

North Branch Chicago River Watershed Workgroup (NBWW) Microbial Source Tracking



NORTH BRANCH
CHICAGO RIVER
WATERSHED
WORKGROUP

Since 2018, the NBWW has been collecting and analyzing E.coli four times a year at all 25 NBWW monitoring sites on the North Branch Chicago River as part of the water column chemistry program. Elevated levels of E.coli have been detected at every NBWW site.

The NBWW began working with Grand Valley State University (GVSU) on a microbial source tracking services pilot project in May 2025 to help understand where fecal contamination (E.coli) is coming from in the watershed. The NBWW selected five monitoring locations for this pilot project based on the highest E.coli levels averaged from the 2023-2024 data. Each of the five sites were sampled for E.coli four times by the North Shore Water Reclamation District (NSWRD) between May and September 2025. If E.coli concentrations exceeded 354 colony-forming units per 100 milliliters (CFU/mL), samples were then sent to GVSU to be tested for three possible microbial source markers: human, dog and/or gull data. The data showed human-associated markers at three monitoring sites: MF17, SR05, & WF25 (see map on page 2). Those three locations also tested above 354 CFU /100 mL, the minimum detection level for DNA extractions.



For Reference: In Illinois, the maximum allowed E. coli level for licensed public swimming beaches is 235 CFU/100mL. E.coli is a species of fecal coliform that is specific to fecal material from humans and other warm-blooded animals.

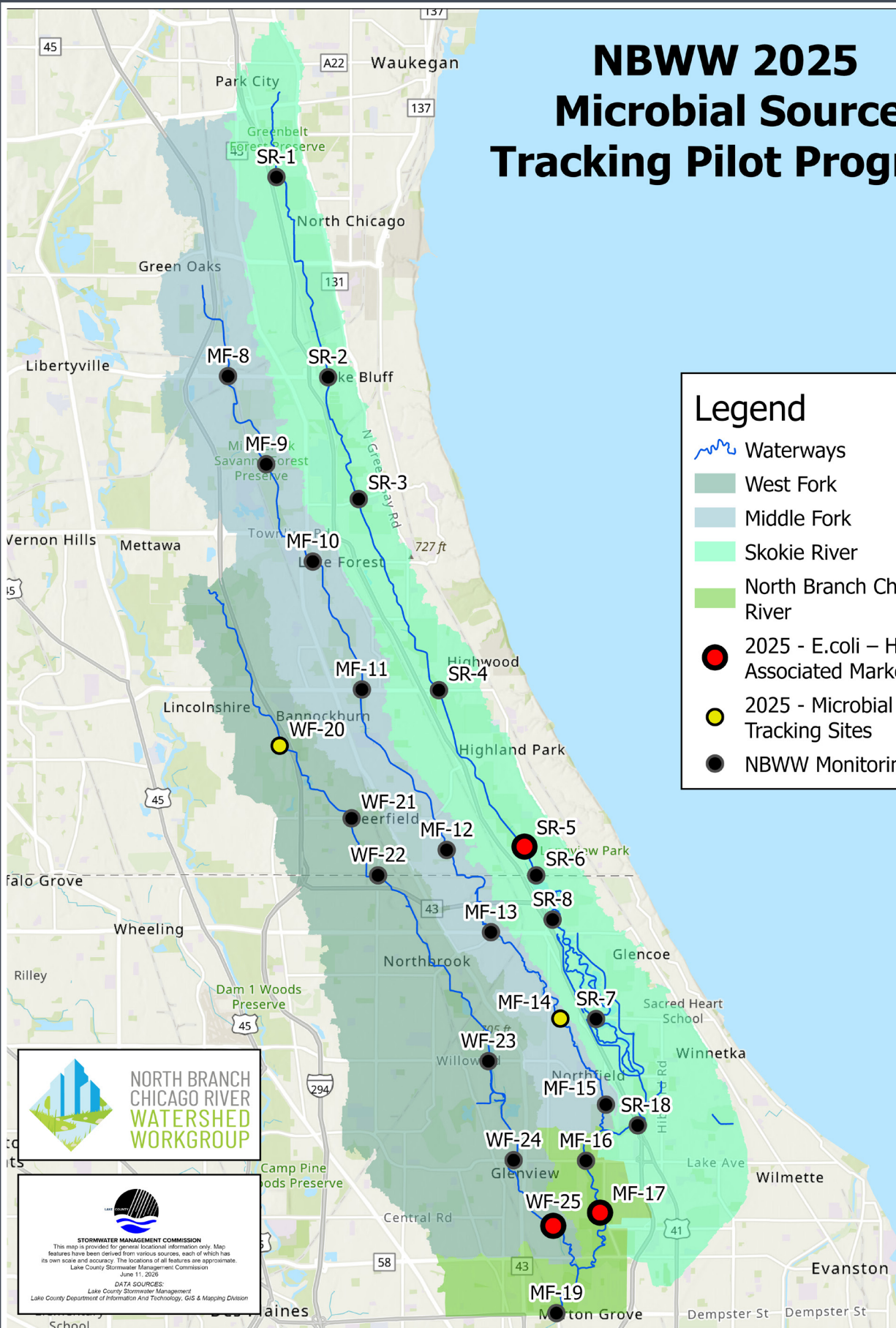
What does human-associated markers mean?

Human-associated markers detected in these water quality samples indicate human waste. Possible sources could be leaking sewer pipes, failing septic systems, or illicit connections. Regardless of the source, this poses a significant public health risk due to the presence of human pathogens. The North Branch Chicago River watershed has a mix of septic systems and sanitary sewer lines. The Cook County part is predominantly on sanitary sewer lines, with the Lake County part a mix of both septic and sewer services.

NBWW 2025 Microbial Source Tracking Pilot Program

Legend

-  Waterways
-  West Fork
-  Middle Fork
-  Skokie River
-  North Branch Chicago River
-  2025 - E.coli – Human Associated Markers
-  2025 - Microbial Source Tracking Sites
-  NBWW Monitoring Sites



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STORMWATER MANAGEMENT COMMISSION
This map is provided for general locational information only. Map features have been derived from various sources, each of which has its own scale and accuracy. The locations of all features are approximate.
Lake County Stormwater Management Commission
June 11, 2025

DATA SOURCES:
Lake County Stormwater Management
Lake County Department of Information And Technology, GIS & Mapping Division

How CAN You Help?

Local Units of Government

Please help support the NBWW and your MS4 permit by tracking the leaking sewage infrastructure in our watershed.

- 1. Dye Tracing & Testing:**
Implement eco-friendly dye into sewage pipes and trace where it exits the system. Note potential leak locations and address those issues immediately.
 - Laundry Detergent Brighteners:**
Laundry detergent brighteners with a fluorometer can also be used to indicate leaking sewer lines.
- 2. Manhole Inspections:**
Visually inspect all municipal manholes/catch basins for holes, corrosion, or evidence of leaks.
- 3. Closed Circuit Television (CCTV) Inspection:**
Insert cameras into sewers to visually inspect for tree roots, cracks, and structural failures.



Lake County Public Works deploying a pole camera in a manhole (activities performed in the Des Plaines River watershed).

Members of the Public

If you notice foul odor or unusual discharge in the river, please notify your local unit of government, including City, Municipality, Township, County and/or Public Works Department.

Why SHOULD You Help?

Municipal Separate Storm Sewer Systems (MS4) Permit Illicit Discharge Detection & Elimination (IDDE) Citations:

A MS4 is required to develop and implement IDDE measures to fulfill their National Pollutant Discharge Elimination Systems (NPDES) permit. Detection, investigation, and elimination of leaking human sanitary sewage falls within that category and within the responsibility of the MS4. Applicable NPDES permit citations are on **page four**.



What is an MS4?

A Municipal Separate Storm Sewer Systems (MS4) refers to an entity (Municipality, Drainage District, Township, County, etc.) which owns or operates stormwater conveyance systems in urbanized areas with a population of at least 50,000, this triggers the requirements of an National Pollutant Discharge Elimination System (NPDES) permit and implementation of six (6) minimum control measures. The MS4 Permit is a member of the NPDES permit family. MS4 areas are delineated by the U.S. Census Bureau and is defined as a central place or places and the adjacent densely settled surrounding area that together have a residential population of at least 50,000 people and an overall population density of at least 500 people per square mile.

NPDES Permit Language & Microbial Source Tracking

Local MS4 communities must adhere to their NPDES permit requirements, which includes the detection, investigation and elimination of non-storm water discharges, including illegal dumping, into its system. Microbial source tracking is one monitoring activity the NBWW has been pursuing to track down the type of E.coli in the watershed. Local MS4 communities can refer to their [current NPDES permits](#) for guidance on their roles and responsibilities.

MS4 Permit Language - Section IV. B. 3.

New permittees shall develop and implement a program to detect, investigate, and eliminate non-storm water discharges, including illegal dumping, into its system. Existing permittees renewing coverage under the recently updated Permit, which went into effect August 1, 2025, shall maintain their current programs and revise, if necessary, within one year of Permit coverage addressing this Minimum Control Measure, updating and enhancing their storm water management programs as necessary to comply with the terms of this Section. The storm water management program shall, at a minimum include:

IV. B. 3.a.iv

[The MS4 shall] Develop, implement, and enforce a program to detect and eliminate illicit connections or discharges into the permittees MS4;

IV. B. 3.a.vi-ix (New Permit Requirement)

[The MS4 shall] Procedures for identifying priority areas within the MS4 likely to have illicit discharges and a list of all such areas; Field screening to detect illicit discharges; Procedures for tracing the source of the illicit discharge; Procedures for removing the source of the discharge;

IV. B. 3.b. (New Permit Requirement)

When implementing the IDDE program, the permittee may conduct investigations, contract for investigations, coordinate with storm drain investigation activities of others, or use any combination of these approaches.

NBWW 2025 Microbial Source Tracking Add. Markers

In 2025, the NBWW also detected a canine marker at the WF20 monitoring site in July, a gull marker was detected in May at SR05, and a ruminant marker was detected in August and September at MF14. The NBWW is evaluating all of the 2025 E.coli data, and will be reevaluating human, geese, and deer markers in 2026 for the five highest E.coli levels at each NBWW monitoring location, averaged from the 2023-2025 monitoring data.

For more Information:

Please contact Ashley Strelcheck, NBWW Coordinator (astrelcheck@lakecountyiil.gov) for any questions.