

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

In January 2021, EGLE Water Resources Division (WRD), Surface Water Assessment Section (SWAS) and the Upper Peninsula District staff conducted surface water sampling in the Paw Paw River watershed to follow up on an elevated PFOS concentration observed in Ox Creek in 2018 during the [St. Joseph River watershed investigation](#). Additional samples were collected further upstream in the watershed to investigate if an [MPART PFAS Site in Hartford](#) resulted in elevated PFAS surface water concentrations. An additional sample was collected in Ox Creek in July 2021 during a fish sampling effort for EGLE's [Fish Contaminant Monitoring Program](#). 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 concentrations ranged from non-detect to 11.7 ppt with 8 of the 14 samples having non-detectable PFOS concentrations. The highest concentration was found in Ox Creek downstream of the Harbor Plating PFAS site. PFOA concentrations ranged from non-detect to 3.3 ppt. Figure 1 shows the sampling locations and surface water PFOS concentrations (in ppt). As indicated in the map, we had previously collected samples from the Paw Paw River near its confluence with the St. Joseph River as well as in Ox Creek in 2018. An additional sample was collected from Ox Creek in July 2021 at Territorial Road during a fish collection effort. PFOS was non-detect in the surface water sample whereas PFOA was detected at 1.1 ppt. Fish were also collected from Paw Paw Lake in 2021 for PFAS and other contaminant analyses. Results from the Ox Creek and Paw Paw Lake fish contaminant analyses are expected back in 2022.

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Table 1. Surface water PFOS and PFOA concentrations (in ppt) in surface water samples in the Paw Paw River watershed of Michigan in January and July 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 Code	Water Body	Sample Location	Collection Date	Latitude	Longitude	PFOS (ppt)	PFOS Flag	PFOA (ppt)	PFOA Flag
PP-0010	Paw Paw River	Whitwam Rd	1/19/2021	42.11590	-86.46877	2.04	J	3.31	J
OC-0010	Ox Creek	N. 8th St.	1/19/2021	42.12060	-86.46020	2.22	J	1.46	J
OC-0020	Ox Creek	Territorial Rd	7/22/2021	42.12058	-86.46006	1.02	K	1.08	J
OC-0050	Ox Creek	E. Britain Ave	1/19/2021	42.10900	-86.44360	11.7	Q	3.08	J
PP-0050	Paw Paw River	Coloma Rd	1/19/2021	42.18600	-86.36910	1.01	K	2.64	J
PP-0080	Paw Paw River	Paw Paw Lake Rd	1/19/2021	42.19290	-86.30250	1.67	J, Q	2.53	J
RY-0010	Ryno Drain	E. Logan St	1/19/2021	42.18780	-86.30440	1.06	K	1.06	K
PP-0100	Paw Paw River	N Main St	1/19/2021	42.19370	-86.25860	1.03	K	2.14	J
PPI-0010	Paw Paw Lake Outlet	N Watervliet Rd	1/19/2021	42.20780	-86.25020	1.86	J	1.27	J
PPL-0010	Paw Paw Lake	Boat Launch	1/19/2021	42.19700	-86.29230	1.94	J	1.13	J
PN-0010	Pine Creek	Red Arrow Hwy	1/19/2021	42.20590	-86.18210	1.01	K	1.01	K
PP-0200	Paw Paw River	67 1/2 St	1/19/2021	42.21770	-86.19950	1.05	K	1.05	K
PP-0220	Paw Paw River	N. Center St	1/19/2021	42.22110	-86.16490	1.02	K	1.02	K
HG-0010	Hog Creek	Red Arrow Hwy	1/19/2021	42.20870	-86.14270	1.03	K	1.03	K
PP-0240	Paw Paw River	59 1/2 St	1/19/2021	42.22690	-86.12350	1.04	K	1.04	K

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.

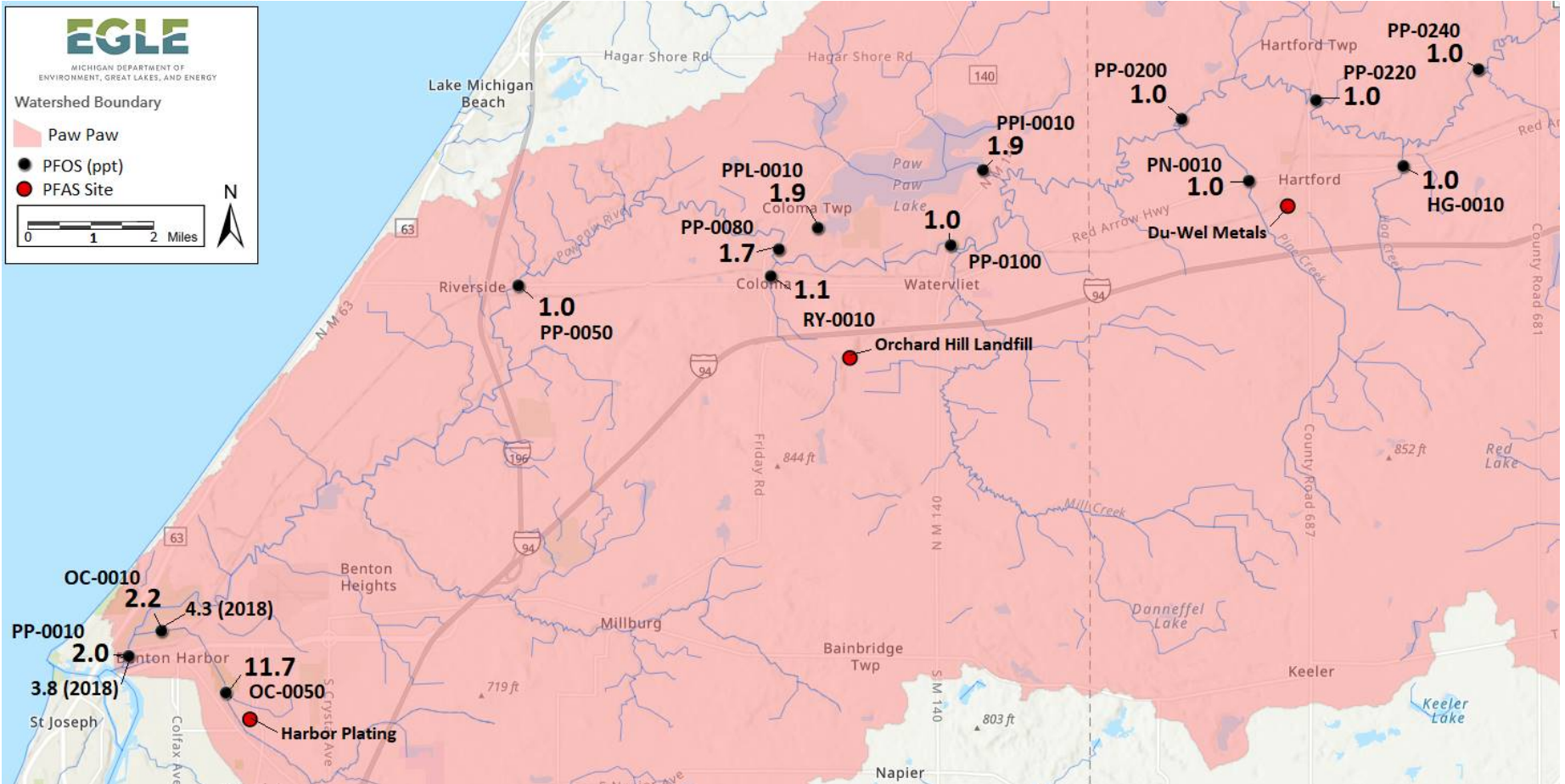


Figure 1. Surface water PFAS sampling locations in the Paw Paw River watershed in September 2018 and January 2021. PFOS concentrations are depicted in parts per trillion (ppt).

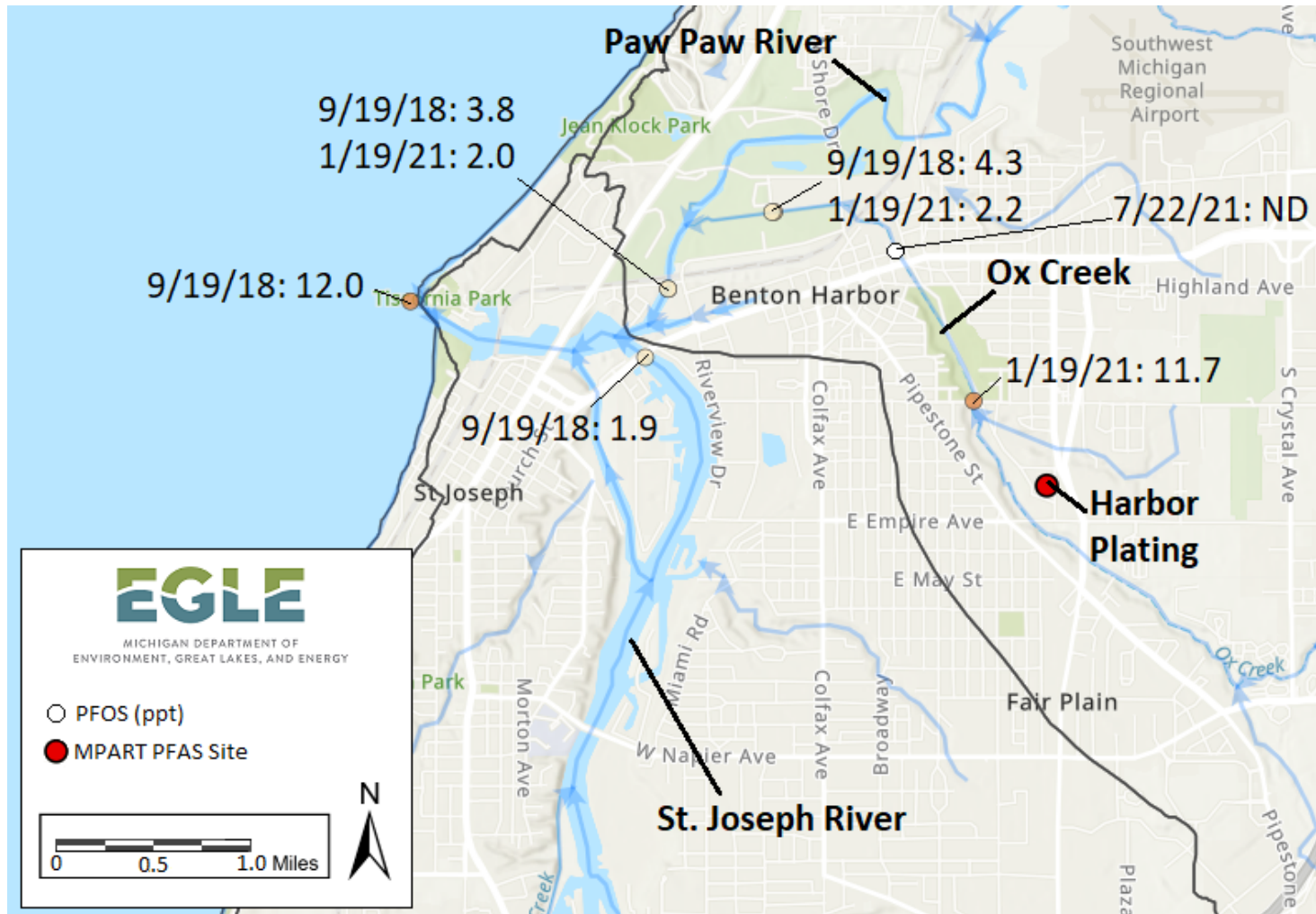


Figure 2. Surface water PFAS sampling locations in Ox Creek of the St. Joseph River watershed between September 2018 and July 2021. PFOS concentrations are depicted in parts per trillion (ppt). ND indicates the sample was non-detect for PFOS.