

DRAFT: April 5, 2019

Overview/Summary

Project Objective 1: Describe PFAS concentrations in main exposure routes at sites with known or suspected contamination with comparability among sites.

Project Objective 2: Collect paired fish tissue and surface water chemistry to aid development of a water quality standard.

Timeframe: Collect fish during mid to late summer.

Rationale for fish tissue sampling timeframe: This sampling plan is intended to characterize local conditions. Sampling fish tissue mid to late summer maximizes the chance that any fish captured are resident fish that have been acclimated to the source water of the “site”. This will ensure, to the extent practicable, that water chemistry and fish tissue are representative of local conditions.

Methods

Fish Tissue sampling approach

- Total Fish Individuals per site (Min.-Max.): 5-15
- Required: A) Five (5) bluegill of varying sizes if no bluegill present B) five (5) of any single “panfish” species (crappie or *Lepomis* species) of varying sizes.
- Additional: up to five (5) individuals of any other “panfish” species of varying sizes but aim for probable edible-sized individuals, such as crappie any *Lepomis* sp., white bass or additional edible-sized bluegill.
- Additional: up to five (5) individuals of any “gamefish” species of varying sizes but aim for probable edible-sized individuals, such as walleye, yellow perch, smallmouth bass, largemouth bass, white bass, rock bass or northern pike.

Water Chemistry sampling approach

- Water chemistry grab samples for PFAS three times per site, once concurrent with fish tissue sampling and (roughly) one sample early summer and one sample late summer.
- One field blank per sample visit regardless of number of sites.

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Study Locations

I. Menominee River near mouth (city of Marinette)

Sources: A responsible party has been identified south of river near town of Marinette. Remediation activities are planned or currently occurring several small streams draining to the bay of Green Bay.

Extent: Found in groundwater wells and small streams draining to the south-east.

Monitoring: Paired water chemistry and fish tissue sampling at three locations. The two downstream locations have the potential for PFAS contamination while the uppermost site is upstream of all known contaminated sites and pathways.

- 1) Below Scott Flowage (approx. downstream of Bridge St)
- 2) Scott Flowage below Upper Scott Flowage
- 3) Upper Scott Flowage



Comments: There is a dredging project at Marinette Marine and multiple fishing tournaments that must be scheduled around during sampling.

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II. Starkweather Creek from headwaters to Lake Monona

Sources: Sources have been identified from a fire suppression training area at the headwaters Starkweather creek (Truax Field).

Extent: Found in groundwater wells surrounding the fire suppression training grounds

Monitoring: Longitudinal water chemistry sampling along Starkweather creek and two tributaries. Fish tissue will be collected at one of the downstream most sites where subsistence fishing likely occurs.

- 1) W Br Starkweather Creek (upstream site)
- 2) W Br Starkweather Creek (downstream site)
- 3) Starkweather Creek (chemistry and fish tissue)
- 4) East Branch Starkweather Creek



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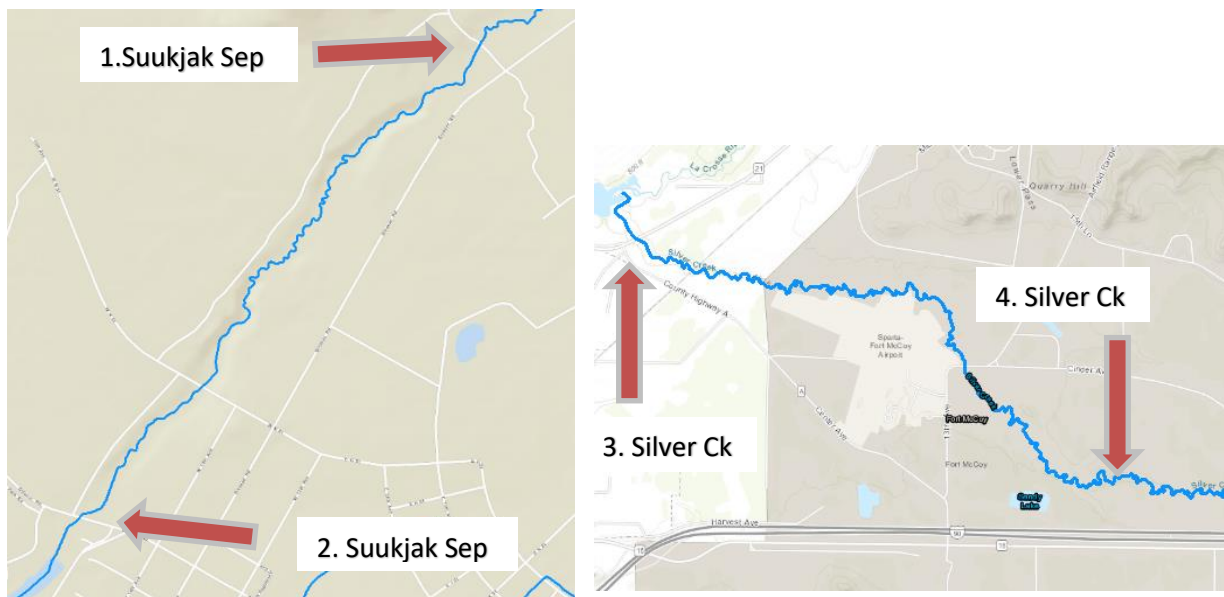
III. La Crosse River and Silver Creek

Sources: Sources have been identified from two-separate fire suppression training areas.

Extent: Found in groundwater wells surround the fire suppression training grounds

Monitoring: Water chemistry sampling at two streams proximal to possible PFAS sources

- 1) Suukjak Sep Creek (undetermined location)
- 2) Suukjak Sep Creek (undetermined location)
- 3) Silver Creek (undetermined location)
- 4) Silver Creek (undetermined location)



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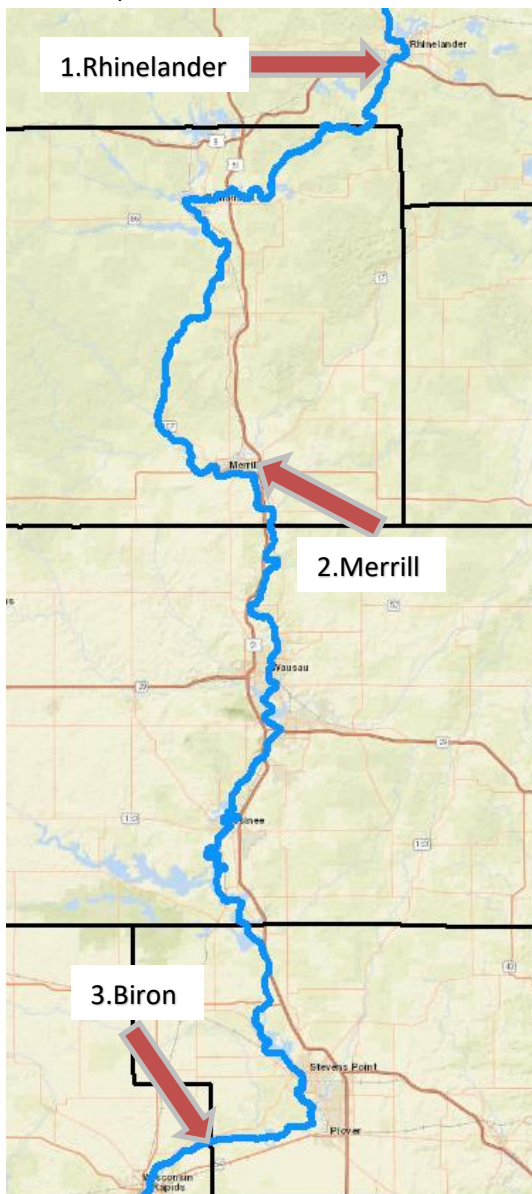
IV. Wisconsin River, middle reach

Sources: Undetermined

Extent: PFAS have been detected in Rhinelander wells and in bald eagle plasma along the middle Wisconsin River (roughly Rhinelander to Sauk).

Monitoring: Water chemistry and fish tissue sampling at three locations along the river, roughly as follows:

- 1) Wisconsin River below Rhinelander
- 2) Wisconsin River below Merrill Dam
- 3) Wisconsin River at Biron



Comments: Sites may be shifted as needed for boat access for fish sampling locations.

06/19/19 – Downstream most site moved to Nekoosa for better access to get fish samples, get exact location from Jim K.

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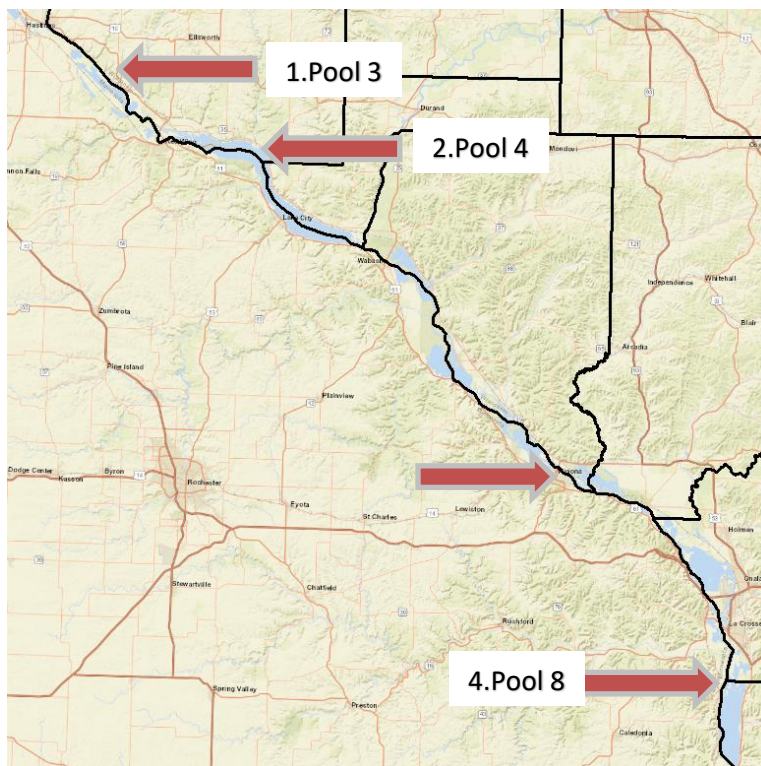
V. Mississippi River, Pools 3, 4, 6 and 8

Sources: 3M plant in Minnesota, as well as many other unconfirmed sources.

Extent: at multiple places along the Mississippi River

Monitoring: Water chemistry and fish tissue sampling at four locations along the river:

- 1) Mississippi River Pool 3 (fish-FM, chemistry-WR)
- 2) Mississippi River Pool 4 (fish-FM, chemistry-WR)
- 3) Mississippi River Pool 6 (fish-WR, chemistry-WR)
- 4) Mississippi River Pool 8 (fish-WR, chemistry-WR)



Comments: Fisheries Management is sampling fish tissue for PFAS at pools 3 & 4 as part of the fish contaminants rotation. WR will add chemistry collection at Pools 3 & 4 as well as coordinate sample (fish and chemistry) at pools 6 & 8 with Dave Heath of FM.