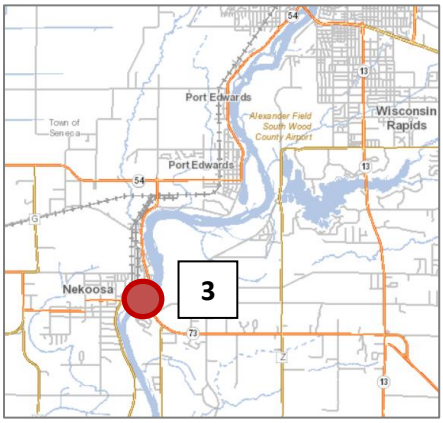
Why the Wisconsin River was selected for monitoring: PFAS was detected in public water supply drinking water wells in the City of Rhinelander. Additionally, a study conducted by the WDNR Wildlife Bio-sentinel Program found that PFAS was elevated in plasma of bald eagles collected from a large reach of the "middle" Wisconsin River.

Monitoring Locations: Three locations were selected for monitoring on the Wisconsin River that spanned from below Rhinelander, WI to Nekoosa, WI. Sites were selected to spatially maximize coverage of the middle reach of the Wisconsin River. At these sites fish were also collected for fish tissue PFAS concentrations. Water chemistry results will be paired with fish tissue analysis for PFAS to aid in the potential development of a water quality standard.

1) Wisconsin River Below Rhinelander, below Hat Rapids Dam
2) Wisconsin River in Merrill, below Merrill Flowage
3) Wisconsin River in Nekoosa, Below HWY 73







06/27/19	1) Wisconsin River	2) Wisconsin River	3) Wisconsin River	Field Blank
	Below Rhinelander	at Merrill	Below HWY 73	
Analyte (ng/l)				
10:2 FTSA	ND	ND	ND	ND
11Cl-PF3OUdS	ND	ND	ND	ND
4:2 FTSA	ND	ND	ND	ND
6:2 FTSA	0.56	0.18*	ND	ND
8:2 FTSA	ND	ND	ND	ND
9Cl-PF3ONS	ND	ND	ND	ND
DONA	ND	ND	ND	ND
FOSA	0.15*	0.95	0.42	ND
HFPO-DA	ND	ND	ND	ND
N-EtFOSA	ND	ND	ND	ND
N-EtFOSAA	3.5	9.4	3.2	ND
N-EtFOSE	0.64	0.16*	ND	ND
N-MeFOSA	ND	ND	ND	ND
N-MeFOSAA	ND	ND	ND	ND
N-MeFOSE	ND	ND	ND	ND
PFBA	4.6	3.1	4.5	ND
PFBS	0.28	0.17*	1.3	ND
PFDA	ND	0.19*	ND	ND
PFDoA	ND	ND	ND	ND
PFDoS	ND	ND	ND	ND
PFDS	ND	ND	ND	ND
PFHpA	6.1	3.6	2.1	ND
PFHpS	0.14*	ND	ND	ND
PFHxA	6.8	4.2	3	ND
PFHxDA	ND	ND	ND	ND
PFHxS	0.47	0.26	0.53	ND
PFNA	1	0.69	0.51	ND
PFNS	ND	ND	ND	ND
PFOA	23	12	6.5	ND
PFODA	ND	ND	ND	ND
PFOS	3.1	2.7	3	ND
PFPeA	ND	ND	ND	ND
PFPeS	ND	ND	ND	ND
PFTeDA	ND	ND	ND	ND
PFTrDA	ND	ND	ND	ND
PFUnA	ND	ND	ND	ND

*Between LOD and LOQ
ND =Non-Detect

08/09/19	1) Wisconsin River	2) Wisconsin River	3) Wisconsin River	Field Blank
	Below Rhinelander	at Merrill	Below HWY 73	
Analyte (ng/l)				
10:2 FTSA	ND	ND	ND	ND
11Cl-PF3OUdS	ND	ND	ND	ND
4:2 FTSA	ND	ND	ND	ND
6:2 FTSA	0.36	0.1*	ND	ND
8:2 FTSA	ND	ND	ND	ND
9Cl-PF3ONS	ND	ND	ND	ND
DONA	ND	ND	ND	ND
FOSA	0.36*	1.9	0.95	ND
HFPO-DA	ND	ND	ND	ND
N-EtFOSA	ND	ND	ND	ND
N-EtFOSAA	10	17	7.3	ND
N-EtFOSE	3.4	ND	ND	ND
N-MeFOSA	ND	ND	ND	ND
N-MeFOSAA	ND	ND	ND	ND
N-MeFOSE	ND	ND	ND	ND
PFBA	6.8	5.8	8	ND
PFBS	0.39	0.41	2.2	ND
PFDA	0.25*	0.28*	0.29*	ND
PFDoA	ND	ND	ND	ND
PFDoS	ND	ND	ND	ND
PFDS	ND	ND	ND	ND
PFHpA	11	5.6	3.6	ND
PFHpS	0.32*	0.13*	0.18*	ND
PFHxA	15	6.8	5.5	0.14*
PFHxDA	ND	ND	ND	ND
PFHxS	0.82	0.32	1.1	ND
PFNA	1.5	1	1.1	ND
PFNS	ND	ND	ND	ND
PFOA	36	15	11	0.11*
PFODA	ND	ND	ND	ND
PFOS	3.6	3.9	5.6	ND
PFPeA	11	ND	ND	ND
PFPeS	ND	ND	ND	ND
PFTeDA	ND	ND	ND	ND
PFTrDA	ND	ND	ND	ND
PFUnA	ND	ND	ND	ND

*Between LOD and LOQ
ND =Non-Detect

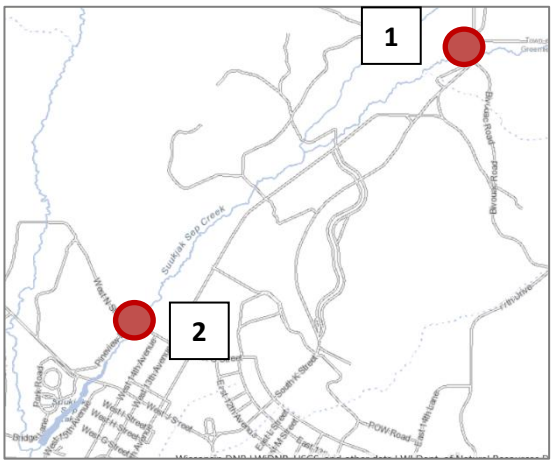
09/03/19	1) Wisconsin River	2) Wisconsin River	3) Wisconsin River	Field Blank
	Below Rhinelander	at Merrill	Below HWY 73	
Analyte (ng/l)				
10:2 FTSA	ND	ND	ND	ND
11Cl-PF3OUdS	ND	ND	ND	ND
4:2 FTSA	ND	ND	ND	ND
6:2 FTSA	0.18*	ND	ND	ND
8:2 FTSA	ND	ND	ND	ND
9Cl-PF3ONS	ND	ND	ND	ND
DONA	ND	ND	ND	ND
FOSA	ND	1.2	0.69	ND
HFPO-DA	ND	ND	ND	ND
N-EtFOSA	ND	ND	ND	ND
N-EtFOSAA	3	11	5.4	ND
N-EtFOSE	0.31*	0.52*	ND	ND
N-MeFOSA	ND	ND	ND	ND
N-MeFOSAA	ND	ND	ND	ND
N-MeFOSE	ND	ND	ND	ND
PFBA	4.6*	4.5*	4.2*	ND
PFBS	0.3*	0.31*	0.91	ND
PFDA	ND	ND	ND	ND
PFDoA	ND	ND	ND	ND
PFDoS	ND	ND	ND	ND
PFDS	ND	ND	ND	ND
PFHpA	6.9	4.6	2.2	ND
PFHpS	ND	ND	ND	ND
PFHxA	9.2	6.2	4.6	ND
PFHxDA	ND	ND	ND	ND
PFHxS	0.5	0.21*	0.58	ND
PFNA	0.84	0.7	0.63	ND
PFNS	ND	ND	ND	ND
PFOA	17	12	8.2	ND
PFODA	ND	ND	ND	ND
PFOS	1.6	2.6	3.1	ND
PFPeA	7.3	2.9	ND	ND
PFPeS	ND	ND	ND	ND
PFTeDA	ND	ND	ND	ND
PFTrDA	ND	ND	ND	ND
PFUnA	ND	ND	ND	ND

*Between LOD and LOQ
ND =Non-Detect

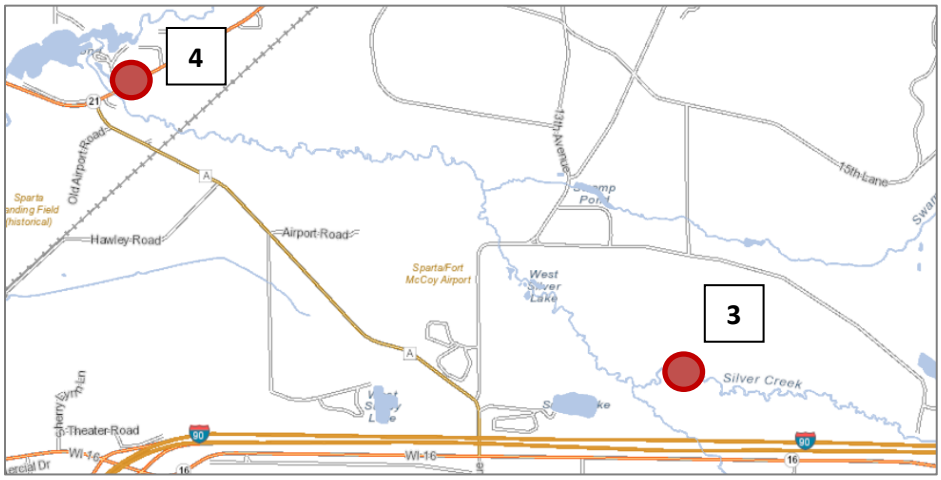
Waterbody: Silver Creek and Suukjak Sep Creek (WBICs: 1660500 & 1665800)
County: Monroe
Water chemistry sampling rounds reported: 3 of 3
Fish tissue results reported: No fish samples collected in 2019

<u>Why the Silver Creek and Suukjak Sep Creek were selected for monitoring:</u> PFAS contamination is suspected at two locations that are historic fire suppression training locations on or near the U.S. Army Fort McCoy training center.

<u>Monitoring Locations:</u> Two location were selected on each waterbody; one location upstream of the old fire suppression training areas on one location downstream. The upstream locations should serve as a control to understand background concentrations of PFAS in streams within the region.



1) Suukjak Sep Creek at 17th Road
2) Suukjak Sep Creek at West N Street
3) Silver Creek at Fort McCoy access Bridge
4) Silver Creek at HWY 21



06/25/19	1) Suukjak Sep Creek	2) Suukjak Sep Creek	3) Silver Creek	4) Silver Creek	Field Blank
	17th Road	West N Street	Fort McCoy access Bridge	Hwy 21	
Analyte (ng/l)					
10:2 FTSA	ND	ND	ND	ND	ND
11Cl-PF3OUdS	ND	ND	ND	ND	ND
4:2 FTSA	ND	ND	ND	ND	ND
6:2 FTSA	ND	0.077	ND	2.2	ND
8:2 FTSA	ND	ND	ND	0.42	ND
9Cl-PF3ONS	ND	ND	ND	ND	ND
DONA	ND	ND	ND	ND	ND
FOSA	ND	ND	ND	ND	ND
HFPO-DA	ND	ND	ND	ND	ND
N-EtFOSA	ND	ND	ND	ND	ND
N-EtFOSAA	ND	ND	ND	ND	ND
N-EtFOSE	ND	ND	ND	ND	ND
N-MeFOSA	ND	ND	ND	ND	ND
N-MeFOSAA	ND	ND	ND	ND	ND
N-MeFOSE	ND	ND	ND	ND	ND
PFBA	1.5*	1.9*	1.6*	2.5*	ND
PFBS	0.07*	ND	0.12*	1.5	ND
PFDA	ND	ND	ND	ND	ND
PFDoA	ND	ND	ND	ND	ND
PFDoS	ND	ND	ND	ND	ND
PFDS	ND	ND	ND	ND	ND
PFHpA	ND	0.49	ND	0.86	ND
PFHpS	ND	ND	ND	ND	ND
PFHxA	ND	0.84	ND	2.2	ND
PFHxDA	ND	ND	ND	ND	ND
PFHxS	ND	2.9	0.26	8.9	ND
PFNA	0.10*	0.085*	ND	0.18*	ND
PFNS	ND	ND	ND	ND	ND
PFOA	0.16*	1.4	0.11*	4.0	ND
PFODA	ND	ND	ND	ND	ND
PFOS	ND	3.2	0.59	21.0	ND
PFPeA	ND	ND	ND	1.2	ND
PFPeS	ND	0.29	ND	1.2	ND
PFTeDA	ND	ND	ND	ND	ND
PFTrDA	ND	ND	ND	ND	ND
PFUnA	ND	ND	ND	ND	ND

*Between LOD and LOQ

ND =Non-Detect

07/23/19	1) Suukjak Sep Creek	2) Suukjak Sep Creek	3) Silver Creek	4) Silver Creek	Field Blank
	17th Road	West N Street	Fort McCoy access Bridge	Hwy 21	
Analyte (ng/l)					
10:2 FTSA	ND	ND	ND	ND	ND
11Cl-PF3OUdS	ND	ND	ND	ND	ND
4:2 FTSA	ND	ND	ND	ND	ND
6:2 FTSA	ND	ND	ND	2.5	ND
8:2 FTSA	ND	ND	ND	0.29*	ND
9Cl-PF3ONS	ND	ND	ND	ND	ND
DONA	ND	ND	ND	ND	ND
FOSA	ND	ND	ND	ND	ND
HFPO-DA	ND	ND	ND	ND	ND
N-EtFOSA	ND	ND	ND	ND	ND
N-EtFOSAA	ND	ND	ND	ND	ND
N-EtFOSE	ND	ND	ND	0.85	ND
N-MeFOSA	ND	ND	ND	ND	ND
N-MeFOSAA	ND	ND	ND	ND	ND
N-MeFOSE	ND	ND	ND	ND	ND
PFBA	0.95*	1.6*	1.2*	5.3	ND
PFBS	ND	0.48	0.11*	3.2	ND
PFDA	ND	ND	ND	ND	ND
PFDoA	ND	ND	ND	ND	ND
PFDoS	ND	ND	ND	ND	ND
PFDS	ND	ND	ND	ND	ND
PFHpA	ND	0.5	ND	2	ND
PFHpS	ND	ND	ND	1	ND
PFHxA	ND	0.85	ND	4.4	0.27*
PFHxDA	ND	ND	ND	ND	ND
PFHxS	ND	2.9	0.21*	19	ND
PFNA	ND	0.1*	ND	0.44	ND
PFNS	ND	ND	ND	ND	ND
PFOA	0.15*	1.2	0.16*	7.8	ND
PFODA	ND	ND	ND	ND	ND
PFOS	ND	2.9	0.43	43	ND
PFPeA	ND	ND	ND	2.2	ND
PFPeS	ND	0.3	ND	2.7	ND
PFTeDA	ND	ND	ND	ND	ND
PFTrDA	ND	ND	ND	ND	ND
PFUnA	ND	ND	ND	ND	ND

*Between LOD and LOQ

ND =Non-Detect

08/20/19	1) Suukjak Sep Creek	2) Suukjak Sep Creek	3) Silver Creek	4) Silver Creek	Field Blank
	17th Road	West N Street	Fort McCoy access Bridge	Hwy 21	
Analyte (ng/l)					
10:2 FTSA	ND	ND	ND	ND	ND
11Cl-PF3OUdS	ND	ND	ND	ND	ND
4:2 FTSA	ND	ND	ND	ND	ND
6:2 FTSA	ND	ND	ND	1.5	ND
8:2 FTSA	ND	ND	ND	0.22*	ND
9Cl-PF3ONS	ND	ND	ND	ND	ND
DONA	ND	ND	ND	ND	ND
FOSA	ND	ND	ND	ND	ND
HFPO-DA	ND	ND	ND	ND	ND
N-EtFOSA	ND	ND	ND	ND	ND
N-EtFOSAA	ND	ND	ND	ND	ND
N-EtFOSE	ND	ND	ND	ND	ND
N-MeFOSA	ND	ND	ND	ND	ND
N-MeFOSAA	ND	ND	ND	ND	ND
N-MeFOSE	ND	ND	ND	ND	ND
PFBA	ND	ND	ND	2*	ND
PFBS	ND	0.61	ND	1.8	ND
PFDA	ND	ND	ND	ND	ND
PFDoA	ND	ND	ND	ND	ND
PFDoS	ND	ND	ND	ND	ND
PFDS	ND	ND	ND	ND	ND
PFHpA	ND	0.62*	ND	1	ND
PFHpS	ND	ND	ND	0.57	ND
PFHxA	ND	1.1	ND	2.6	0.5*
PFHxDA	ND	ND	ND	ND	ND
PFHxS	ND	3.9	0.29*	11	ND
PFNA	ND	ND	ND	0.23*	ND
PFNS	ND	ND	ND	ND	ND
PFOA	ND	1.9	ND	4.1	0.2*
PFODA	ND	ND	ND	ND	ND
PFOS	ND	4.4	0.4*	26	ND
PFPeA	ND	0.99	ND	1.8	ND
PFPeS	ND	0.39	ND	1.7	ND
PFTeDA	ND	ND	ND	ND	ND
PFTrDA	ND	ND	ND	ND	ND
PFUnA	ND	ND	ND	ND	ND

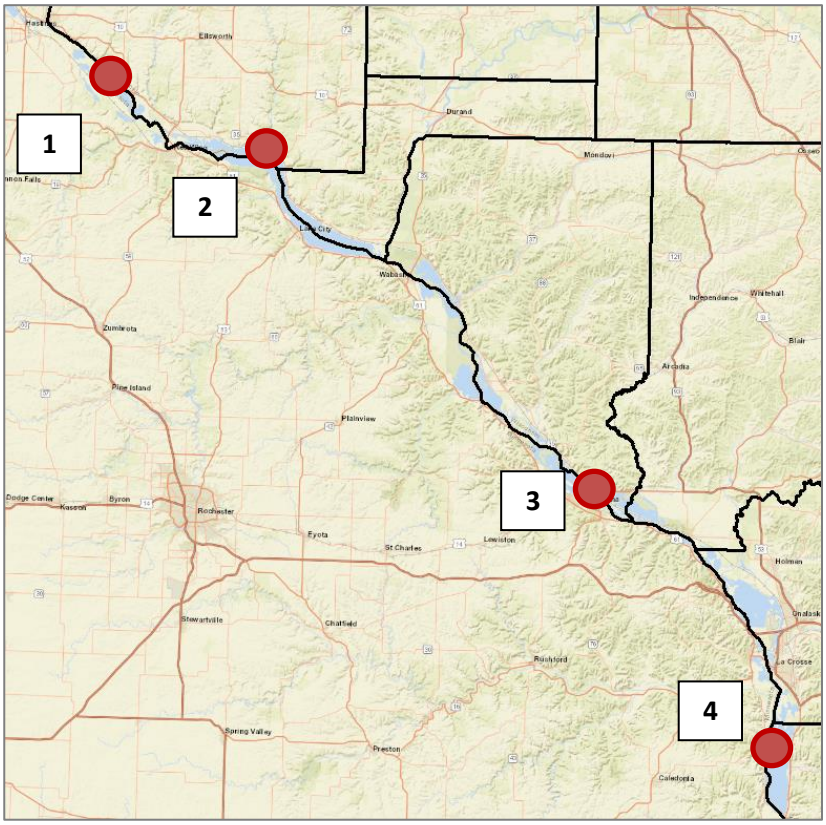
*Between LOD and LOQ

ND =Non-Detect

Waterbody: Mississippi River (WBIC: 72100)
County: Pierce, Pepin, Buffalo and Vernon
Water chemistry sampling rounds reported: 3 of 3
Fish tissue results reported: None

Why the Mississippi River was selected for monitoring: Given the large watershed and history of industrial users within the watershed, there are likely many possible diffuse sources of PFAS in the river. One well-documented source of PFAS contamination is a 3M plant located just outside of St Paul Minnesota.

Monitoring Locations: Water chemistry monitoring stations were selected in Pools 3, 4, 6 & 8 to match scheduled WDNR Fisheries Management fish contaminants monitoring. Water chemistry results will be paired with fish tissue analysis for PFAS to aid in the potential development of a water quality standard.



1) Mississippi River Pool 3
2) Mississippi River Pool 4
3) Mississippi River Pool 6
4) Mississippi River Pool 8

06/27/19	1) Mississippi R	2) Mississippi R	3) Mississippi R	4) Mississippi R	Field Blank
	Pool 3	Pool 4	Pool 6	Pool 8	
Analyte (ng/l)					
10:2 FTSA	ND	ND	ND	ND	ND
11Cl-PF3OUdS	ND	ND	ND	ND	ND
4:2 FTSA	ND	ND	ND	ND	ND
6:2 FTSA	0.93	0.15*	ND	0.14*	ND
8:2 FTSA	ND	ND	ND	ND	ND
9Cl-PF3ONS	ND	ND	ND	ND	ND
DONA	ND	ND	ND	ND	ND
FOSA	ND	ND	ND	ND	ND
HFPO-DA	ND	ND	ND	ND	ND
N-EtFOSA	ND	ND	ND	ND	ND
N-EtFOSAA	ND	ND	ND	ND	ND
N-EtFOSE	ND	ND	ND	ND	ND
N-MeFOSA	ND	ND	ND	ND	ND
N-MeFOSAA	ND	ND	ND	ND	ND
N-MeFOSE	ND	ND	ND	ND	ND
PFBA	23	10	11	15	ND
PFBS	2	1.3	1.2	1.7	ND
PFDA	ND	ND	ND	ND	ND
PFDoA	ND	ND	ND	ND	ND
PFDoS	ND	ND	ND	ND	ND
PFDS	ND	ND	ND	ND	ND
PFHpA	0.84	0.43*	0.4*	0.58*	ND
PFHpS	ND	ND	ND	ND	ND
PFHxA	1.7	0.78	0.83	1.3	ND
PFHxDA	ND	ND	ND	ND	ND
PFHxS	1	0.53	0.54	0.89	ND
PFNA	0.6	0.44	0.43	0.71	ND
PFNS	ND	ND	ND	ND	ND
PFOA	5.2	2.6	2.3	3.8	ND
PFODA	ND	ND	ND	ND	ND
PFOS	3.1	1.7	1.7	2.5	ND
PFPeA	ND	ND	ND	ND	ND
PFPeS	0.17*	ND	ND	0.13*	ND
PFTeDA	ND	ND	ND	ND	ND
PFTrDA	ND	ND	ND	ND	ND
PFUnA	ND	ND	ND	ND	ND

*Between LOD and LOQ
ND =Non-Detect

07/25/19	1) Mississippi R	2) Mississippi R	3) Mississippi R	4) Mississippi R	Field Blank
	Pool 3	Pool 4	Pool 6	Pool 8	
Analyte (ng/l)					
10:2 FTSA	ND	ND	ND	ND	ND
11Cl-PF3OUdS	ND	ND	ND	ND	ND
4:2 FTSA	ND	ND	ND	ND	ND
6:2 FTSA	0.23*	0.16*	0.2*	ND	ND
8:2 FTSA	ND	ND	ND	ND	ND
9Cl-PF3ONS	ND	ND	ND	ND	ND
DONA	ND	ND	ND	ND	ND
FOSA	ND	ND	ND	0.15*	ND
HFPO-DA	ND	ND	ND	ND	ND
N-EtFOSA	ND	ND	ND	ND	ND
N-EtFOSAA	ND	ND	ND	ND	ND
N-EtFOSE	ND	ND	ND	ND	ND
N-MeFOSA	ND	ND	ND	ND	ND
N-MeFOSAA	ND	ND	ND	ND	ND
N-MeFOSE	ND	ND	ND	ND	ND
PFBA	14	10	15	13	ND
PFBS	1.6	1	1.7	1.3	ND
PFDA	ND	ND	ND	ND	ND
PFDoA	ND	ND	ND	ND	ND
PFDoS	ND	ND	ND	ND	ND
PFDS	ND	ND	ND	ND	ND
PFHpA	0.52	0.48	0.69	0.76	ND
PFHpS	ND	ND	ND	ND	ND
PFHxA	1	0.71	0.99	ND	ND
PFHxDA	ND	ND	ND	ND	ND
PFHxS	0.65	0.41	0.63	0.58	ND
PFNA	0.31	0.32	0.45	0.54	ND
PFNS	ND	ND	ND	ND	ND
PFOA	2.9	1.9	3	2.2	ND
PFODA	ND	ND	ND	ND	ND
PFOS	1.5	1.3	2.1	1.9	ND
PFPeA	ND	ND	ND	ND	ND
PFPeS	0.12*	ND	ND	ND	ND
PFTeDA	ND	ND	ND	ND	ND
PFTrDA	ND	ND	ND	ND	ND
PFUnA	ND	ND	ND	ND	ND

*Between LOD and LOQ
ND =Non-Detect

08/14/19	1) Mississippi R	2) Mississippi R	3) Mississippi R	4) Mississippi R	Field Blank
	Pool 3	Pool 4	Pool 6	Pool 8	
Analyte (ng/l)					
10:2 FTSA	ND	ND	ND	ND	ND
11Cl-PF3OUdS	ND	ND	ND	ND	ND
4:2 FTSA	ND	ND	ND	ND	ND
6:2 FTSA	0.3*	0.14*	0.19*	0.11*	ND
8:2 FTSA	ND	ND	ND	ND	ND
9Cl-PF3ONS	ND	ND	ND	ND	ND
DONA	ND	ND	ND	ND	ND
FOSA	ND	ND	ND	ND	ND
HFPO-DA	ND	ND	ND	ND	ND
N-EtFOSA	ND	ND	0.3*	0.28*	ND
N-EtFOSAA	0.25*	ND	ND	ND	ND
N-EtFOSE	ND	ND	ND	ND	ND
N-MeFOSA	ND	ND	ND	ND	ND
N-MeFOSAA	ND	ND	ND	ND	ND
N-MeFOSE	ND	ND	ND	ND	ND
PFBA	36	14	19	14	ND
PFBS	5.3	5	7	4.2	ND
PFDA	ND	ND	ND	ND	ND
PFDoA	ND	ND	ND	ND	ND
PFDoS	ND	ND	ND	ND	ND
PFDS	ND	ND	ND	ND	ND
PFHpA	1.3	0.62	0.83	0.64	ND
PFHpS	0.15*	ND	ND	ND	ND
PFHxA	2.9	1	1.4	1.2	ND
PFHxDA	ND	ND	ND	ND	ND
PFHxS	1.9	0.77	1	0.76	ND
PFNA	0.65	0.37	0.5	0.4	ND
PFNS	ND	ND	ND	ND	ND
PFOA	8.7	3.3	4.6	3.2	ND
PFODA	ND	ND	ND	ND	ND
PFOS	4.2	1.5	2.1	1.5	ND
PFPeA	ND	ND	ND	ND	ND
PFPeS	0.4	ND	0.11*	0.1*	ND
PFTeDA	ND	ND	ND	ND	ND
PFTrDA	ND	ND	ND	ND	ND
PFUnA	ND	ND	ND	ND	ND

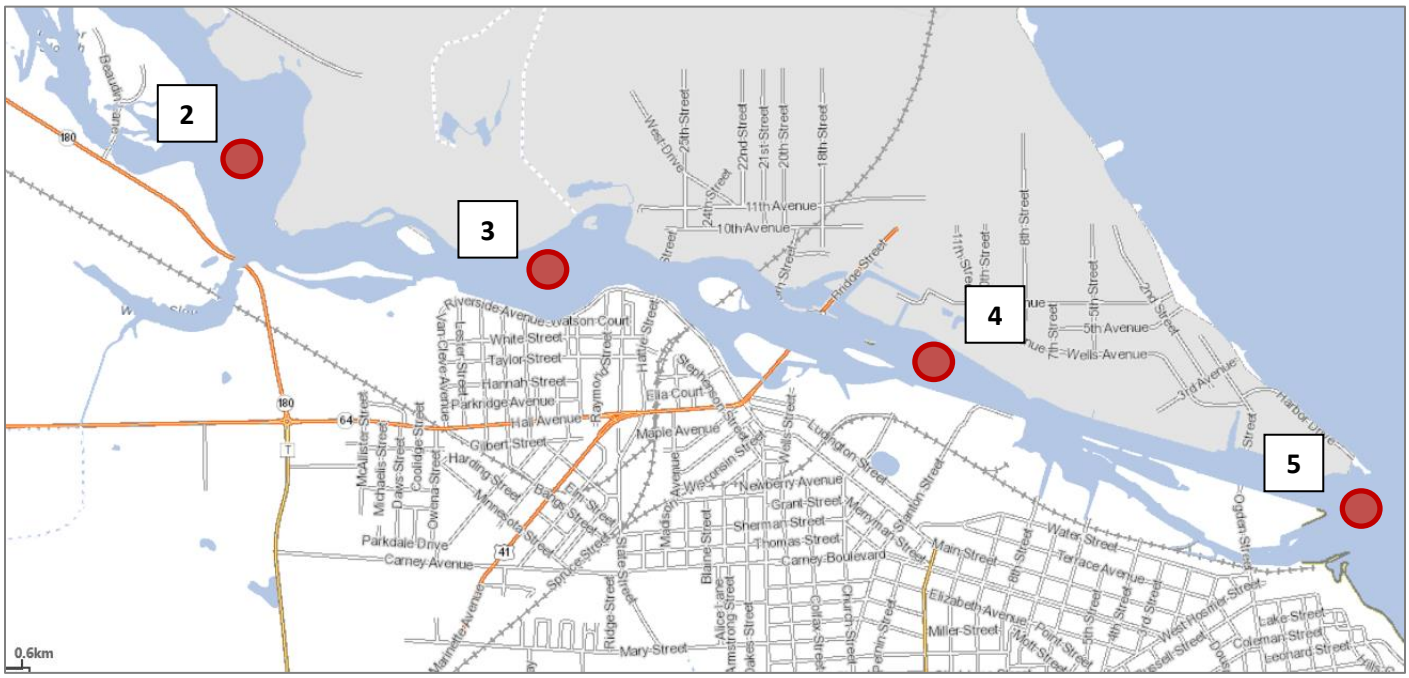
*Between LOD and LOQ
ND =Non-Detect

Waterbody: Menominee River (WBICs: 634500, 609400, 609200 & 609000)
County: Marinette
Water chemistry sampling rounds reported: 3 of 3
Fish tissue results reported: None

Why the Menominee River was selected for monitoring: PFAS contamination has been detected in surface water, groundwater, and drinking water wells in the Marinette, WI area. Johnson Controls/Tyco manufactured and tested AFFF and is actively remediating two small streams that drain the City of Marinette south to Lake Michigan.

Monitoring Locations: Water chemistry stations were selected at Chalk Hills Flowage to pair with Fisheries Management fish contaminants monitoring and provide background concentrations. Four other monitoring locations were selected between Upper Scott Flowage and the mouth of Green Bay to capture a gradient of possible PFAS contamination to the lower Menominee River from multiple possible sources. Water chemistry results will be paired with fish tissue analysis for PFAS to aid in the potential development of a water quality standard.

1) Chalk Hills Flowage (not shown here, ~50 miles upstream)
2) Upper Scott Flowage)
3) Lower Scott Flowage
4) Menominee River ~250 meters downstream POTW outfall
5) Menominee River at mouth to Green Bay



05/29/19 (CHF) & 06/27/19	1) Menominee River	2) Menominee River	3) Menominee River	4) Menominee River	5) Menominee River	Field Blank
	Chalk Hills Flowage	Upper Scott Flowage	Lower Scott Flowage	Bl WWTP outfall	Mouth to Green Bay	
Analyte (ng/l)						
10:2 FTSA	ND	ND	ND	ND	ND	ND
11Cl-PF3OUdS	ND	ND	ND	ND	ND	ND
4:2 FTSA	ND	ND	ND	ND	ND	ND
6:2 FTSA	ND	ND	ND	ND	1.3	ND
8:2 FTSA	ND	ND	ND	ND	ND	ND
9Cl-PF3ONS	ND	ND	ND	ND	ND	ND
DONA	ND	ND	ND	ND	ND	ND
FOSA	ND	ND	ND	ND	ND	ND
HFPO-DA	ND	ND	ND	ND	ND	ND
N-EtFOSA	ND	ND	ND	ND	ND	ND
N-EtFOSAA	ND	ND	ND	ND	ND	ND
N-EtFOSE	ND	ND	ND	ND	ND	ND
N-MeFOSA	ND	ND	ND	ND	ND	ND
N-MeFOSAA	ND	ND	ND	ND	ND	ND
N-MeFOSE	ND	ND	ND	ND	ND	ND
PFBA	ND	2.6	2.7	ND	2.5*	ND
PFBS	ND	ND	ND	ND	ND	ND
PFDA	ND	ND	ND	ND	ND	ND
PFDoA	ND	ND	ND	ND	ND	ND
PFDoS	ND	ND	ND	ND	ND	ND
PFDS	ND	ND	ND	ND	ND	ND
PFHpA	ND	0.3	0.24*	ND	0.41*	ND
PFHpS	ND	ND	ND	ND	ND	ND
PFHxA	ND	ND	ND	ND	ND	ND
PFHxDA	ND	ND	ND	ND	ND	ND
PFHxS	0.068*	0.088*	0.092*	ND	0.094*	ND
PFNA	0.18*	0.19*	0.18*	0.094*	0.19*	ND
PFNS	ND	ND	ND	ND	ND	ND
PFOA	0.32*	0.51*	0.44	ND	0.6	ND
PFODA	ND	ND	ND	ND	ND	ND
PFOS	0.31*	0.29*	0.3*	ND	0.31*	ND
PFPeA	ND	ND	ND	ND	ND	ND
PFPeS	ND	ND	ND	ND	ND	ND
PFTeDA	ND	ND	ND	ND	ND	ND
PFTrDA	ND	ND	ND	ND	ND	ND
PFUnA	ND	ND	ND	ND	ND	ND

*Between LOD and LOQ
ND =Non-Detect

07/29/19	1) Menominee River	2) Menominee River	3) Menominee River	4) Menominee River	5) Menominee River	Field Blank
	Chalk Hills Flowage	Upper Scott Flowage	Lower Scott Flowage	Bl WWTP outfall	Mouth to Green Bay	
Analyte (ng/l)						
10:2 FTSA	NS	ND	ND	ND	ND	ND
11Cl-PF3OUdS	NS	ND	ND	ND	ND	ND
4:2 FTSA	NS	ND	ND	ND	ND	ND
6:2 FTSA	NS	ND	ND	ND	5.7	ND
8:2 FTSA	NS	ND	ND	ND	ND	ND
9Cl-PF3ONS	NS	ND	ND	ND	ND	ND
DONA	NS	ND	ND	ND	ND	ND
FOSA	NS	ND	ND	ND	ND	ND
HFPO-DA	NS	ND	ND	ND	ND	ND
N-EtFOSA	NS	ND	ND	ND	ND	ND
N-EtFOSAA	NS	ND	ND	ND	ND	ND
N-EtFOSE	NS	ND	ND	ND	ND	ND
N-MeFOSA	NS	ND	ND	ND	ND	ND
N-MeFOSAA	NS	ND	ND	ND	ND	ND
N-MeFOSE	NS	ND	ND	ND	ND	ND
PFBA	NS	3.7	3.7	3.5	3.3	ND
PFBS	NS	0.17*	0.21*	ND	0.2*	ND
PFDA	NS	ND	ND	ND	ND	ND
PFDoA	NS	ND	ND	ND	ND	ND
PFDoS	NS	ND	ND	ND	ND	ND
PFDS	NS	ND	ND	ND	ND	ND
PFHpA	NS	0.48	0.53	0.51	0.65	ND
PFHpS	NS	ND	ND	ND	ND	ND
PFHxA	NS	ND	ND	ND	0.98	0.96
PFHxDA	NS	ND	ND	ND	ND	ND
PFHxS	NS	0.12*	0.11*	0.13*	0.15*	ND
PFNA	NS	0.25	0.26	0.29	0.26	ND
PFNS	NS	ND	ND	ND	ND	ND
PFOA	NS	0.67	0.71	0.71	0.82	ND
PFODA	NS	ND	ND	ND	ND	ND
PFOS	NS	0.31*	0.32*	0.32*	0.4*	ND
PFPeA	NS	ND	ND	ND	ND	ND
PFPeS	NS	ND	ND	ND	ND	ND
PFTeDA	NS	ND	ND	ND	ND	ND
PFTrDA	NS	ND	ND	ND	ND	ND
PFUnA	NS	ND	ND	ND	ND	ND

*Between LOD and LOQ
ND =Non-Detect
NS=No Sample

09/16/2019	1) Menominee River	2) Menominee River	3) Menominee River	4) Menominee River	5) Menominee River	Field Blank
	Chalk Hills Flowage	Upper Scott Flowage	Lower Scott Flowage	Bl WWTP outfall	Mouth to Green Bay	
Analyte (ng/l)						
10:2 FTSA	NS	ND	ND	ND	ND	ND
11Cl-PF3OUdS	NS	ND	ND	ND	ND	ND
4:2 FTSA	NS	ND	ND	ND	ND	ND
6:2 FTSA	NS	ND	ND	ND	2.5	ND
8:2 FTSA	NS	ND	ND	ND	ND	ND
9Cl-PF3ONS	NS	ND	ND	ND	ND	ND
DONA	NS	ND	ND	ND	ND	ND
FOSA	NS	ND	ND	ND	ND	ND
HFPO-DA	NS	ND	ND	ND	ND	ND
N-EtFOSA	NS	ND	ND	ND	ND	ND
N-EtFOSAA	NS	ND	ND	ND	ND	ND
N-EtFOSE	NS	ND	ND	ND	ND	ND
N-MeFOSA	NS	ND	ND	ND	ND	ND
N-MeFOSAA	NS	ND	ND	ND	ND	ND
N-MeFOSE	NS	ND	ND	ND	ND	ND
PFBA	NS	3.2*	3.6*	3*	3.1*	ND
PFBS	NS	ND	ND	ND	ND	ND
PFDA	NS	ND	ND	ND	ND	ND
PFDoA	NS	ND	ND	ND	ND	ND
PFDoS	NS	ND	ND	ND	ND	ND
PFDS	NS	ND	ND	ND	ND	ND
PFHpA	NS	0.37*	0.44*	0.5*	0.61*	ND
PFHpS	NS	ND	ND	ND	ND	ND
PFHxA	NS	ND	ND	ND	ND	1.5
PFHxDA	NS	ND	ND	ND	ND	ND
PFHxS	NS	ND	ND	ND	ND	ND
PFNA	NS	0.18*	0.19*	0.21*	0.22*	ND
PFNS	NS	ND	ND	ND	ND	ND
PFOA	NS	0.5*	0.6*	0.56*	0.82	ND
PFODA	NS	ND	ND	ND	ND	ND
PFOS	NS	ND	ND	ND	ND	ND
PFPeA	NS	ND	ND	ND	ND	ND
PFPeS	NS	ND	ND	ND	ND	ND
PFTeDA	NS	ND	ND	ND	ND	ND
PFTrDA	NS	ND	ND	ND	ND	ND
PFUnA	NS	ND	ND	ND	ND	ND

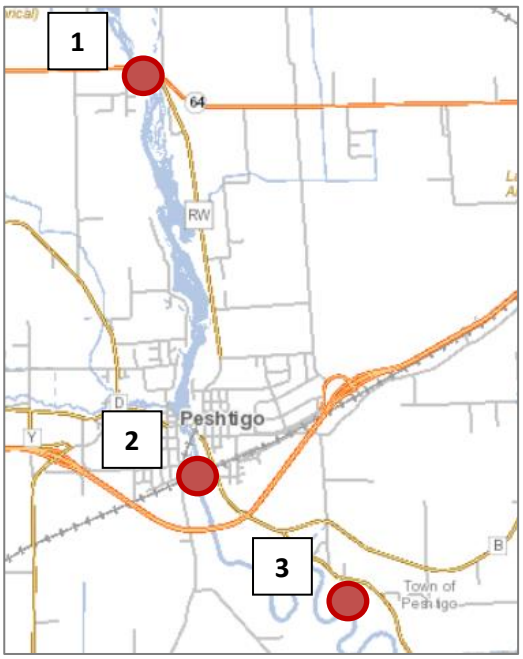
*Between LOD and LOQ
ND =Non-Detect
NS=No Sample

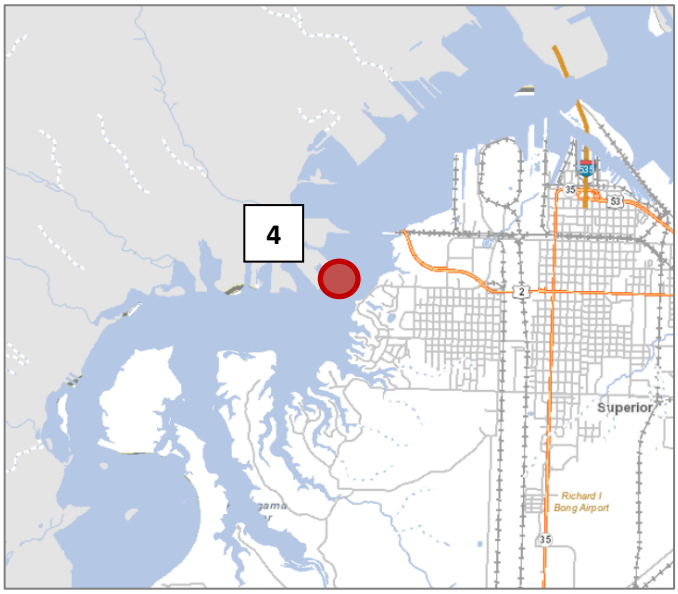
Waterbody: Peshtigo River and St Louis River (WBICs: 515500 & 2843800)
County: Marinette and Douglas
Water chemistry sampling rounds reported: 1 of 1
Fish tissue results reported: No fish samples collected

Why the Peshtigo River and St Louis River were selected for monitoring: Agricultural fields in the Peshtigo River watershed have historically land spread biosolids received from the Marinette POTW. There have been public concerns about PFAS in the Peshtigo River, but no confirmed samples from the river. St Louis River was selected to pair water chemistry samples with fish contaminants monitoring being conducted by Minnesota DNR.

Monitoring Locations: Three monitoring stations above, within and below the City of Peshtigo were selected for monitoring. If PFAS are found, this monitoring design should help determine if sources are from the upstream watershed, or from more localized sources within the City of Peshtigo. A single water chemistry sample was collected on the Saint Louis River to pair with Minnesota DNR's Fisheries Management fish contaminants monitoring. The monitoring location was pre-selected by MN DNR. Water chemistry results will be paired with fish tissue analysis for PFAS to aid in the potential development of a water quality standard.

1) Peshtigo River Above HWY 64 at boat landing
2) Peshtigo River downstream Peshtigo Flowage between railroad bridges
3) Peshtigo River below City of Peshtigo (river mile 7.65)
4) St Louis River at Arrowhead Pier fishing access





08/14/19 & 07/01/19 (St Louis)	1) Peshtigo River	2) Peshtigo River	3) Peshtigo River		4) St Louis River
	Above HWY 64	Below Peshtigo Flowage	Below City Peshtigo		Arrowhead Pier
Analyte (ng/l)					
10:2 FTSA	ND	ND	ND		ND
11Cl-PF3OUdS	ND	ND	ND		ND
4:2 FTSA	ND	ND	ND		ND
6:2 FTSA	ND	ND	0.17*		ND
8:2 FTSA	ND	ND	ND		ND
9Cl-PF3ONS	ND	ND	ND		ND
DONA	ND	ND	ND		ND
FOSA	ND	ND	ND		ND
HFPO-DA	ND	ND	ND		ND
N-EtFOSA	ND	ND	ND		ND
N-EtFOSAA	ND	ND	ND		ND
N-EtFOSE	0.15*	ND	ND		ND
N-MeFOSA	ND	ND	ND		ND
N-MeFOSAA	ND	ND	ND		ND
N-MeFOSE	ND	ND	ND		ND
PFBA	4.8	4.6	4.6		3.3
PFBS	0.26	ND	ND		0.31
PFDA	ND	ND	ND		ND
PFDoA	ND	ND	ND		ND
PFDoS	ND	ND	ND		ND
PFDS	ND	ND	ND		ND
PFHpA	0.71	0.65	0.75		0.35*
PFHpS	ND	ND	ND		ND
PFHxA	ND	ND	0.85		ND
PFHxDA	ND	ND	ND		ND
PFHxS	ND	0.095*	0.093*		0.37
PFNA	0.26	0.29	0.27		0.31
PFNS	ND	ND	ND		ND
PFOA	0.73	0.87	1		0.62
PFODA	ND	ND	ND		ND
PFOS	0.19*	0.27*	0.41		0.63
PFPeA	ND	ND	ND		ND
PFPeS	ND	ND	ND		ND
PFTeDA	ND	ND	ND		ND
PFTrDA	ND	ND	ND		ND
PFUnA	ND	ND	ND		ND

*Between LOD and LOQ

ND =Non-Detect