



2023 CHEMISTRY & FLOW MONITORING

FEBRUARY 22, 2024



Huron
River
Watershed
Council



2023 VOLUNTEERS



30

Volunteers



510

Volunteer Hours



Enjoyable
Recommend

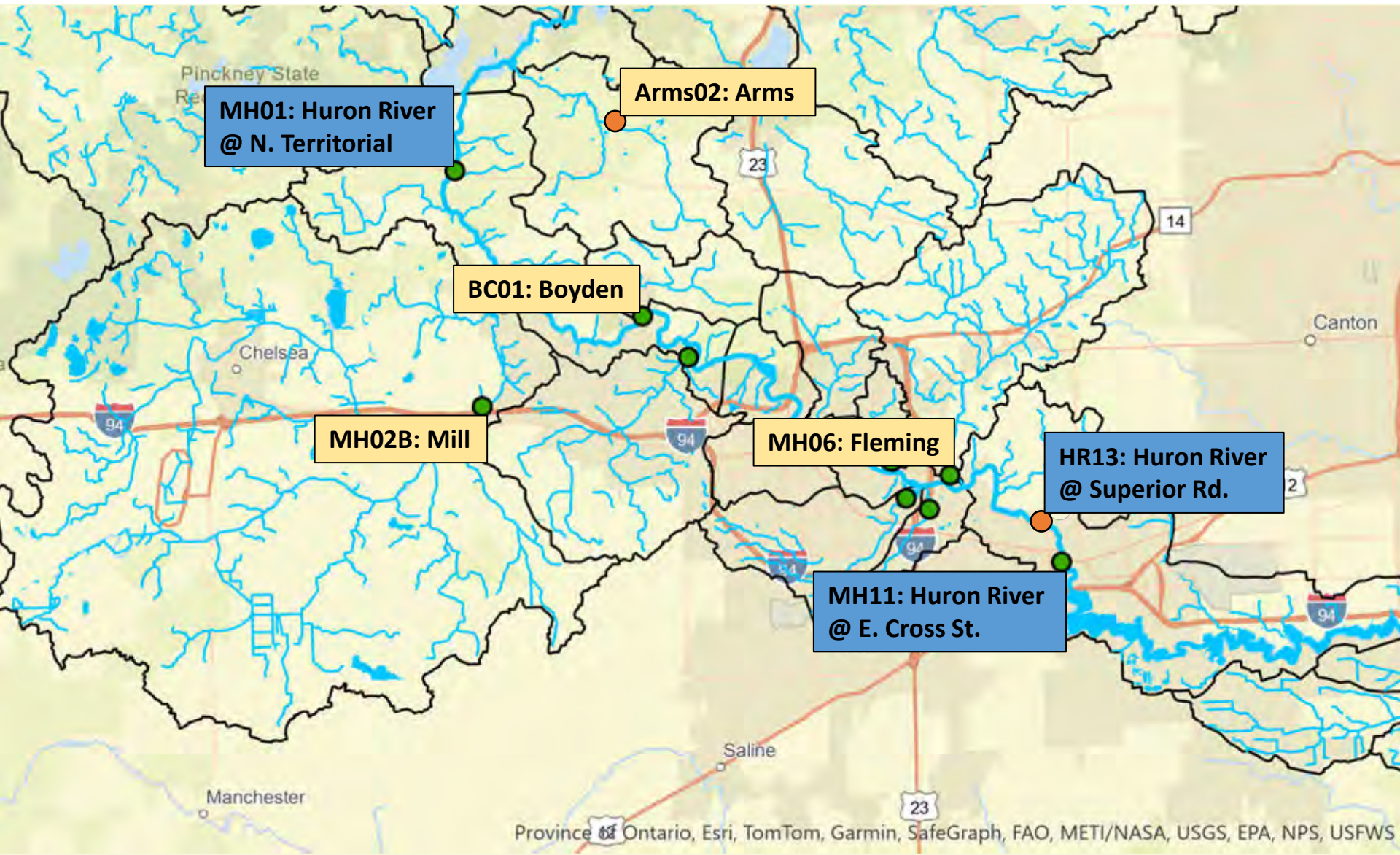
Parameters

- Nutrients: Phosphorus, Nitrogen
- Sediments: Total Suspended Solids
- Pathogens: E. coli
- Conductivity
 - Total Dissolved Solids
 - Salts: chloride and sulfate
- Dissolved Oxygen
- pH
- Temperature

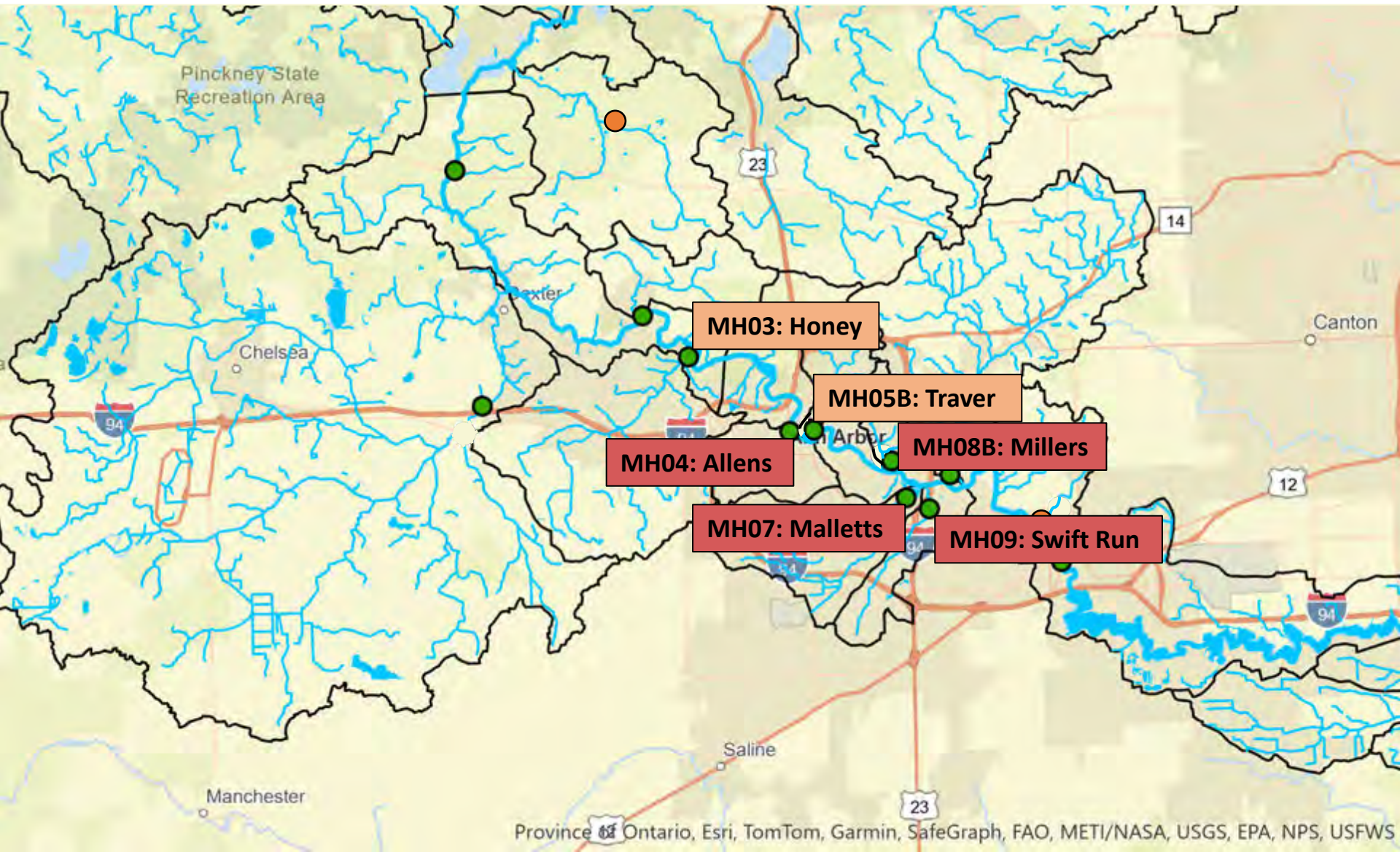
- Flow: Discharge
- Water Level



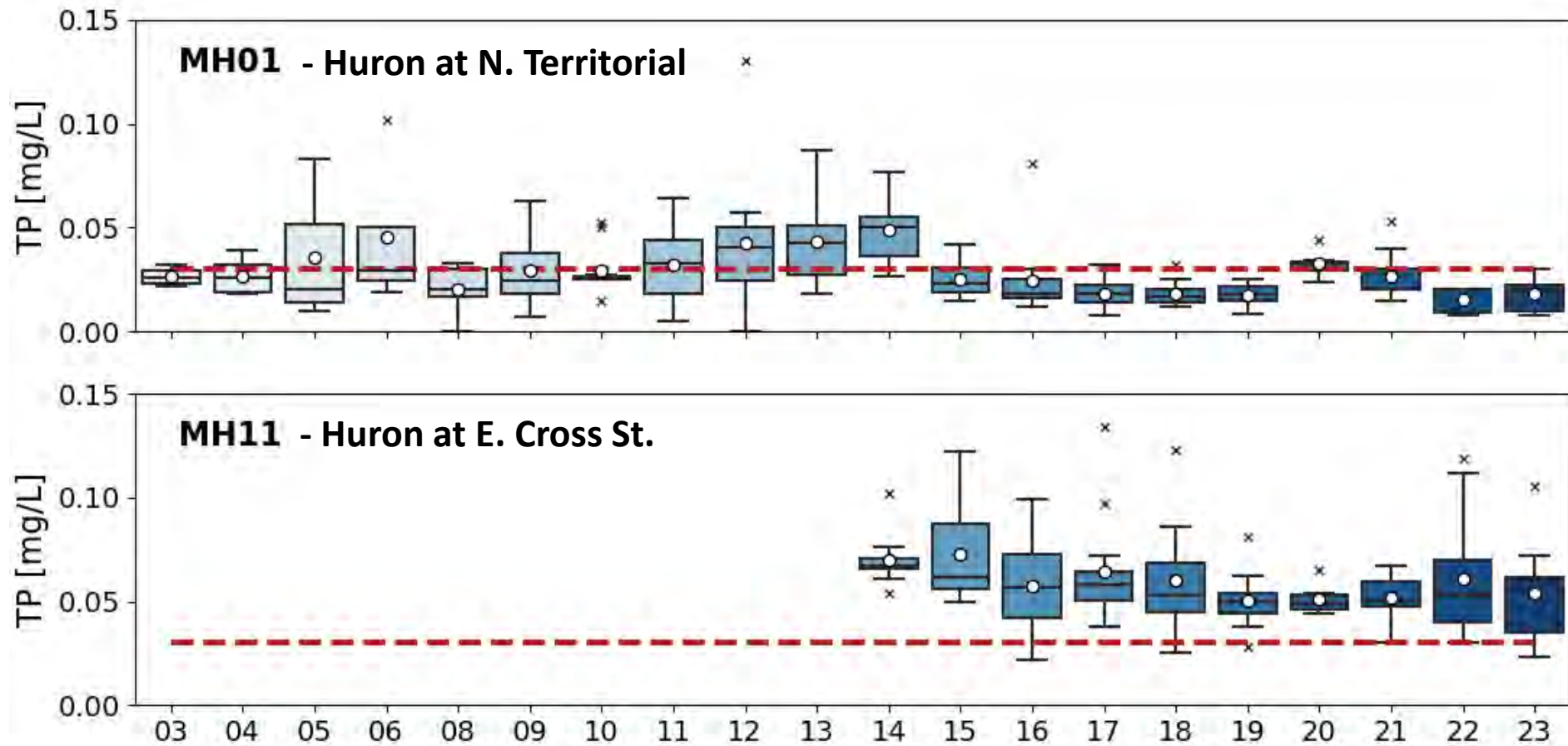
2023 MHP Monitoring Sites



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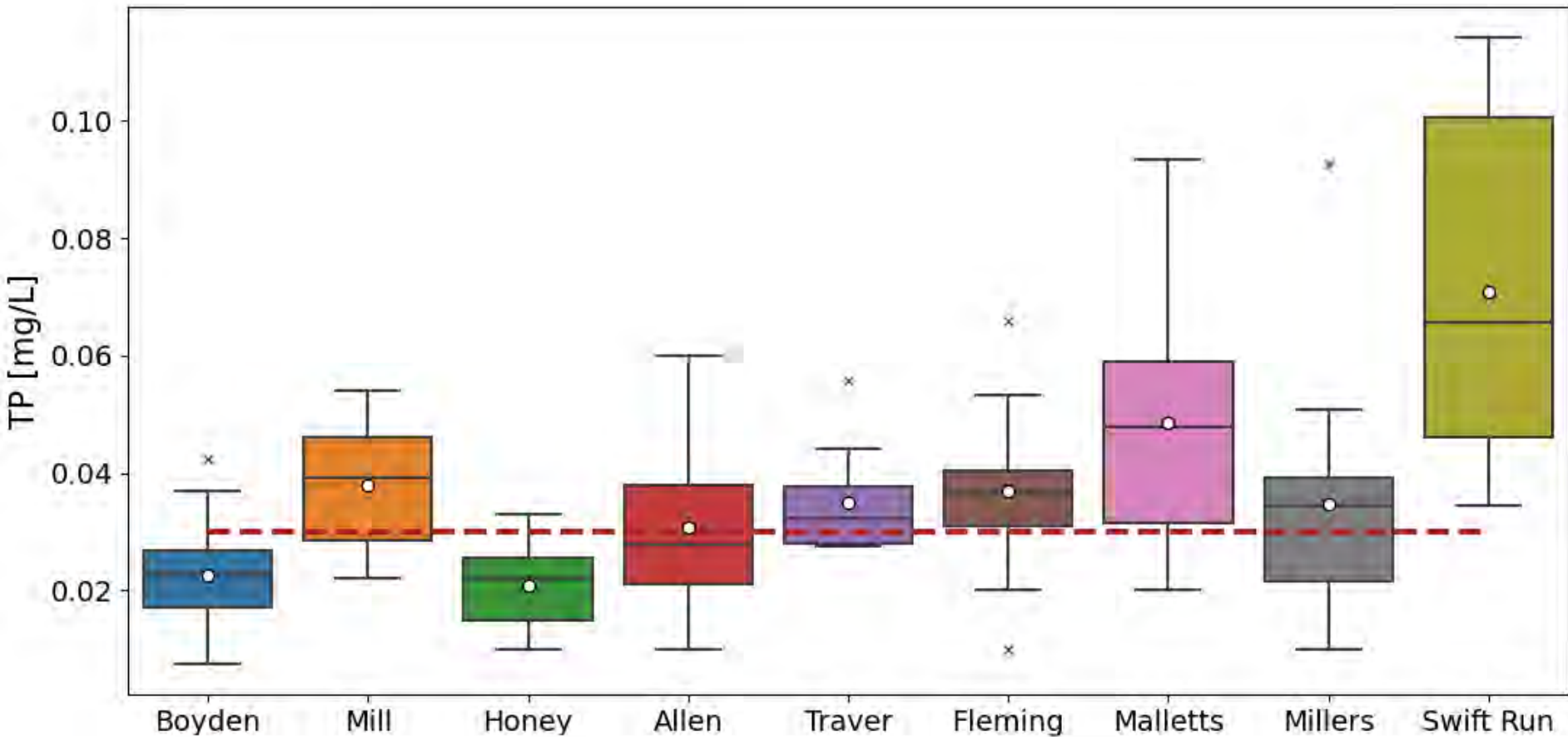


Phosphorus in the Huron River by Year



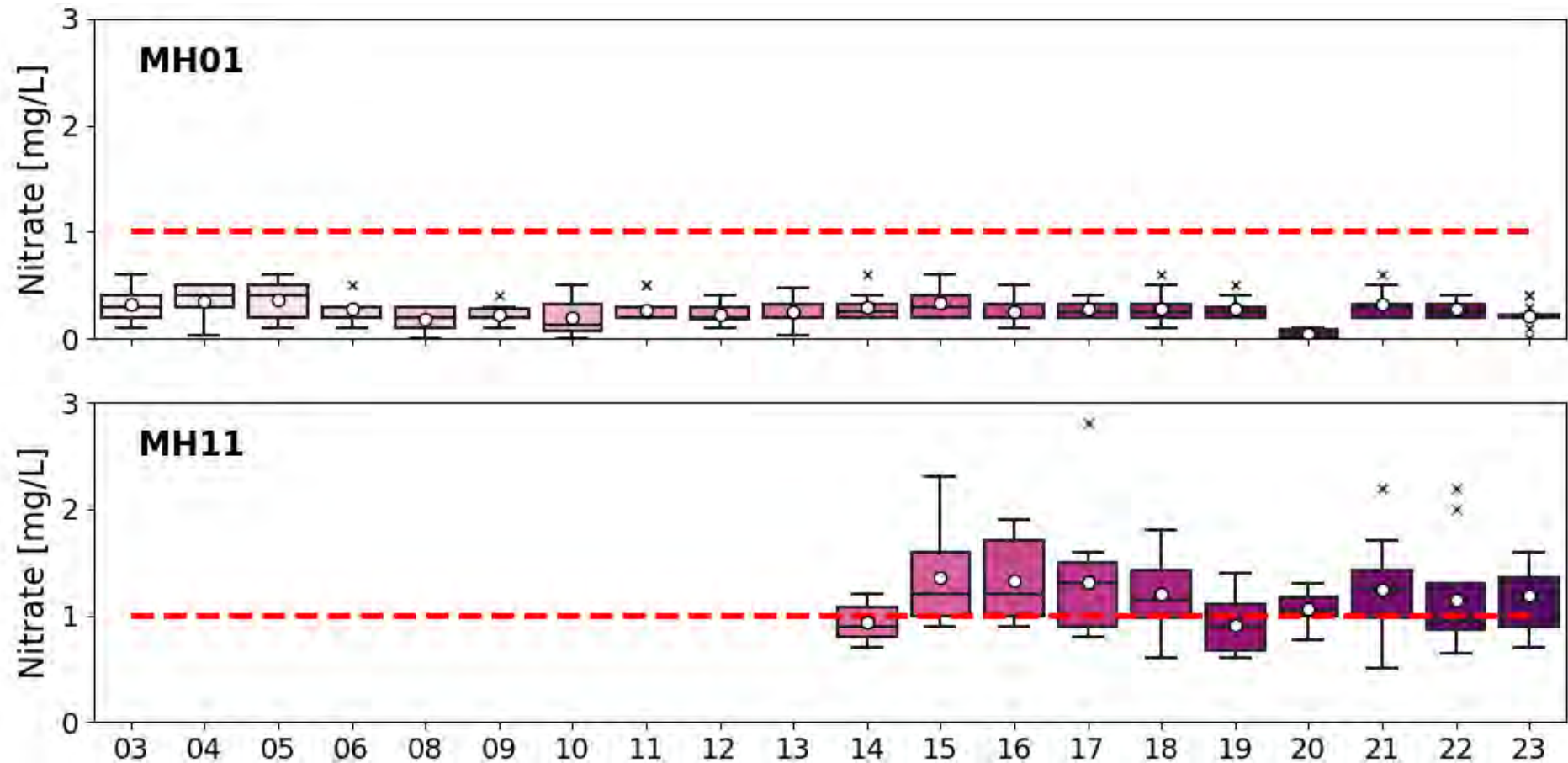
TARGET OF 0.03 mg/L INDICATED BY RED DASHED LINE

Phosphorus in 2023 by Tributary



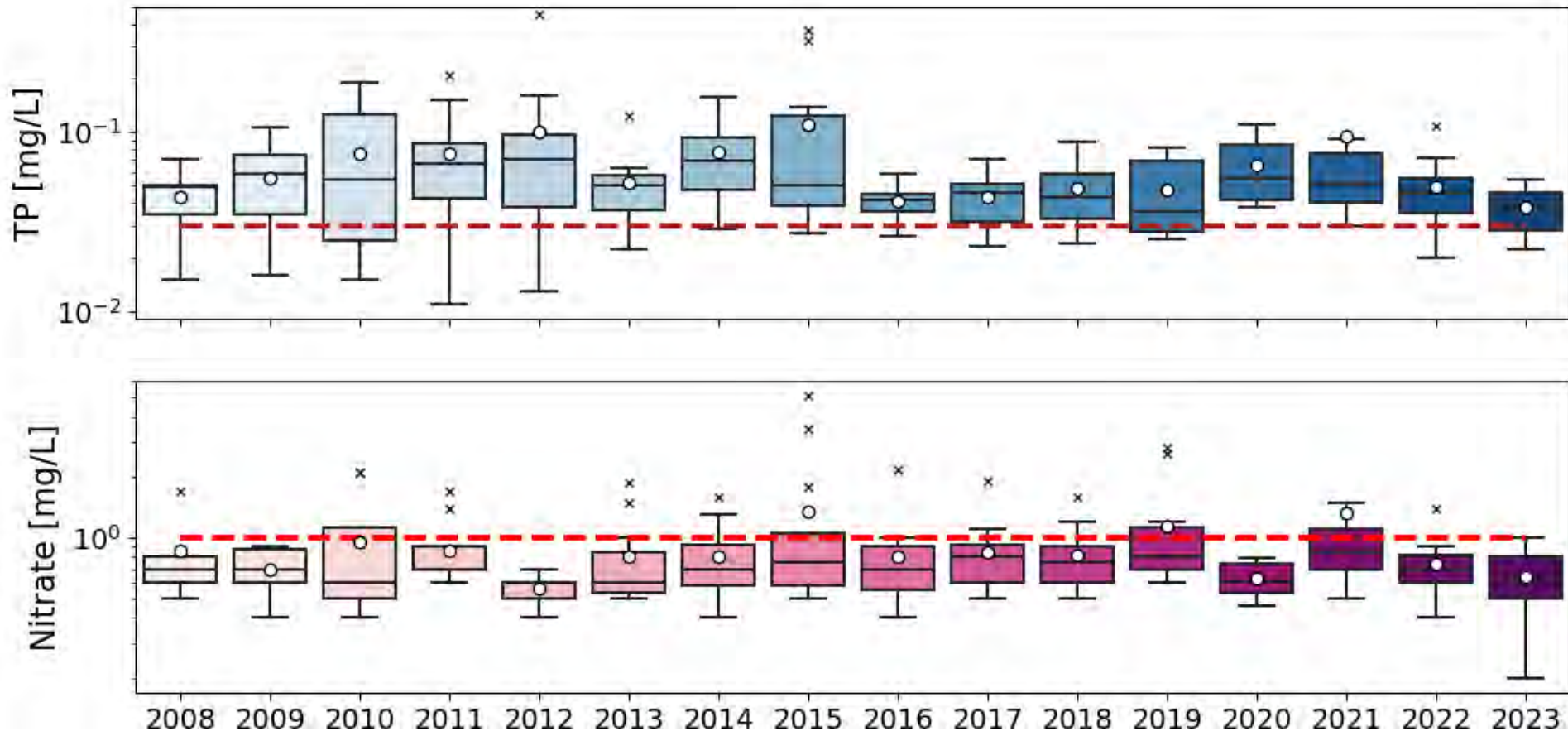
TARGET OF 0.03 mg/L INDICATED BY RED DASHED LINE

Nitrogen in the Huron River by Year



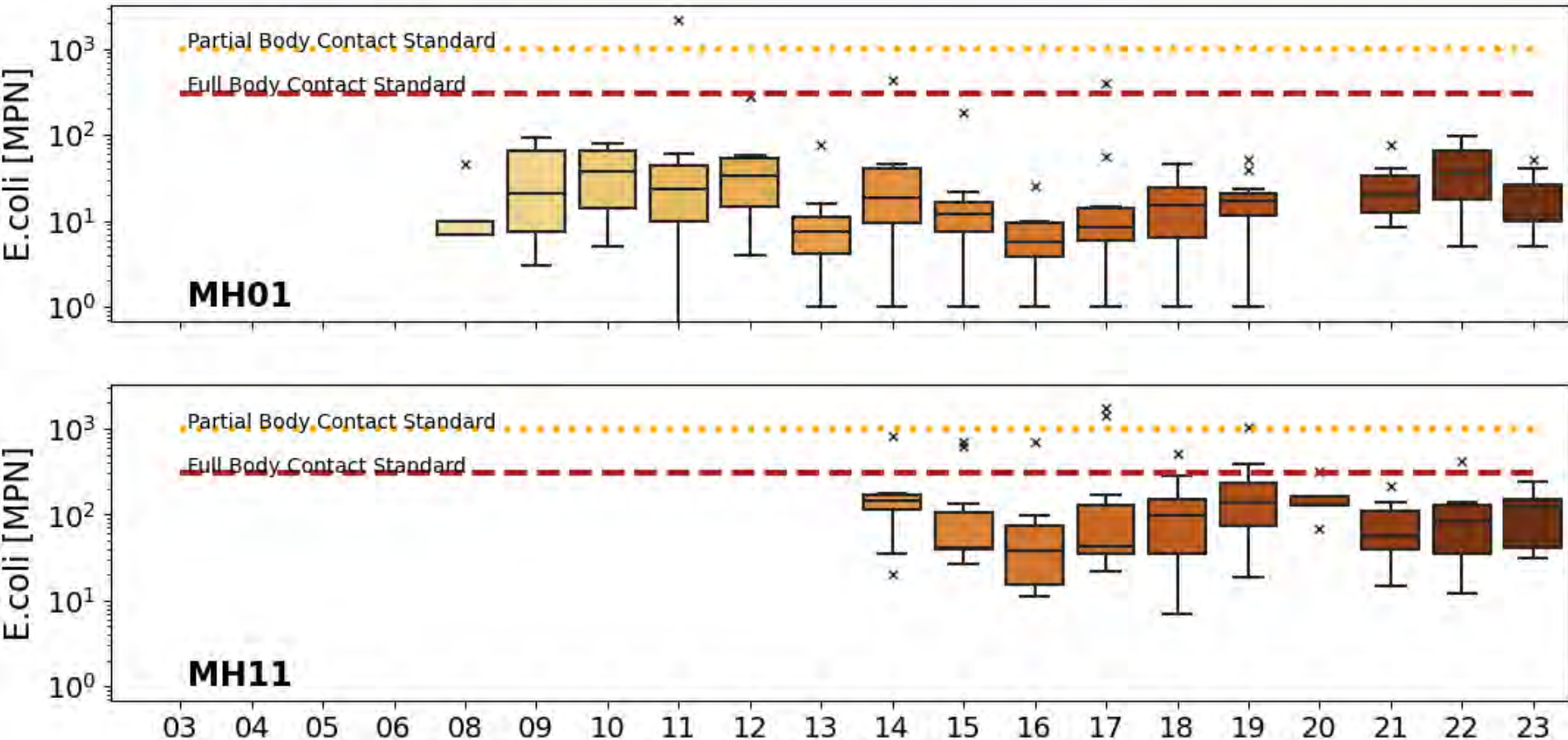
NITRATE (NO₃) EUTROPHIC LINE OF 1 mg/L INDICATED BY RED DASHED LINE

Nutrients in Mill Creek by Year



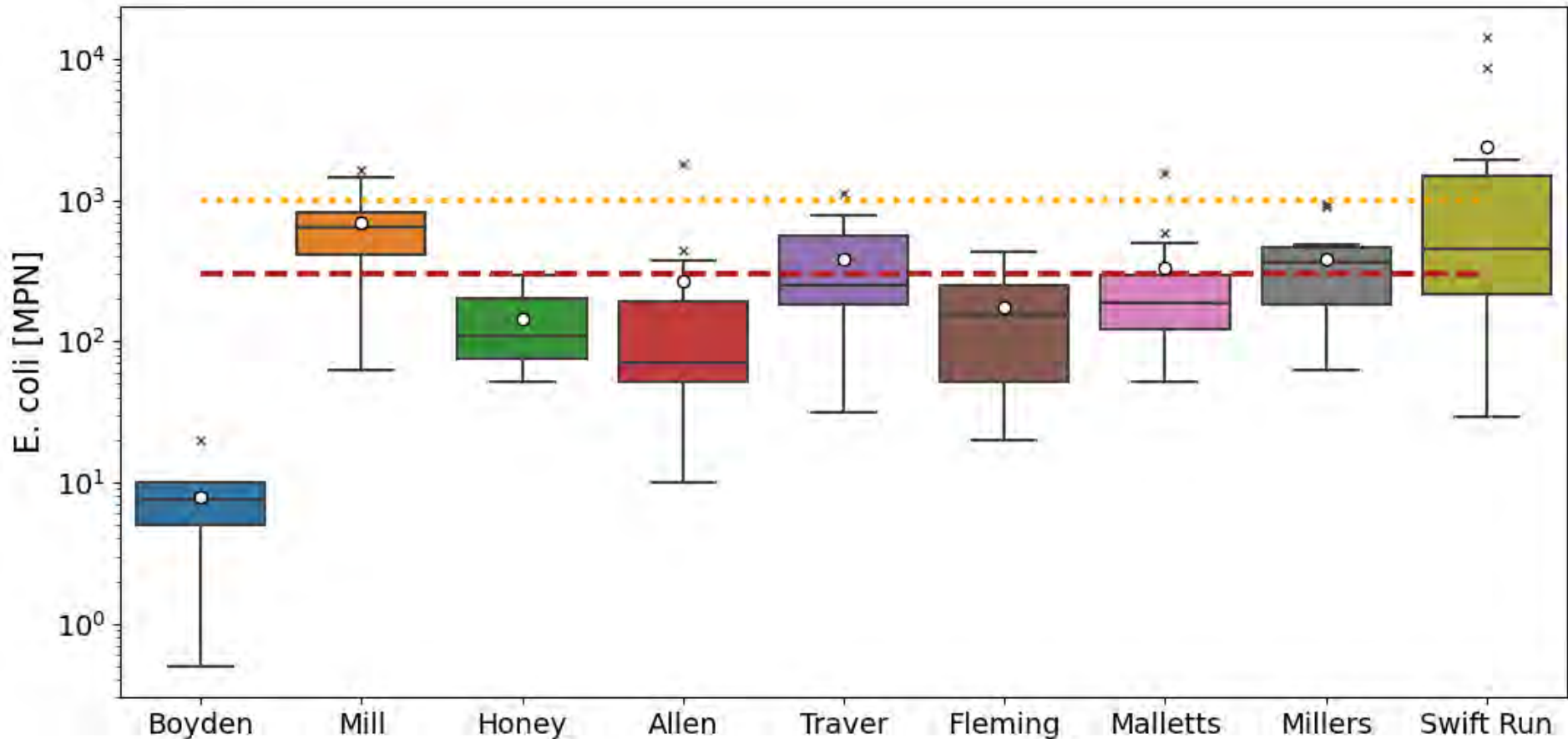
TP TMDL 0.03 mg/L TARGET INDICATED BY RED DASHED LINE (Top Plot)
NITRATE EUTROPHIC 1 mg/L LINE INDICATED BY RED DASHED LINE (Bottom Plot)

E. coli in the Huron River by Year



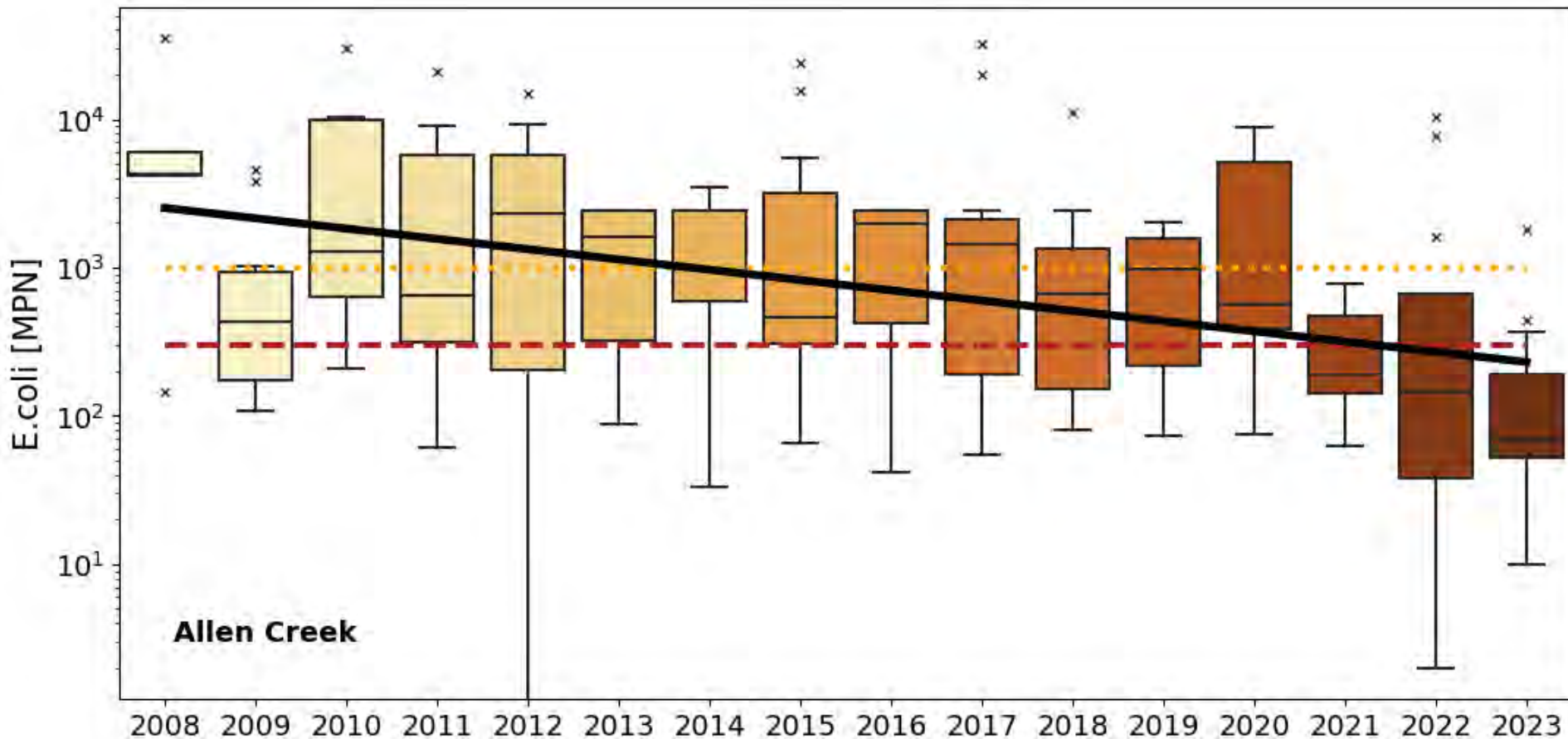
Full Body Contact Standard of 300 MPN Indicated by RED DASHED LINE
Partial Body Contact Standard of 1000 MPN Indicated by YELLOW DOTTED LINE

2023 - *E. coli* Counts by Tributary



Full Body Contact Standard of 300 MPN Indicated by RED DASHED LINE
Partial Body Contact Standard of 1000 MPN Indicated by YELLOW DOTTED LINE

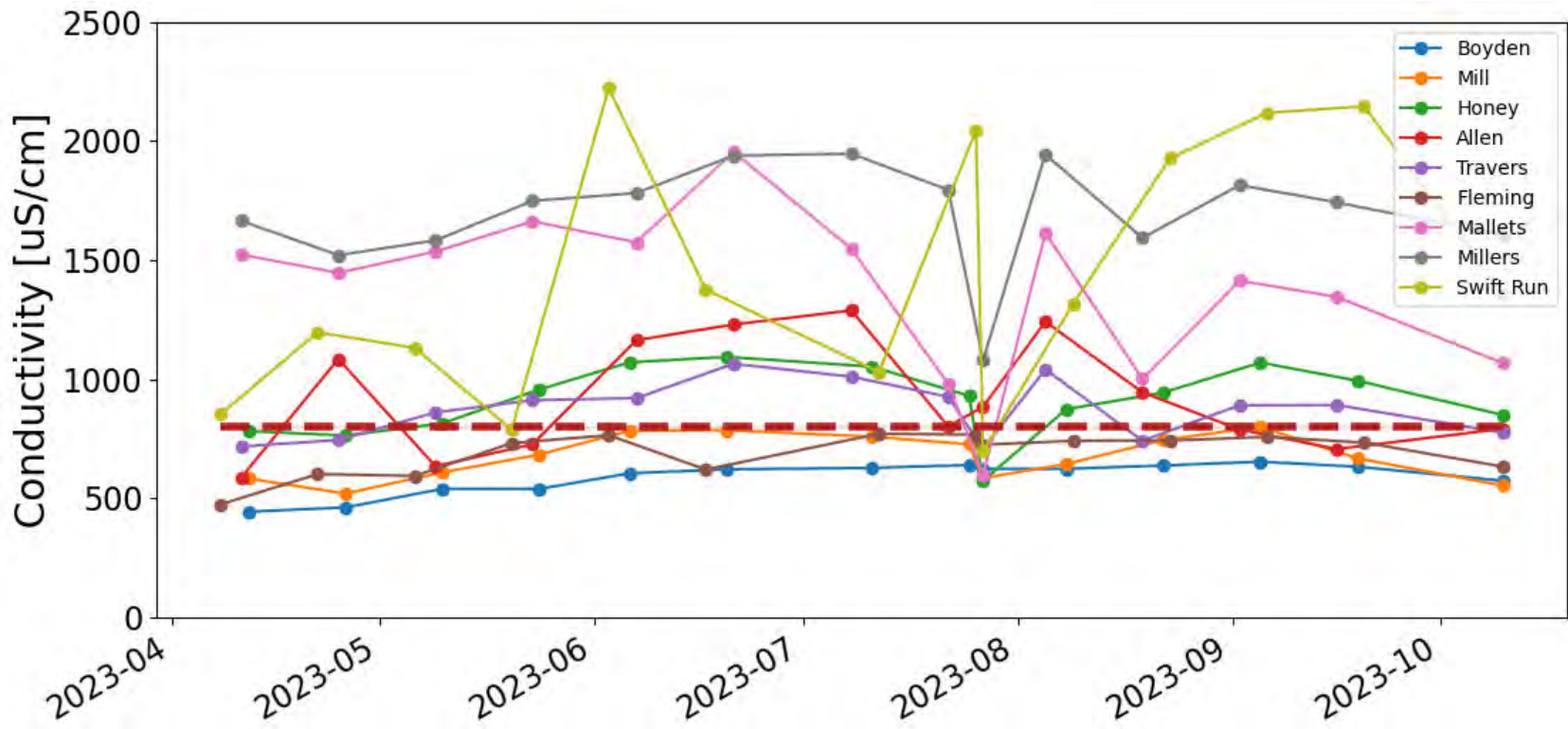
E. coli Counts in Allens Creek by Year



Full Body Contact Standard of 300 MPN Indicated by RED DASHED LINE
Partial Body Contact Standard of 1000 MPN Indicated by YELLOW DOTTED LINE

2023 YSI Data: Conductivity

- Conductivity is highest in urban tributaries, especially Mallets, Millers, and Swift Run
- Correlates with high chloride concentrations above the state aquatic maximum level (320 mg/L)



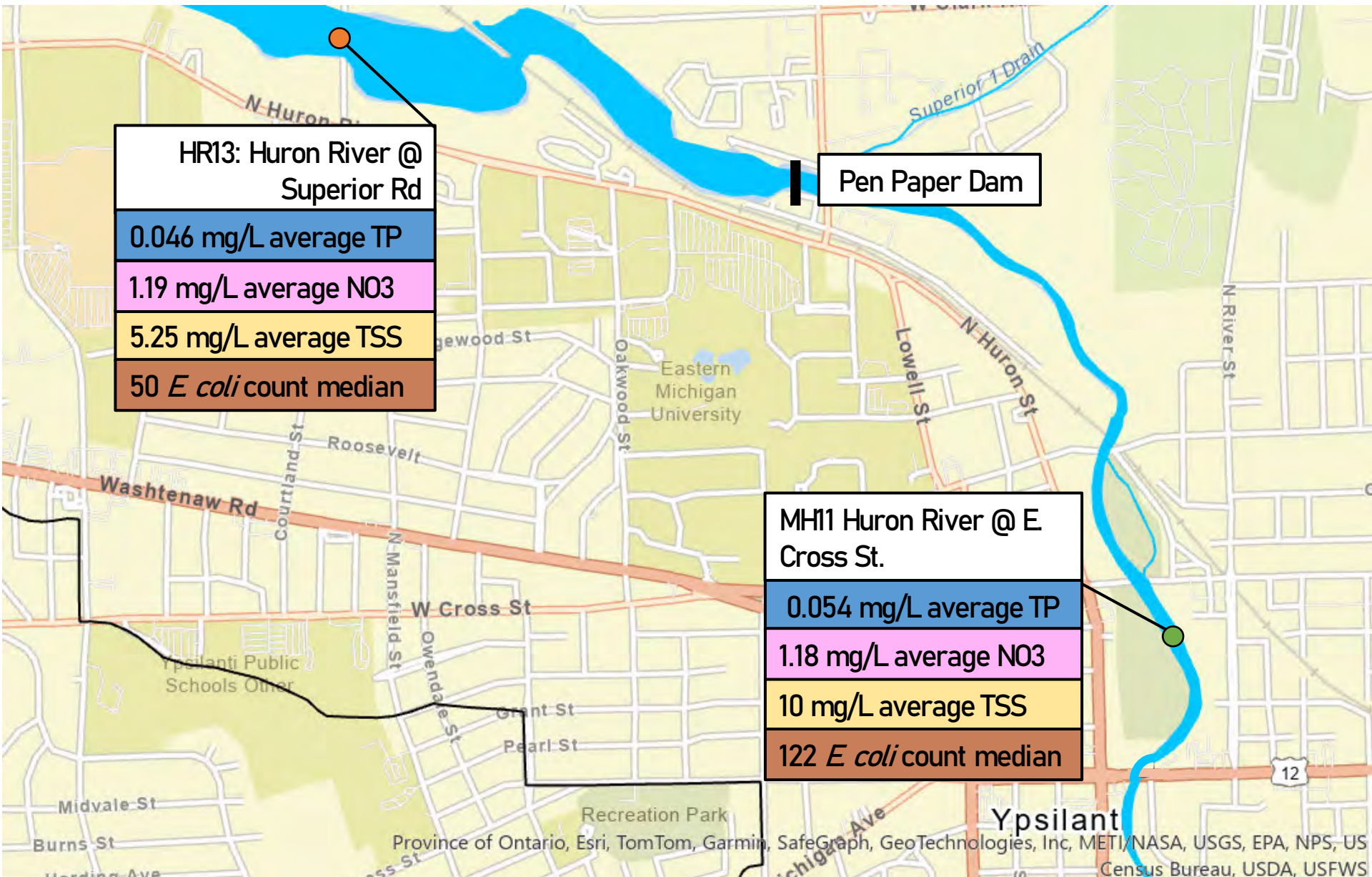
Summary of Results

- **TP:** Still high, but improving
 - *Main stem:* High downstream, but shows signs of improvement
 - *Tributaries:* High at most urban sites, especially Swift Run
- **Nitrogen:** moderately high in agricultural tributaries and above eutrophic levels in main stem
- **TSS:** Moderate to good across all sites, one exceedance at Millers
- **E. coli:** High, but improving
 - *Main stem:* Regularly, meets state standards
 - *Tributaries:* High at most urban sites, especially Swift Run, and at Mills Creek
- **Conductivity:** High at all urban sites, especially Millers, Mallets, and Swift Run creeks
 - **Chloride:** Above state aquatic maximum level in these 3 creeks, suggest salt inputs
- **Dissolved Oxygen:** Generally, meets standards except some event based low DO recorded at Swift Run

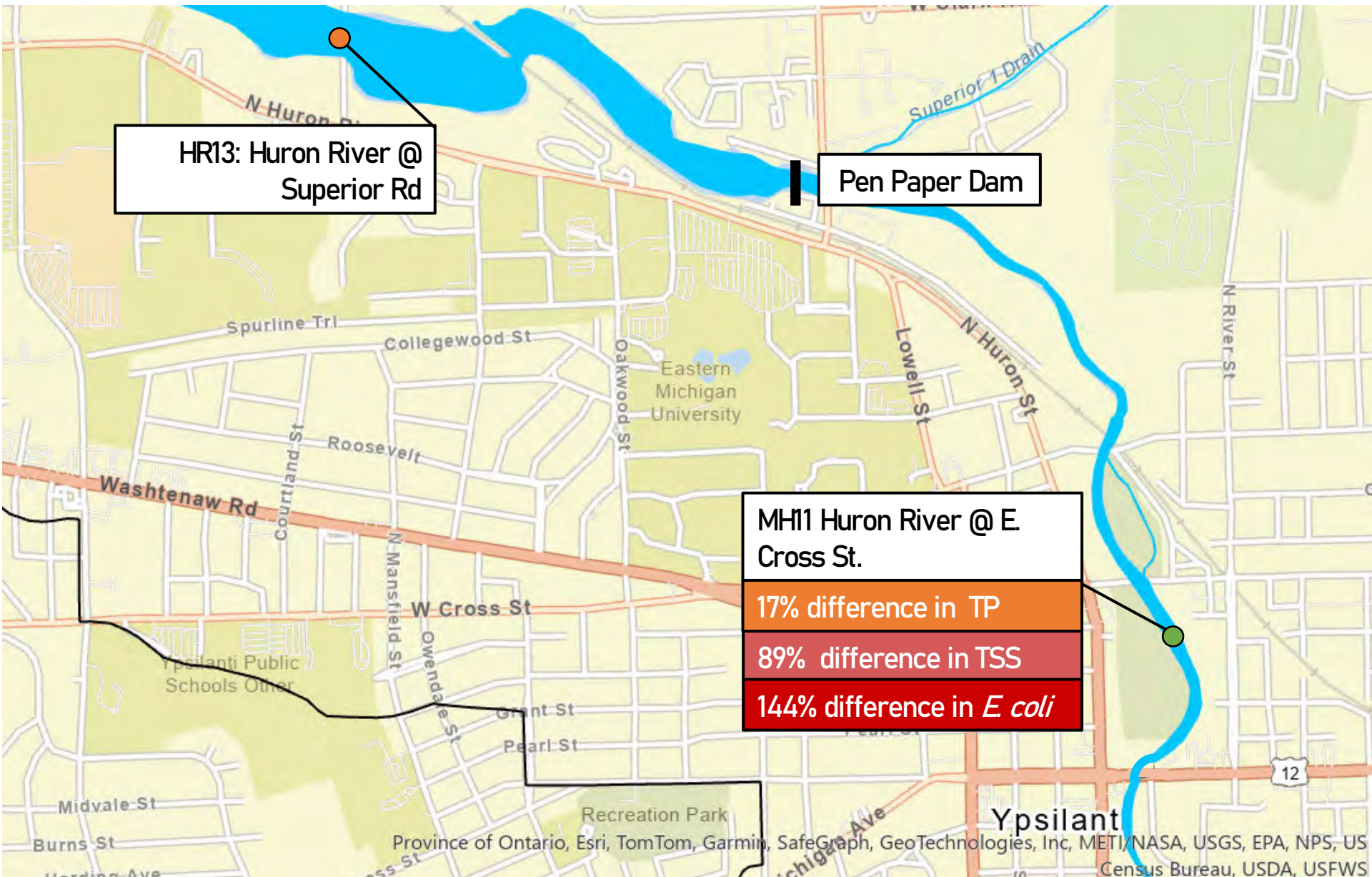
Data available on our new
[Chemistry Dashboard](#)



Investigative Site – Huron River at Superior Rd.



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Investigative Site – Arms Creek



- Drains natural and agricultural (43%) land; only 3.5% impervious
- 75% of measurements below TP standard of 0.03 mg/L and low nitrate
- Optimal TSS; average of 12.7 mg/L
- High E. coli with median = 700 counts; geomean = 375 counts
- Conductivity is low with 100% of records < 800 $\mu\text{S}/\text{cm}$
- Dissolved oxygen supports aquatic life

Next Steps

- Evaluate flow data and TP loading.
 - Finalize online monitoring report.
 - Prepare for 2024 season.
 - Identify new investigative sites.
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2024 Chemistry & Flow Monitoring Virtual Volunteer Orientation

Saturday, March 23, 2024, 1-2:30 PM

Register: hrwc.org/chemflow/

PROMOTE TO YOUR RESIDENTS!

