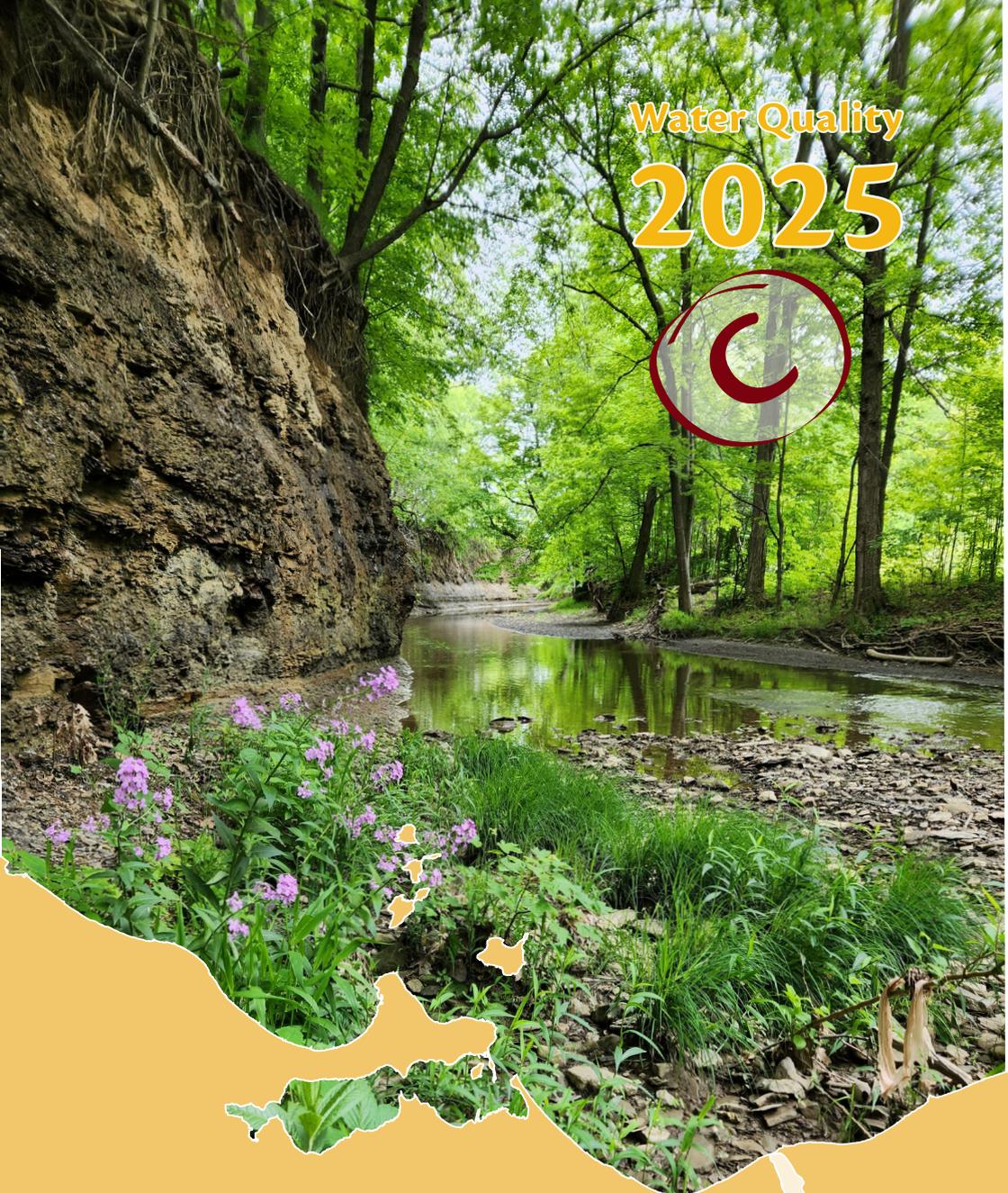


Water Quality

2025

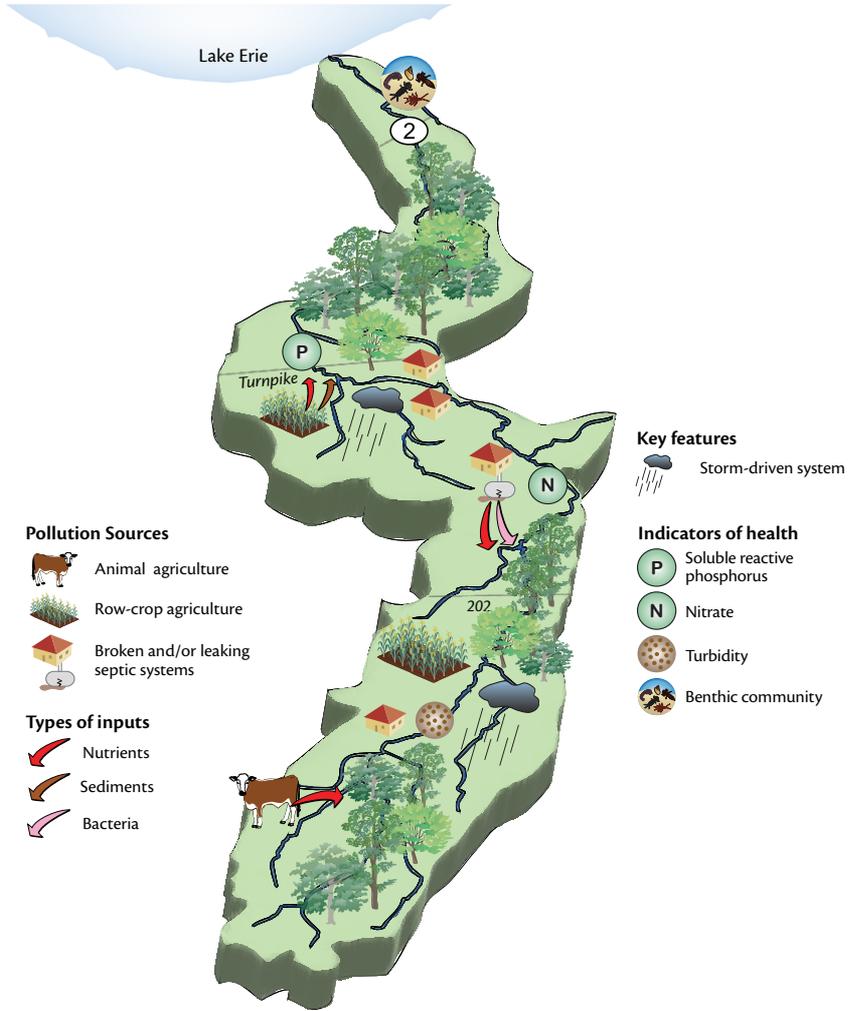


Chappel Creek Report Card



Watershed at a Glance

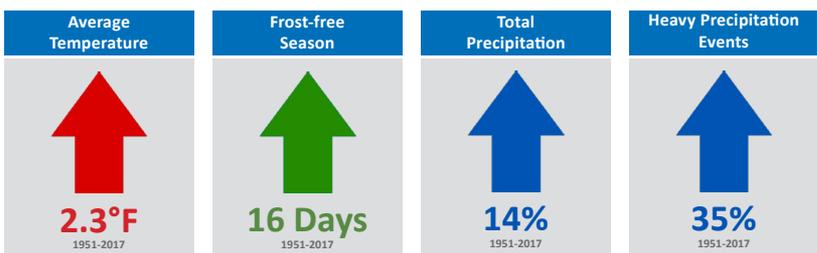
Chappel Creek is a 24 square mile watershed that begins in Huron County and empties into Lake Erie's Central Basin between the cities, Huron and Vermilion. The land use of this watershed consist of (58%) Agriculture, (9%) Urban, and (33%) Natural area.



A Storm-Driven System

When it rains, it drains, and storm events move pollutants through the watershed. When Chappel Creek's flow is low to normal, we often find little nutrient and sediment pollution. However, during and after a storm, the creek will turn light brown from being laden with sediment and often carries excess nutrients that contribute to algal blooms in Lake Erie. Storms are more intense and frequent in the spring and fall, leading to higher pollutant concentrations than in the summer.

Climate Trends in the Great Lakes



These trends are an analysis of weather observations provided by the National Oceanic and Atmospheric Administration's (NOAA) Regional Integrated Sciences and Assessment Team. While warmer temps & increased growing days benefit food production, increases in precipitation and intensity could drive more polluted run off resulting in more algal blooms.

For more information visit: glisa.umich.edu/gl-climate-factsheet-refs

Collecting Data

Monthly water samples were collected and analyzed by volunteers and staff from Old Woman Creek Reserve and Erie Conservation District from April through November. As well as, annual aquatic macroinvertebrate sampling and identification that is performed by staff and volunteers. These indicators are combined to develop the overall scores of individual sites and the overall watershed score. More information about our thresholds and monitoring plan can be viewed at erieconserves.org/watershed-program.

Indicators of Stream Health



Nitrogen, monitored as *nitrate*, is found in fertilizer and untreated waste. In excess, this chemical can lead to algal blooms.



Phosphorus, monitored as *soluble reactive phosphorus*, is found in fertilizer and untreated waste. In excess, this chemical can lead to algal blooms.



Turbidity is a measure of cloudiness of the water typically caused by sediment-laden runoff. Excessive sediment in the water can clog fish gills and cover macroinvertebrate habitat and fish eggs.



Benthic macroinvertebrates are aquatic organisms with no backbone that are visible to the naked eye. Some are very sensitive to pollution, making them great indicators of water health.



Vital Sign Indicators are a collective of *pH*, *temperature*, *dissolved oxygen*, and *ammonia observations*. Like our blood pressure, these parameters can identify if a serious problem is present and if one fails the whole indicator fails.

Indicator of human safety



Bacteria, measured as *E. coli*, are microorganisms commonly found in untreated waste. Many bacteria are harmful to human health and can restrict our drinking and recreational water uses.

What do these grades mean?



80-100%
very good



60-80%
good



40-60%
moderate



20-40%
poor



0-20%
very poor

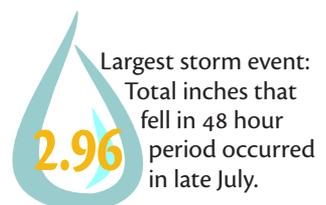
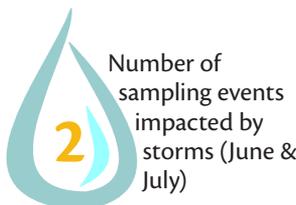
Previous Watershed Scores

We began sampling this watershed in 2022, however the scoring of this stream started in 2023.

Indicator	2023	2024
Nitrate		
SR Phosphorus		
Turbidity		
Benthic Macroinvertebrate		

Weather During our Sampling Period

Rainfall totals for April through July were well above average, with July receiving twice the 30-year average (3.9 inches), while most fall months were below average. The increased precipitation during the spring and summer led to two storm events being sampled.



Chappel Creek 2024 Report Card



C Chappel Creek

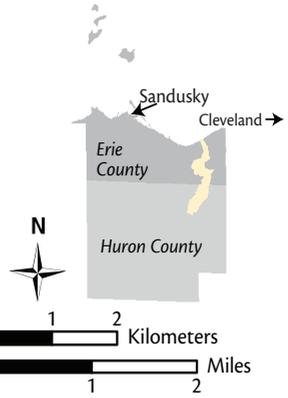
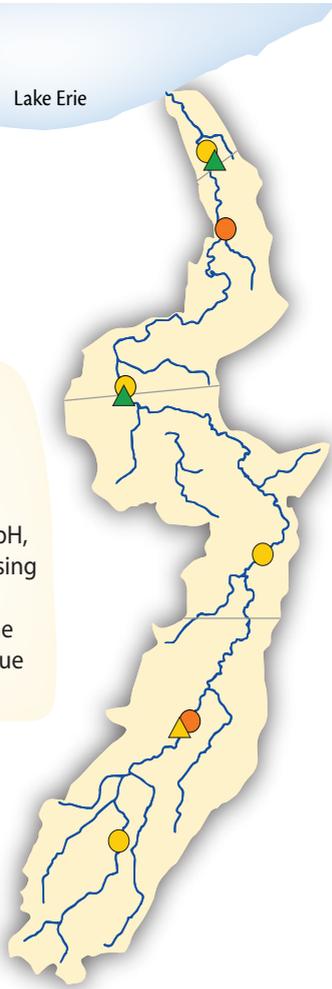
Overall, the watershed increased slightly to a C grade. The increased score was a result in an overall increase in all parameter scores. This could be the result from transferring our headwaters site and the removal of a macroinvertebrate site.

- Volunteer monitoring sites
- △ Macroinvertebrate monitoring sites
- Chappel Creek watershed
- ~ Roads

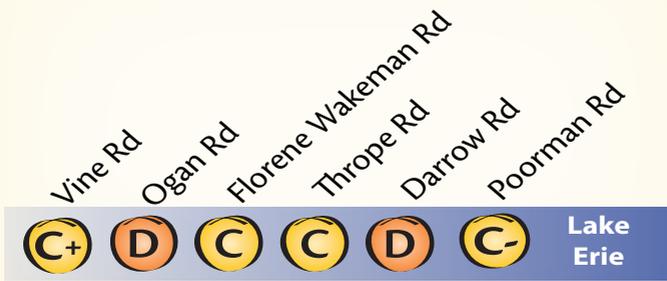
Vital Signs Indicators



The Vital Signs Indicators consisting of temperature, pH, and ammonia revealed passing scores in 2025; however, failures were observed in the headwaters of the stream due to low oxygen levels.



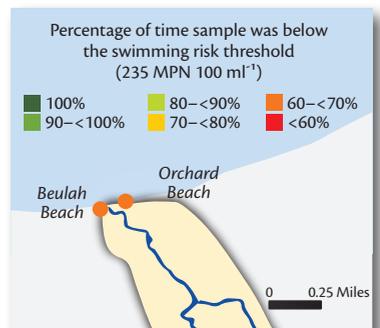
Creek Site Water Quality Scores



Sites are listed from headwaters (south) to mouth (north).

2025 Beach Health and Safety

In 2025, the Erie County Health Department monitored indicator bacteria at Beulah Beach and Orchard Beach in Chappel Creek. Beulah had advisories on 42 of 99 sampling days (40%), and Orchard had advisories on 32 of 85 days (40%), meaning water contact posed an illness risk for about two-fifths of the swimming season



Could Managing Waste Improve the Water Quality in Chappel Creek?

When the Ohio EPA studied Chappel Creek in 2002, several sites did not meet Ohio's standards for a healthy stream. As a result, the watershed was placed on the national list of impaired waters. The main concerns were excessive nutrients and organic pollution—often linked to untreated waste or manure—which can reduce the number and diversity of aquatic life such as fish and small stream insects. The Ohio EPA suggested these pollutants were likely coming from row-crop fields and pastures within the watershed.

More than 20 years later, elevated nutrient levels are still being observed in the watershed, along with high bacteria levels near the shoreline where Chappel Creek enters the lake. In 2025, monitoring showed several exceedances for nitrate, ammonia, and soluble phosphorus. While these nutrients can come from fertilizers, they can also indicate untreated waste. Elevated E. coli levels at the mouth of the creek throughout the summer suggest that untreated waste may be a contributing source. E. coli is a bacteria commonly found in the digestive systems of mammals, so high levels in water often signal contamination from human or animal waste.

Did you know, even small changes across the watershed can help improve the health of Chappel Creek and the lake it flows into?

Homeowners with septic systems should have them inspected and serviced every 3–5 years to ensure they are working properly. Livestock producers can review pasture conditions, manure storage, and field applications to prevent manure from reaching nearby waterways. Row-crop farmers using manure as fertilizer should also follow best management practices when storing and spreading it. Your local Conservation District can help evaluate your property or farm practices, and the Natural Resources Conservation Service (NRCS) may offer programs that help fund improvements that protect water quality.

Be the Solution!

In 2004, after being assessed by the Ohio Environmental Protection Agency, Chappel Creek was placed on the “303d list” for impaired waters of the United States of America. Although there has been a significant effort to work with residents in the watershed to reduce the pollutants causing this stream to be impaired, we are far from where we need to be. Below are a few key ways you can help to improve our creek and Lake Erie.

Farmer



Follow the 4R's of fertilizer use: **R**ight source, **R**ight amount, **R**ight place, **R**ight time.



Plant vegetative buffers along streams and ditches.



Don't leave your field bare. Reduce tillage & plant cover crops!

Homeowner & Community



Inspect and pump out your septic system every 3-5 years.



Plant a rain garden or install a rain barrel at home.

Learn More & Get Involved

If you would like to explore our stream monitoring data, learn more about our coast and local watersheds, or have a passion for conservation visit the sites below by scanning the QR code.



**Firelands Coastal
Tributaries Watershed**



**Old Woman Creek
NERR**



**Erie Conservation
District**



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**Department of
Natural Resources**



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Photo Credit: Erie SWCD