A storm-driven system

When it rains, it drains, and storm events move pollutants through the watershed. When Old Woman 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.

Learn more

If you would like to learn more about the development of this report card or watersheds in the Firelands Area, visit the following websites: Erieconserves.org oldwomancreek.org ian.umces.edu eniecohealthohio.org

Get involved

We could use your help to improve our watershed. If you are interested in being a volunteer, contact Breann Hohman, watershed coordinator for the Erie Conservation District at 419 626-5211 or bhohman@eriecounty.oh.gov

Watershed at a glance

- 27 Square Miles
- Community of Berlin Heights at its center
- Natural coastal wetland at its mouth (OWC National Estuarine Research Reserve)
- Unique microclimate to grow specialty crops like apples and grapes

Key features

- Storm-driven system
- Old Woman Creek Reserve
- Open/closed estuary mouth
- Berlin Heights
- Orchards

Indicators of health

- Soluble reactive phosphorus
- Nitrate
- Turbidity
- Bacteria
- Benthic community

Pollution Sources

- Animal agriculture
- Row-crop agriculture
- Broken and/or leaking septic systems

Types of inputs

- Nutrients
- Sediments
- Bacteria

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Collecting Data

Monthly water samples are analyzed by volunteer stream monitors and Old Woman Creek Reserve Staff from April through November. Annual benthic macroinvertebrate (aquatic worms and insect larvae) sampling and identification is performed in the summer by staff, volunteers, and the assistance of a summer research intern. These indicators are combined to develop the overall scores of individual sites and the overall watershed score.

Indicators of stream health

- **Nitrogen**, monitored as nitrate, is a type of nutrient pollution which is found in fertilizer and untreated waste. In excess this chemical can lead to algal blooms.
- **Phosphorus**, monitored as soluble reactive phosphorus, is another type of nutrient pollution which 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.

Vital Sign Indicators are a collection of pH, temperature, dissolved oxygen, and ammonia. Other parameters like nitrate, nitrite, and ammonia can indicate if a serious problem is present.

**Vital Signs Indicators**

- **Benthic macroinvertebrates** are aquatic organisms with no backbone and are visible to the naked eye. Some are very intolerant to pollution, therefore make great indicators of water health.

**Indicator of human safety**

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

Weather during our sampling period

- Number of days with rainfall totals greater than 0.25": 18
- Number of sampling events impacted by storms: 2
- Largest storm event: Total inches in 24 hour period fell at the end of June

2015 Beach health and safety

Two lake sites located on the public/private barrier beach (see map) of Old Woman Creek are monitored by the Erie County Health Department. In 2015, west beach scored 77% and east beach 90% due to lack of threshold. This means that the bacteria scoring scale is more stringent than water quality indicators because of the high variability and importance to human health and safety.

2015 Beach Health and safety

- Percentage of time sample was below the swimming risk threshold (10,000 cfu/100 ml): 60% - 70%, 70% - 80%, >80%

Old Woman Creek 2015 Report Card

- **Creek**: The creek received a C grade overall, which is a slight improvement from 2014.
- **Estuary**: The estuary received a B grade overall, a great improvement compared to the creek. Turbidity is not scored in the estuary due to lack of threshold.

Working together for clean water

Focusing on the health of our soil is our greatest opportunity to improve water quality, reduce our carbon footprint, and establish food security by creating resilient productive farms. Because soil is the second largest "carbon sink" (greatest place to store carbon aside from water), improving its health helps mitigate the impacts of climate change by reducing carbon in our atmosphere.

Over the last hundred years, our soils have been heavily worked and have lost organic matter and structure, which has increased compaction and erosion, while reducing the ability to hold water and nutrients. A healthy soil is more alive and has better structure to filter our water, buffer extremes in weather, and reduce fertilizer and pesticide inputs to grow a crop.

A group of Old Woman Creek farmers have begun meeting to investigate their own soil health to improve their farms and the health of the creek. Among the conservation needs discussed, these farmers are looking at reducing compaction, soil & nutrient loss, and building organic matter. Get involved by contacting the Erie SWCO office.

You can help!

- Leave a natural area along a stream or ditch
- Properly manage livestock & pet waste
- Plant cover crops
- Remember to inspect and pump out your septic system every 3–5 years
- Plant a rain garden or install a rain barrel
- Help your community develop a plan that supports low impact development
- Install a drainage management system
- Follow the "4Rs" of fertilizer use: Right source, Right amount, Right place, Right time
- Working together for clean water

A bare soil is susceptible to wind and rain erosion as well as becoming biologically dead due to lack of plant roots to complete the cycle of nutrients.