

# Investigation of Per- and Polyfluoroalkyl Substances (PFAS) in Michigan's Clinton River watershed: Surface Sampling Update April 2021

In March 2021, EGLE Water Resources Division (WRD), Surface Water Assessment Section (SWAS) conducted surface water sampling in the upper portion of the Clinton River watershed to follow up on elevated PFOS concentrations observed in largemouth and smallmouth bass from Cass Lake, an impoundment of the Clinton River, and rock bass collected from the Clinton River upstream of the dam in Yates. Additional samples were collected from the Clinton River to determine if PFAS was elevated in surface water downstream of three landfills in Shelby township. Surface water samples were collected in accordance with the Michigan Per- and Polyfluoroalkyl Substances (PFAS) Sampling Guidance document (MDEQ 2018) and tested for 28 different PFAS following the Michigan Surface Water PFAS Investigation 2019 QAPP (EGLE 2019).

Overall, no samples exceeded the Rule 57 Human Noncancer Value (HNV) for PFOS (12 ppt) or PFOA (12,000 ppt). As depicted in Table 1, PFOS and PFOA were detected in all samples. PFOA concentrations ranged from 1.6 ppt to 5.3 ppt. PFOS concentrations ranged from 1.5 ppt to 11.7 ppt. The samples with the three highest PFOS concentrations were collected from the Clinton River in Rochester Hills at Adams Road (CR-1100; 5.1 ppt), the Whitehorse Lake outlet (WLO-0010; 9.4 ppt), and an unnamed tributary to the Clinton River just east of Pontiac in Auburn Hills (UOD-0010; 11.7 ppt). Figure 1 shows the sampling locations and surface water PFOS concentrations (in ppt). EGLE WRD is planning to collect fish from Whitehorse Lake in 2022 for PFAS analysis.

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Table 1. Surface water PFOS and PFOA concentrations (in ppt) in surface water samples in the upper Clinton River watershed of Michigan in March 2021. As these water bodies are non-drinking water sources, results are compared to the Rule 57 Human Noncancer Value (HNV) of 12 ppt for PFOS and 12,000 ppt for PFOA. No samples exceeded the Rule 57 HNV for PFOS or PFOA.

Sample ID	Water Body	Sample Location	Latitude	Longitude	Collection Date	PFOS (ppt)	PFOS Flag	PFOA (ppt)	PFOA Flag
UDP-0010	Unnamed Trib	Riverside Dr	42.67990	-83.37924	3/9/2021	2.02	J	2.57	J
CR-1180	Clinton River	Hatchery Rd	42.67552	-83.37612	3/9/2021	1.62	J, Q	1.78	J
CR-1170	Clinton River	Crescent Lake Rd	42.66466	-83.38642	3/9/2021	1.65	J	1.77	J
CR-1160	Clinton River	Pontiac Lake Rd	42.65261	-83.39732	3/9/2021	1.74	J	1.83	J
WLO-0010	Whitehorse Lake outlet	Elizabeth Rd	42.64518	-83.40624	3/9/2021	9.35		3.67	J
CR-1150	Clinton River	Cooley Lake Rd	42.62763	-83.39492	3/9/2021	2.08	J, Q	1.96	J
ELO-0010	Elizabeth Lake Outlet	Cass Elizabeth Rd	42.62424	-83.37735	3/9/2021	1.53	J	5.31	
OLV-0010	Orchard Lake	Commerce Ave	42.59695	-83.37175	3/9/2021	1.98	J, Q	1.58	J
CSL-0010	Cass Lake	Dodge Park Pier	42.61260	-83.36894	3/9/2021	3.98	J	1.77	J
CR-1140	Clinton River	Cass Lake Ave	42.61784	-83.35056	3/9/2021	3.15	J	2.32	J
CR-1130	Clinton River	Orchard Lake Ave	42.62428	-83.31589	3/9/2021	4.49	Q	2.46	J
CR-1125	Clinton River	Paddock St	42.64129	-83.28224	3/9/2021	3.19	J	2.61	J
CR-1120	Clinton River	N. Opdyke Rd	42.63624	-83.24956	3/9/2021	4.22	J	2.55	J
UOD-0010	Unnamed Trib	S. Opdyke Rd	42.63336	-83.24940	3/9/2021	11.70		5.22	
CR-1110	Clinton River	Hamlin Rd	42.64677	-83.21256	3/9/2021	4.03	J	3.60	J
GLC-0110	Galloway Creek	Joslyn Rd	42.68801	-83.28069	3/9/2021	3.04	J	5.29	
GLD-0010	Galloway Ditch	Taylor Rd	42.68938	-83.25014	3/9/2021	2.82	J, Q	3.02	J
GLC-0100	Galloway Creek	E Walton Blvd	42.67784	-83.26642	3/9/2021	3.60	J	4.60	
GLC-0010	Galloway Creek	Butler Rd	42.65952	-83.20052	3/9/2021	2.68	J	3.28	J
CR-1100	Clinton River	Adams Rd	42.65384	-83.19295	3/9/2021	5.11		3.85	J
CR-1020	Clinton River	E. Avon Rd	42.67189	-83.09663	3/9/2021	3.13	J	2.67	J
CR-1014	Clinton River	Yates Park u/s sample	42.66741	-83.08587	3/9/2021	3.56	J	2.79	J
CR-1012	Clinton River	Yates Park Mid	42.66281	-83.08491	3/9/2021	3.20	J	2.69	J
UT-0010	Honeywell Ditch	Near Dequindre Rd	42.66201	-83.09247	3/9/2021	3.00	J	4.36	
CR-1010	Clinton River	Yates Park d/s sample	42.66054	-83.08175	3/9/2021	3.29	J	2.86	J
CR-1000	Clinton River	Ryan Rd	42.65673	-83.07326	3/9/2021	3.72	J, Q	3.17	J

**PFAS Laboratory Codes**

K: Result is below detection limit; therefore, the method detection limit is displayed

J: Result is above detection limit, below the reporting limit

Q: The ion transition ratio is outside of the acceptance criteria.

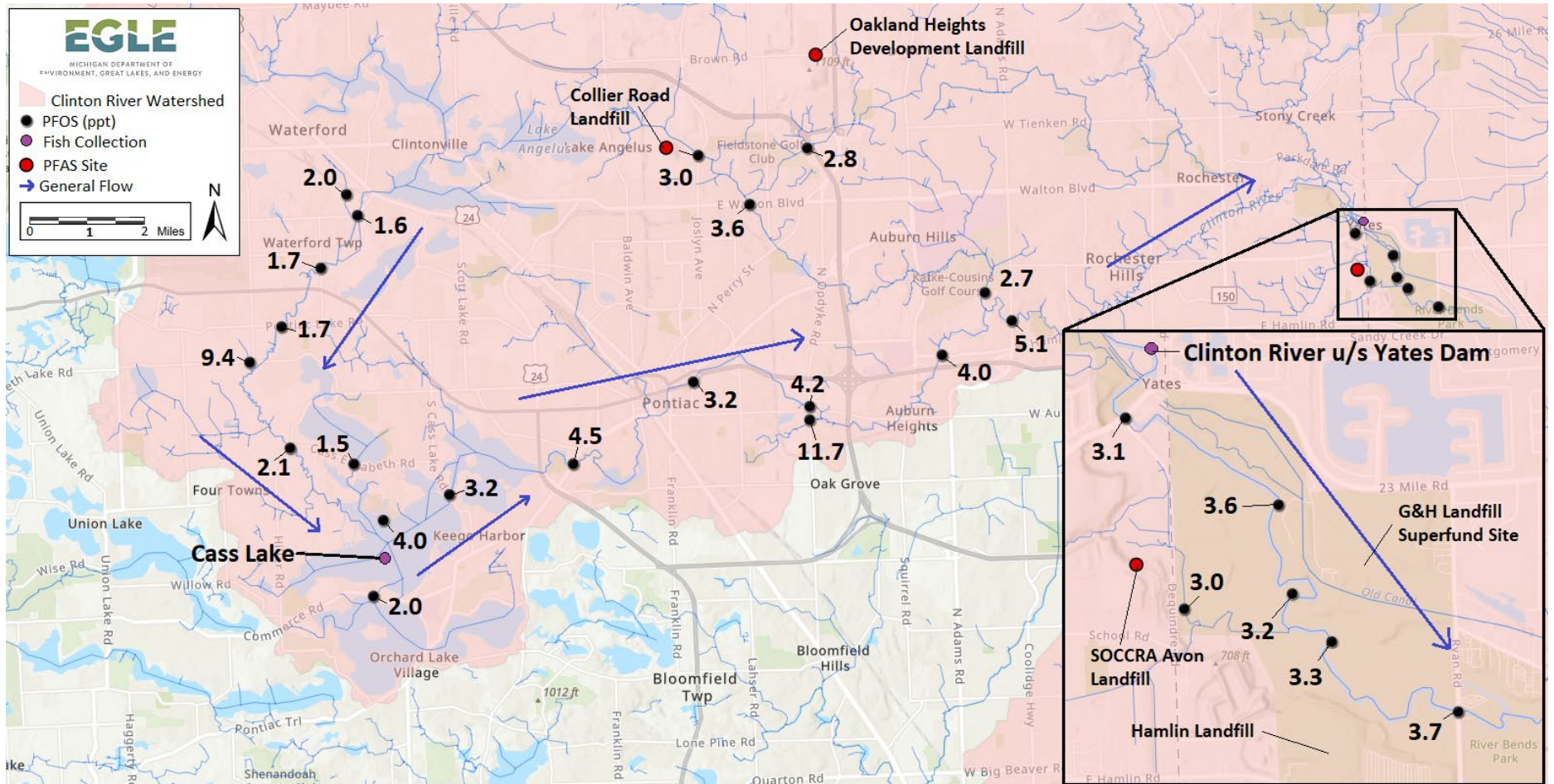


Figure 1. Surface water PFAS sampling locations in the Clinton River watershed collected in March 2021. PFOS concentrations are depicted in parts per trillion (ppt). Locations where fish have been collected and analyzed for PFAS from the river are shown as purple circles.