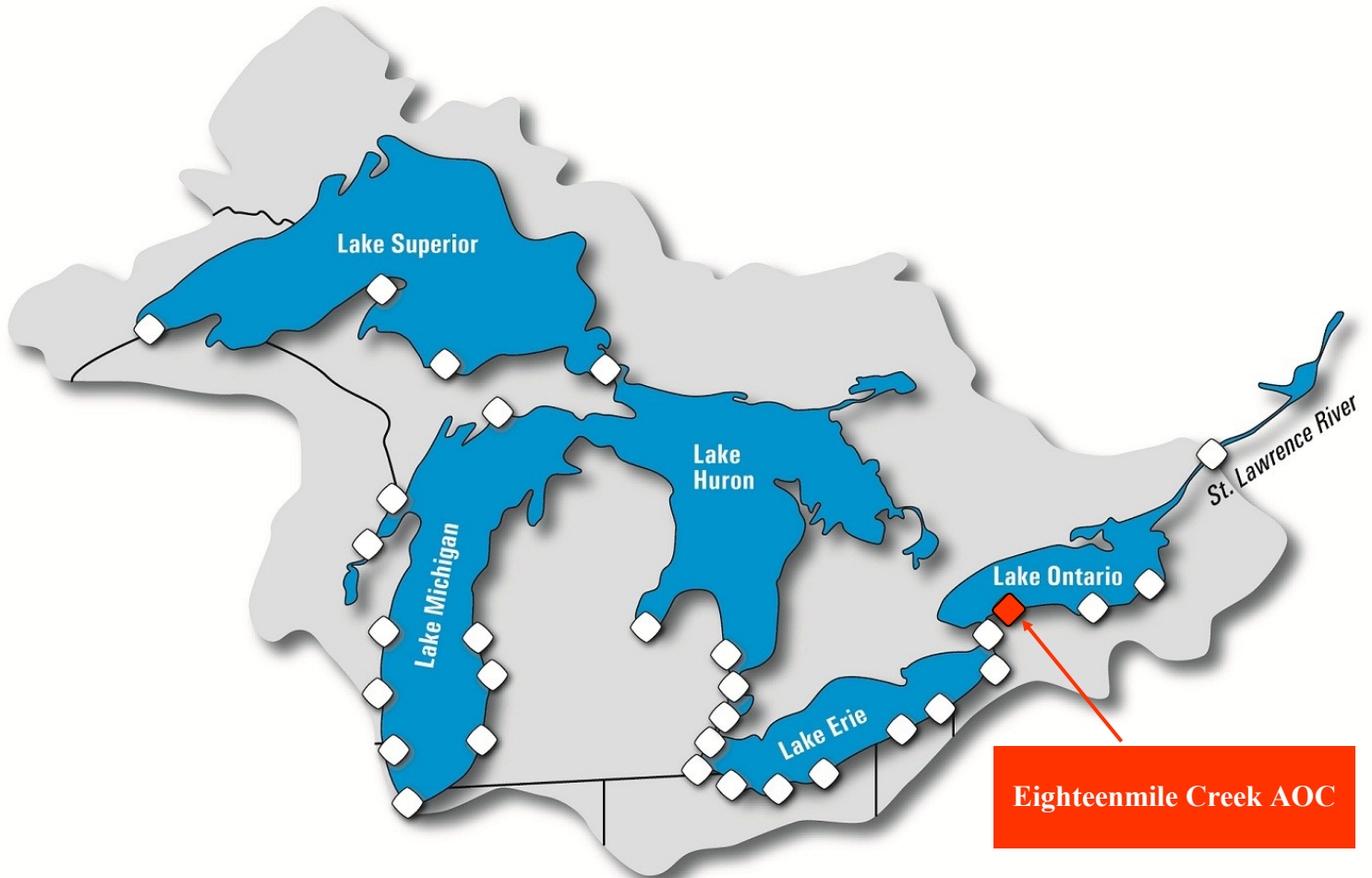


EIGHTEENMILE CREEK AREA OF CONCERN



2022 REPORT CARD



A COMPILATION OF SUCCESSSES, IMPROVEMENTS & CURRENT CONDITIONS



2022 AOC Newsletter Update

Progress has continued at Eighteenmile Creek Area of Concern (AOC) throughout 2022. In the past few years many studies have been completed to assess the status of each Beneficial Use Impairment (BUI). Currently, there's only one outstanding study looking into the benthic macroinvertebrate community and sediment toxicity. All other reports have been posted on the Eighteenmile Creek AOC website at <http://eighteenmilerap.com/DATA.html>.

A Deeper Dive into BUI 6. Degradation of Benthos

Most of the Beneficial Use Impairments for the Eighteenmile Creek AOC have been thoroughly addressed with studies over the years. Over the last year, the Degradation of Benthos BUI has become a greater focus to determine whether this BUI is impaired and if it is, what's causing the impairment.

Why do we look at the benthic macroinvertebrate community? The benthic macroinvertebrate community, or the bugs that live at the bottom of a waterbody, interact with sediments, water, and pollution. The environment and amount of pollution determine what invertebrates can inhabit an area. Most invertebrates can be categorized in a broad spectrum of pollution tolerant to pollution intolerant. This makes macroinvertebrates a great indicator of stream health.

There are two BUIs that rely on the macroinvertebrate community, BUI 3. Degradation of Fish and Wildlife Populations and BUI 6. Degradation of Benthos. Each of the criteria are described on the next page of the report card. The Degradation of Benthos is more strict so any assessment focused on this BUIs can satisfy both criteria.

The last Eighteenmile Creek AOC macroinvertebrate survey was completed in 2014 (final report was published in 2017). In this study USGS and NYS Department of Environmental Conservation (NYS DEC) looked at macroinvertebrate community structure and sediment toxicity (a test that takes sediment from a creek and tests if there are any detrimental effects on benthic macroinvertebrates). Results of this study were generally positive, but at the time did not have results that clearly met the removal criteria.

Community condition was assessed using NYS DEC biologic assessment profile (BAP) criteria. This criteria uses a combination of five indicators such as species richness and diversity that gives each sampling site a score and are placed in a ranking. There are four ranking tiers that range from a best-case scenario of 'Non-impacted' to worst case 'Severely Impacted'. Two sites sampled in the AOC ranked in the non or slightly impacted tiers which satisfy our first removal criteria, but one site ranked moderately impacted. Since the first criterion is not met, the second two criteria of our new criteria must be met for any potential BUI removal.

When this study was completed in 2017 old BUI removal criteria didn't compare Eighteenmile Creek community and toxicity to a reference site. The old criteria was not representative of the AOC and became vague/immeasurable. In addition, one site in the AOC named emil-3, ranked poorly in community and toxicity tests. Without sediment samples collected from each sampling site, it was unknown if the poor results at emil-3 were caused by contaminants such as PCBs, metals, or pesticides, or if it's caused by natural influences such as poor habitat or seasonal eutrophication in the creek. In 2020, new measurable removal criteria were drafted and listed on the next page.

In 2021 a new study started to assess how close the Degradation of Benthos BUI is to removal. Eight sites were sampled in the AOC (compared to three in the 2017 report). One of these sites is located close to emil-3 site that ranked poorly in the previous study. Within the sampling effort, community structure and toxicity testing will be directly compared to reference sites in Oak Orchard Creek. A link to a USGS data release is below. A final report of this study will be available in mid 2023. Be sure to check our Eighteenmile Creek AOC Facebook page and website for updates and copies of the final report.

George, S.D., and Baldigo, B.P., 2022, Macroinvertebrate community and sediment toxicity data from the Eighteenmile Creek Area of Concern, New York, 2021, New York: U.S. Geological Survey data release, <https://doi.org/10.5066/P9N8T0WP>

Degradation of Fish and Wildlife Populations BUI

Recent testing has shown that contaminants in the Eighteenmile Creek AOC are not directly impacting fish and wildlife populations. A data review is in progress to start removal of this BUI. A quick summary of the current status of this BUI is available on the next page, and more details will be available in subsequent newsletters and report cards.

Below: Mayfly nymph collected by USGS in 2021



Below: USGS field crew using ponar dredges to collect samples



Left: Longnose gar collected from Eighteenmile Creek during the 2019 fish community survey

Where are we at with the BUIs?

It's easiest to discuss these as their own separate topics.

BUI 1. Restrictions on Fish and Wildlife Consumption	
Removal Criteria:	There are no AOC-specific fish and wildlife consumption advisories issued by New York State
Discussion:	Migratory fish such as trout and salmon had their advisories relaxed to be the same as Lake Ontario's. This is an improvement, but resident fish above and below Burt Dam continue to have elevated levels of PCBs. An AOC specific consumption advisory is expected to remain in place until remedial work is complete and there has been a declining trend of contaminant levels in fish. Knowing Superfund remedial work will take years to complete, this BUI is unlikely to be removed in the near future.
BUI 3. Degradation of Fish and Wildlife Populations	
Removal Criteria:	Fish community metrics (e.g., diversity, abundance, biomass, and condition) are similar to reference site(s); AND Benthic macroinvertebrate community composition is within the range expected and similar to reference site condition; AND PCB concentrations in fish tissue and other prey are below thresholds likely to result in acute toxicity to fish or piscivorous wildlife (birds and mammals).
Discussion:	The first part of this removal criteria was addressed in the fish community study by USGS in 2019. In general, there are no major differences in fish communities between Eighteenmile Creek and Oak Orchard Creek. Since the communities are similar, this part of the criteria is considered to be met. Benthic macroinvertebrate communities were addressed in reports from 2013 and 2017. Minor differences in macroinvertebrate communities were found between Eighteenmile Creek and Oak Orchard Creek. To confirm these results, in 2021 USGS started a study to assess benthic macroinvertebrate communities and toxicity. Preliminary results suggest this criteria will be met. A final report can be expected in mid-2023. The third part of this criteria was addressed with the mink study from SUNY Brockport. SUNY Brockport modeled acute (lethal) toxicity to mink and determined no impairment. The RAC tentatively approved removal of this BUI, pending results of the USGS study that is ongoing. No suggested impairment is likely, drafting a BUI Removal Recommendation will start in 2023.
BUI 5. Bird or Animal Deformities/Reproductive Problems	
Removal Criteria:	PCB concentrations in fish tissue from comparable functional feeding groups are similar to reference site(s); OR PCB concentrations in fish and other prey are below tissue concentrations known to cause deformities or reproductive impairment in piscivorous wildlife.
Discussion:	It's well known that resident fish in the AOC have elevated levels of PCBs. Therefore, this part of the BUI will not likely be met until after remediation is complete (see BUI 1 Discussion). The second criteria for deformities or reproductive impairment is also impaired based on the SUNY Brockport mink study.
BUI 6. Degradation of Benthos	
Removal Criteria:	Benthic macroinvertebrate communities are "non-impacted" or "slightly impacted" according to NYSDEC indices; OR Benthic macroinvertebrate community condition is similar to unimpacted control sites of comparable physical and chemical characteristics; AND Toxicity of sediment-associated contaminants is similar to unimpacted control sites of comparable physical and chemical characteristics.
Discussion:	The first criteria uses DEC guidelines as a measuring stick, which is a good starting point for assessment. Previous studies have shown that benthic macroinvertebrate at both Eighteenmile Creek and a suitable reference site are slightly to moderately impacted using DEC indices, requiring use of the second and third criteria for a chance at removal. Analysis of benthic macroinvertebrate community structure and sediment toxicity are generally similar between Eighteenmile and Oak Orchard Creek, although one site in the AOC ranked worse than other sites. A recent data review suggests that other factors such as seasonal eutrophication or poor habitat could be the cause of impairment. USGS started an assessment in 2021 to confirm impairment status. This study assess community structure, toxicity and habitat at sites in Eighteenmile Creek and a reference site. A final report of this study is expected in mid-2023.

WHAT IS THE EIGHTEENMILE CREEK AREA OF CONCERN (AOC) ?

Local, state and federal officials identified a section of Eighteenmile Creek as one of 42 “Areas of Concern” (AOC) in the Great Lakes Basin. Eighteenmile Creek received this designation because of poor water quality and contaminated sediments present throughout the watershed. Eighteenmile Creek’s long history of use by major industries in the area, especially near the City of Lockport and Town of Newfane, has played a large role in the present condition of the creek.

WHAT IS THE EIGHTEENMILE CREEK REMEDIAL ACTION PLAN (RAP) ?

A RAP is an integrated, whole ecosystem approach to remediating impaired water bodies. The RAP first identifies use impairments, their causes, and contaminant sources, using existing studies and data. Next, existing cleanup and regulatory programs which apply to the water body are identified. A coordinated cleanup strategy is then developed to eliminate the use impairments. The NYS Department of Environmental Conservation produced the Stage 1/2 RAP in 1997 in an effort to restore the integrity of the creek’s ecosystem.

WHAT IS THE EIGHTEENMILE CREEK REMEDIAL ADVISORY COMMITTEE (RAC) ?

The Eighteenmile Creek RAC is comprised of a group of local, state and federal stakeholders, representing industries, organizations and local communities with a vested interest in the health of Eighteenmile Creek. The RAC is responsible for implementing the RAP, monitoring restoration efforts, and assessing ongoing needs and conditions. After a brief hiatus, the RAC reconvened in 2005 and is currently making progress in moving the RAP forward.

If you have a vested interest in Eighteenmile Creek and want to help advance the RAP, contact our office and we would be happy to speak with you!

GREEN Outreach, Clean Sweep, and Newfane Field Days

Through the Global Rivers Environmental Education Network (GREEN) we’ve teamed with our local General Motors plant in Lockport to explore the Eighteenmile Creek watershed. The program allows students from Lockport, Newfane and Niagara BOCES to visit streams within the Eighteenmile Creek watershed and other areas in the county to investigate water quality issues. Throughout the school year classes will discuss solutions to the issues found on their fall field trips. The classes will implement their solutions in spring 2023. 2022 projects included a pollinator habitat in Olcott, invasive waste bins at Olcott Harbor, and nesting boxes in parks around the county.

Our Clean Sweep event was successful thanks to Cub Scout and Boy Scout Pack #4. The team of 15 collected over 200 pounds of garbage at Fisherman’s Park!

The third grade classes at Newfane Elementary spent a day learning about different areas of the great outdoors from a variety of instructors. The stations were manned by the Niagara County Department of Health, AWARE, NYS DEC Environmental Conservation Officers, WNY PRISM, NYS DEC Forestry, Niagara CCE and US. Fish & Wildlife Services.



FOR MORE INFORMATION
Contact:

Niagara County Soil & Water Conservation District
U.S.D.A. Service Center
4487 Lake Avenue
Lockport, NY 14094
Phone: (716) 434-4949 Ext. 4
Website: www.eighteenmilerap.com

