3.6 Portage River

3.6.1 Monitoring Groups:

Currently, the only organization in the LEBAF Network monitoring the Portage River Watershed is the Community Water Action Toledo (CWAT). CWAT aims to increase understanding of water quality in Lake Erie tributaries and drive improvement for water quality across Northwest Ohio through aligning sampling protocols with LEBAF, harnessing the existing strengths of collective programs, and engaging a wide range of volunteers in citizen science. Participating members in 2024 included Metroparks Toledo, Partners for Clean Streams, the Toledo Zoo, and TMACOG. Monitoring began in 2023 and continued through 2024.

3.6.2 Station information:

LEBAF monitoring began in 2024 at 3 stations on the Portage River (CWAT-22, CWAT-23, and CWAT-24). Station CWAT-22 is the most upstream site monitored, moving numerically downstream with station CWAT-24 being the most downstream. Station CWAT-24 is within the lacustrine zone on the river and in an urbanized area in Oak Harbor; CWAT-23 is also in a residential/urbanized area. Station CWAT-22 is within a county park, with wooded buffers. The Portage River is 40 miles long and is a direct tributary to Lake Erie, draining 612 square miles. Monitored stations are on the Middle Portage River and Lower Portage River-Frontal Lake Erie sections of the river, with the latter section functioning as an estuary of Lake Erie, with widths up to 3000 ft. Similar to the adjacent, larger Maumee watershed, the Portage River is dominated by row crop agriculture (76%) with developed land accounting for approximately 11% of the watershed.

3.6.3 Summary of 2024 Findings and Analysis

Table 17. Portage River Summary Statistics and Exceedances- 28 samples, 3 stations

Parameter	Mean	Median	Min	Max	Sample Count	N. Exceedance	% Exceedance
Conductivity Biocondition	643.64	630.00	397.00	989.00	28.00	27.00	96.43
DO (mg/L)	10.75	9.18	6.42	19.78	28.00	0.00	0.00
pH	8.31	8.01	7.62	9.85	28.00	4.00	14.29
Water Temperature	19.78	17.65	11.60	29.30	28.00	4.00	14.29

pH - 14% of samples (4 of 28) collected this season were above the LEBAF benchmark: this is below the 20% concern level. Exceedances occurred on July 20 at station CWAT-24 and

July 27 at CWAT-23, and on August 24 at both sites. Overall, data collected in 2024 do not indicate pH as an impairment concern in the Portage River based on LEBAF standards.

DO – There were 0 exceedances out of 28 samples (0%) observed. Overall, DO varies as expected seasonally and temporally. 100% of DO values recorded on the Portage River during the 2024 season were within the LEBAF analytical benchmark of≥5 mg L^{-1}.

Temperature – There were 4 exceedances out of 28 samples (~14%) observed. Exceedances occurred on April 28 at all three sites (CWAT-22, CWAT-23, CWAT-24). On July 20, 1 exceedance occurred at CWAT-23. Both late April and early July experienced air temperatures well above average leading up to these sampling dates. The majority (~86%) of collected data fell within LEBAF standards, indicating that temperature is not an impairment concern on the Portage River in 2024.

Conductivity - The Portage River Watershed falls in the Huron-Erie Lake Plain ecoregion, which serves as the reference for our observed values. In 2024, conductivity values in the Portage River ranged from 630 to 989 µS cm-1 with a mean value of 643.64 µS cm-1. The mean and maximum values are comparable to the 50th and 95th percentile values of 653 µS cm-1 and 1107 µS cm-1, respectively, for Huron-Erie Lake Plain streams reference. This comparison with the ecoregion references shows some overlap with our dataset and provides additional confidence in using our conductivity results.

The Ohio EPA also sets a conductivity threshold for evaluating macroinvertebrate health: < 412 µS cm-1 promotes a healthy community, between 412 and 655 µS cm-1 suggests a declining community, and > 655 µS cm-1 indicates a degraded community. In 2024, 1 sample fell within an acceptable range, 16 out of 28 samples falling in the degrading range, and 11 of 28 samples > 655 µS cm-1. There was no clear upstream or downstream pattern to the exceedances, and no clear seasonal pattern. Dominant land use in the watershed is agricultural, and all sampling sites are located in small towns. Salinity and chloride analyses showed no exceedances. Analysis of local weather data during the 2024 sampling season indicated prolonged dry periods and in some cases, abnormally high air temperatures during the sampling period, with drought conditions developing and worsening in late July onward in the counties where sampling sites are located. Overall, this data suggests that macroinvertebrate communities in the Portage River are primarily degraded, and that conductivity is a concern in the Portage River watershed.

3.6.4 Summary of 2024 Conclusions, Recommendations, Actions

Table 18. Portage River Water Quality Summary

pH	***Temperature***	***DO***	***Conductivity***
Acceptable	Acceptable	Acceptable	Likely threats, impacts; Degraded

Overall, data collected in 2024 suggests that the Portage River supports aquatic life based on LEBAF benchmarks for pH, temperature, and DO. Persistently high conductivity values in the watershed are a cause for concern due to potential impacts on aquatic life. Based on LEBAF standards the Portage River is considered degraded with likely threats and impacts to ecosystems. We recommend continuing LEBAF monitoring, which will give a more complete picture of stream health and baseline conditions over time.

At all sites where feasible and suitable, we recommend initiating macroinvertebrate monitoring several times throughout the sample season using ODNR's SQM method. Regular monitoring of the macroinvertebrate community where possible, along with continued monitoring of conductivity per LEBAF standards, will expand understanding of the effect of conductivity in the watershed.