

Jefferson Quick, Timely Reads

Making the Case for a Management Alliance as Region Faces Possible Record Year for Algal Blooms

Dr. Judith Lynch

Jefferson Scholar-in-Residence

September 2020

Editor's note: Following is a continuation of Judith Lynch's articles about environmental threats facing the Lake Erie region. Her Jefferson Essay, ["The Lurking Threat: Harmful Algal Blooms Pose Global, Local Hazard,"](#) was published in 2018.

Confucius wisely counseled that "when it is obvious that the goals cannot be reached, don't adjust the goals, adjust the action steps." The advice that Confucius gave 500 years before the birth of Christ is advice that we should take today when dealing with a problem that is both threatening to our economy and to the health of our citizenry. This is the Lake Erie environmental degradation caused by Harmful Algal Blooms and E. coli outbreaks. Blooms and E. coli closures are becoming more frequent as temperatures warm and the amount of nutrients in our waters from fertilizers, sewage, runoff from agricultural fields, septic systems, cities, and industrial enterprises go largely unaddressed.

The goal is universally accorded: area residents and businesses desire lake waters that are swimmable and conducive to recreation and tourism. Nevertheless, the Erie area has been confronted for some years with growing harmful algal blooms (HABS) and E. coli contamination making our lakefront location, the very reason for the existence of

the community, a liability, a place to be avoided rather than a gathering place for enjoyment and economic growth.

According to the 2019 statistics recorded by the Regional Science Consortium at the Tom Ridge Environmental Center, 592 water samples were collected from May 23, 2019, to October 29, 2019. A total of 295 of those samples, or more than 50 percent, exceeded the threshold deemed safe for dogs. Two of the samples exceeded the threshold for people. This testing was for Harmful Algal Blooms, which can produce toxins that attack the central nervous system and can cause paralysis and even death (Schnars, Dr. Jeanette, Regional Science Consortium, as provided to Office of State Rep. Ryan Bizzarro, 7/31/2020).

The problem continues unabated. In 2020, the July 25 Erie Times-News stated that the Boaters Beach at Presque Isle was posted with a warning that the water contained Harmful Algal Blooms sufficient to harm people, and specifically warned lake users to avoid contact with the water at that beach. The article indicated that eight other waterfront locations were posted unsafe for dogs: Sturgeon Bay, Perry Monument, Presque Isle Marina, Niagara Board Launch, Waterworks ferry slip, Horseshoe Pond, Lake Cliff Boat Launch in Lawrence Park Township, and the Erie Yacht Club.

The Erie Times-News edition of Aug. 1, 2020, indicated that seven waterfront locations in Erie County, four of them at Presque Isle State Park, continued to test unsafe for dogs to swim: Presque Isle Marina, Niagara Boat Launch, Waterworks ferry slip, Sturgeon Bay, Erie Yacht Club, Shades Beach in Harborcreek Township, and Lake Cliff Boat Launch in Lawrence Park Township. The question from a parent that caused me consternation in that same article was: "If the water is unsafe for dogs, should I allow my young child to play in it?"

Harmful Algal Blooms are not the only lethal agent produced by contamination. E. coli is another bacterium that can produce toxins and are found in fecal content that flows from sewers into streams and finally into Lake Erie. An E. coli alert was issued by Penn Environment Research Policy Center in mid-July 2020. This report cited that nine Presque Isle beaches were tested in 2019 for fecal indicator bacteria and eight of them were deemed potentially unsafe for at least one day. Beach 11, directly across Presque Isle Bay from the Erie Wastewater Treatment Plant, tested unsafe for nine days, which is more than any other beach in the state. ("Safe for Swimming?" 2020 Edition, Penn Environment Research Policy Center).

Outbreaks of HABs and E. coli contamination have been documented for years, and despite proof of their injurious impact on animal and human life and our economy, they continue. Yes, the Erie area is fortunate to have agencies and entities such as the Penn Environment Research Policy Center and the Regional Science Consortium that test and post beaches and public use waters warning of contamination, but that is not the issue: The question is, what is being done to make the waters safe for swimming

and public enjoyment? We all agree on the goal. Our tourist economy and community well-being depend on realizing it.

On July 14, 2020, the Washington Post article, “Great Lakes Water Temperatures are Blowing Away Records and Could Climb Higher,” contained warnings from Vander Woude, manager of the Great Lakes Coast Watch Program at NOAA. He indicated that NOAA aircraft have photographed blue-green algae or cyanobacteria over the western waters of Lake Erie and that “this is the second earliest we’ve seen the algae in our data since 2002.” His conclusion was that 2020 will be a year for early and extensive algal blooms. In other words: more postings are on the way. Time will tell, as this could be a record year for HABs.

This could also be the year in which the Erie community takes ownership of the problems and strikes out to do something about them. It could be the year when the Erie community acknowledges that testing and posting are not enough. It could be a year in which the Erie community takes steps to manage the problem. “Yes, Confucius, we agree on the goal and we are going to take new action steps to address it.”

In New York state, models have been developed that could be replicated in the Erie area with beneficial results. The Chautauqua Lake and Watershed Management Alliance in New York shows what an economically motivated group of stakeholders can do. This organization, formed in 2016, is all about Chautauqua Lake, and, thus, its members include Chautauqua Institution, the communities that border the lake, and the organizations that depend on Chautauqua Lake for their economic livelihood.

These communities and organizations faced their inevitable decline and economic demise when, in 2016, Chautauqua Lake was listed as environmentally impaired by the State of New York Department of Environmental Conservation. The community galvanized and formed the Chautauqua Lake and Watershed Management Alliance. The mission of this organization was straight forward. It seeks “to promote comprehensive and coordinated effort to ensure the sustained health, ecology, and uses of Chautauqua Lake and its watershed.” It began by adopting an action plan. Then it applied for grants and began managing the projects arising from the plan. To date, the Alliance has conducted 56 projects and received funds of at least \$6.33 million (2019 Chautauqua Lake & Watershed Management Alliance Annual Report, 5/14/20).

The membership of the Alliance reflects its economic focus and includes the Chautauqua County and the municipalities that surround Chautauqua Lake, in addition to the Chautauqua Chamber of Commerce, Chautauqua Institution, the Cattaraugus Board of Realtors, the Lenna Foundation, several sewer districts, the Jamestown Board of Public Utilities, and a state agency, the NYS Office of Parks, Recreation and Historic Preservation.

We know what causes Harmful Algal Blooms and excessive algae growth. It is phosphorous and nitrogen, much of which emanates from agricultural areas that rim the streams flowing into the watershed basin, in this case, the Chautauqua watershed basin. In Erie County, it is the runoff from the land along the lake and from the banks of many Erie County streams that empty into Lake Erie. We also know of drainage pipes that might be 100 years old and may contain phosphorous or nitrogen sediment that can be dislodged in a storm and brought into the lake. The sediment at the bottom of Lake Erie also contains embedded phosphorous and nitrogen compiled over years and which can be brought to the surface by severe wave action produced by the increasingly warming lake and virulent storms feeding the bacterium that produce toxic algal blooms.

The projects that the Chautauqua Alliance has undertaken since its launch in 2016 show the Alliance's understanding of the complexity of the problem. The Alliance has set out to address sewage inputs and wastewater management, agricultural practices, stream-bank management, management of forestry practices, shoreline management, and land-use planning. The projects have helped develop best practices for ditches along municipal roads, for floodplain and wetland management, and for stormwater management. The projects have also addressed submerged aquatic vegetation along with the algae, invasive species, and excessive populations of native species.

In short, the Alliance is true to its mission: working in collaboration with lake and watershed-related organizations, municipalities, and other stakeholders. It facilitates and implements the recommendations of the Chautauqua Lake Watershed Management Plan. ... "by prioritizing projects, securing funding, and allocating resources." (Chautauqua Lake & Watershed Management Alliance, 2019 Report, 2).

While Chautauqua is an inland New York lake with a significant economic role in the Chautauqua area, New Yorkers have been equally proactive in caring and responding to concerns in their part of the Lake Erie watershed. Lake Erie borders four states (Michigan, New York, Ohio, and Pennsylvania) and the Canadian province of Ontario. In 2009, after a devastating storm, municipal officials in three New York counties around Cattaraugus Creek came together to lead a grassroots effort to proactively manage their portion of the watershed. The three New York counties formed the Lake Erie Watershed Protection Alliance (LEWPA). Its mission is to address regional water quality and quantity concerns through collaboration and partnerships within the watershed and, in doing so, protect and enhance the Lake Erie resource. The LEWPA website lists their objectives as follows:

- Support existing federal and state Lake Erie restoration initiatives or recommendations.
- Implement a watershed management approach to protecting water quality.
- Leverage community assets and other support.
- Reduce point source and non-point source water pollution.
- Protect and enhance swimming, fishing, and other recreational activities.

- Reduce the impacts and costs of flooding.
- Conserve, protect, and restore natural habitat.
- Identify, prioritize, and quantify specific problems and their solutions in support of the mission.
- Build community stewardship through education and outreach to improve community awareness of the value and importance of Lake Erie and to increase community involvement in preserving the lake as a resource.
- Address failing and outdated municipal infrastructure needs.
(<https://www2.erie.gov/environment/index.php?q=lake-erie-watershed-protection-alliance>).

In essence, LEWPA is a collaborative watershed management organization, much like the Chautauqua Lake & Watershed Management Alliance.

Both of the watersheds found in this area of western New York have responded proactively to concerns of degradation within their watershed. Residents within both watersheds recognize the economic and quality of life importance of their watershed and both have created aggressive management organizations that collectively apply for and receive millions of dollars of grants for projects to remediate the watershed's water-quality issues.

Erie County, Pennsylvania also has two watersheds, the Lake Erie Watershed and the Ohio River Watershed. Neither watershed has an organized collaborative management organization and both are facing mounting environmental problems.

In northwestern Pennsylvania, the Lake Erie Watershed is principally in Erie County with a small portion in Crawford County and consists of lands along the bluff where there is direct runoff into Lake Erie and sub-watersheds with waterways that flow into Lake Erie and Presque Isle Bay. The sub-watersheds, largely in Erie County, bring water into Lake Erie from runoff and precipitation and are listed below: Interestingly, only a few of them are tested for HABs.

- | THE ERIE COUNTY MUNICIPALITIES IN THE LAKE ERIE WATERSHED |
|---|
| • Albion Borough |
| • Conneaut Township |
| • Cranesville Borough |
| • Erie |
| • Elk Creek Township |
| • Fairview Township |
| • Franklin Township |
| • Girard Borough |
| • Girard Township |
| • Green Township |
| • Greenfield Township |
| • Harborcreek Township |
| • Lake City Borough |
| • Lawrence Park Borough |
| • McKean Borough |
| • McKean Township |
| • Millcreek Township |
| • Platea Borough |
| • Springfield Township |
| • Summit Township |
| • Venango Township |
| • Wesleyville Borough |

Averill Creek
 Cemetery Run
 Crooked Creek
 Duck Run
 Eight Mile Creek
 Elk Creek
 Four Mile Creek
 Godfrey Run
 McDannell Run
 Orchard Beach Run
 Presque Isle Bay
 Purdue Creek
 Raccoon Creek
 Seven Mile Creek
 6.7 Mile Creek
 Six Mile Creek
 Sixteen Mile Creek
 Ten Mile Run
 3.9 Mile Run
 3.2 Mile Run
 Trout Run
 Twelve Mile Creek
 Twenty Mile Creek
 29 Mile Run
 Walnut Creek, 26.9 Mile Run

**ERIE COUNTY, PA
SUBWATERSHEDS**



Yes, Erie County is fortunate to have the testing and posting done by the Regional Science Consortium and the Erie County Department of Health. The Penn Environment Research Policy Center is another inestimable asset. We should acknowledge the existence of the “Lake Erie Harmful Algal Bloom Monitoring and Response Strategy” completed by the Pennsylvania Department of Environmental Protection Office of the Great Lakes, the Pennsylvania Department of Conservation and Natural Resources, Presque Isle State Park, and the Erie County Department of Health. This strategy, however, deals with identifying, testing, and posting. It instructs public employees about how to collect information and properly inform the public of a HAB event. The one agency that seeks to intervene and stop the deleterious impact of HABs is the Erie County Conservation District, which brings best management practices to our farmers and undertakes projects to shore up the banks of our streams, such as Cascade Creek.

But are these actions enough? Are we losing the battle? Is Confucius right?

We need to take new, more aggressive actions in order to accomplish our goal: a lake that is swimmable and conducive to recreation and tourism. One of the actions that we can take is the formation of a collaborative Erie County, Pennsylvania Lake Erie Watershed Management Alliance (ECPA LEWMA).

We have the agencies that are examining and increasing our understanding of what is happening environmentally. We are gradually beginning to comprehend the amount of economic damage that an increasing number of HAB outbreaks could cause. It is time to take more decisive action. We need a management alliance that will adopt an action plan, apply for grants, and, most of all, manage aggressive projects to eliminate HABs and E. coli outbreaks. This is the way Lake Erie waters will regain viability and ensure that the lake remains swimmable and conducive to recreation and tourism for this generation and those to come.

References:

1. https://pennenvironment.org/sites/environment/files/reports/Safe-for-Swimming_2020/WEB_PAE_SafeForSwimming_2020.pdf
2. <https://www.washingtonpost.com/weather/2020/07/14/great-lakes-record-warm-water/>
3. <https://www2.erie.gov/environment/index.php?q=lake-erie-watershed-protection-alliance>

Photo Sources:

Map: <https://sites.google.com/a/alleggheny.edu/meadville/physical-geography?overridemobile=true>

ABOUT THE AUTHOR

Judy Lynch, Ph.D., is a Scholar-in-Residence at the Jefferson Educational Society. She was named the Jefferson's Decadean Scholar in 2018. She continues to serve on the Jefferson's Board of Trustees and was its first chairwoman. From 2004 to 2017, she served as Associate Professor of Political Science and History at Mercyhurst University. From 2002 to 2004, Dr. Lynch taught at Allegheny College and was part of the Civic Engagement Institute. Prior, she worked as an analyst for the CIA and served for 20 years as Erie County Executive. She received her Doctorate With Distinction in Political Science in 2001 from the University of Pittsburgh and her M.A. in Social Studies from Gannon University. Her undergraduate degree, a B.A. in History and Political Science, is from George Washington University.

