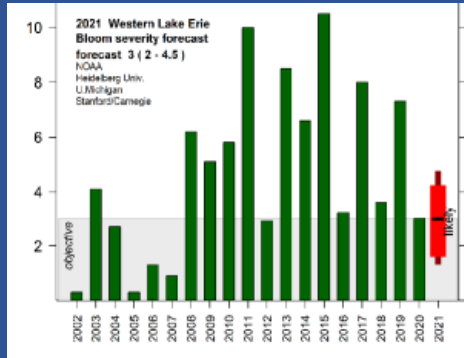


OUR GREAT LAKE ERIE



**LAKE SUPERIOR WATER LEVELS LOWEST SINCE 2014
LAKE ERIE LEVELS ALSO DROPPING -6"**

LAKE ERIE ALGAE 2021
More than predicted, more than 2020, less than 2019. Researchers puzzled by larger bloom

MAUMEE STURGEON RELEASED IN MAUMEE
3000 released in 2018, 2019 & 2021 reintroduce

Lake Erie Friends:

2021 was a great Lake Erie year for: fishing, especially walleye; boating; swimming; and many other recreational activities. For the second year in a row, small harmful algae bloom. Is this the beginning of smaller blooms? Is progress being made to reduce algae sources? Unfortunately, scientists say there is little progress on reducing phosphorus that creates the bloom. In the spring of 2021, there was less rain, so there was less phosphorus runoff to make harmful algae. When there is a lot of spring rain, big bloom! The problem is Ohio if not reducing the phosphorus sources to reduce harmful algae? But rather allowing sources from Concentrated Animal Feeding Operations (CAFO's) along with untreated manure land applications to increase. The Ohio Department of Agriculture estimates an 88% increase in animal units (cows, pigs and poultry) between 2002-2017. In 2021 Ohio is permitting over 30,000 more hogs, nearly 8,000 more dairy cows and 40,000 chickens so far. What about Ohio's program to help Lake Erie, H2Ohio, this program pays to manage phosphorus once in the soil like cover crops. These are known as 'Best Management Practices'. Ohio is not tracking source reductions that will reduce harmful algae.

CHINA

If China's CAFO rules were applied in Ohio, the manure would have to be treated for EColi and the number of animals in a watershed would be limited, according to a 2021 Chinese Research paper. In the Ohio (and the US) there is no manure treatment and no limit on the number of animals in a watershed. Nor does Ohio (& the US) assess soil manure pathogens & antibiotics.

US ABOUT 50% CHEAPER THAN CHINA TO RAISE HOGS

China can buy hogs raised in the US for about 1/2 the cost of raising hogs in China. A Chinese company purchased the US's largest hog producer, Smithfield, with financial help from the Chinese government in 2012. Then, Smithfield located a hog processing plant in Coldwater, Michigan that now gets over 100 hog CAFO's from the Maumee watershed & the number keeps growing. Ohio is being courted by Smithfield to continue to expand. A Smithfield executive built a new home in Putn Bay along with an expensive yacht. Ohio's growing attraction of more confined facilities of cows, hogs and poultry is a growing threat to Lake Erie. *Sandy Bihn*

LAKE ERIE ALGAE SUMMER 2021 SEASON

- *Walleye fishing great – yellow perch good in Western Basin, fair in Central basin. Fishing good in October. Another huge walleye hatch. ODNR says over 95 million walleye over 15"*
- *Water levels below 2020 and dropping 4-6" overall. Still above average.*
- *Algae went further east because of heavy July rains, but not record year. Algal toxins persisted into October, microcystin still in the water*
- *Central Basin dead zone water intakes – dead zone is an area with no oxygen – which causes sediments to release heavy metals, phosphorus and more into the water column. Cleveland has four water intakes which can be impacted by the dead zone. In July 2021, the Nottingham intake in Euclid that had discolored water caused by the Dead Zone. In 2016, 3 of 4 of Cleveland's water intakes were impacted by dead zones,*
- *Central Basin dead zone fish kills. In September 2021 dead fish were floating ashore for about 25 miles from Cleveland to Perry. Types of fish included: freshwater drum, yellow perch, smallmouth bass and red horse caused by the dead zone. The dead zone is caused by dying algae produced in the western basin drifting east to the Central Basin.*
- *Ashtabula Area of Concern delisted after more than 20 years, lots of testing, assessing responsible parties & more with improved water quality and habitat, positive economic returns*
- *Sturgeon assessment continuing for possible reintroduction in Cuyahoga River*
- *Erie Marsh assessment by Army Corp to protect the marsh from winds & high waters continues*
- *Piping plovers, a near endangered species, had a nest at Maumee Bay State Park*

SEEDING PROJECTS & ADDRESSING ISSUES IN LAKE ERIE WATERSHED

Do you know a special place, a fish, a water discharge problem or some other project that is not on the drawing board that can help our Great Lake Erie? Share your idea with Lake Erie Waterkeeper. Through the years, Lake Erie Waterkeeper (LEW) has brought together government, private companies, and stakeholders to discuss a 'beneficial project', or pursued an issue that threatens Lake Erie's waters. Email your idea to sandylakeerie@aol.com.

Examples of seeds planted:

- **Reintroducing Sturgeon in the Maumee.** Over five years ago Lake Erie Waterkeeper convened meetings with Agencies and other interested parties. ODNR, USFWS, University of Toledo and Toledo Zoo found funding to assess the sturgeon reintroduction that led to a successful reintroduction.
- **Sturgeon in the Cuyahoga? Maybe!** Several years ago, Lake Erie Waterkeeper convened meetings with the Northeast Ohio Sewer District, Cleveland Metroparks, USFWS, ODNR, Cuyahoga National Park and others to assess sturgeon in the Cuyahoga. ODNR, USFWS and others have stepped up to provide funding for the assessment.
- **Saving Erie Marsh.** Several years ago, Lake Erie Waterkeeper convened meetings on Erie Marsh (in Michigan near the Ohio line and the Ottawa River in Toledo that outfalls to Maumee Bay with Natures Conservancy, Army Corps, Michigan EGLE, ODNR, Hull and Assoc., Luna Pier and others. The Army Corps is taking the lead to assess reestablishing Woodtick Peninsula to protect the marsh.

UNIVERSITY OF WISCONSIN AND MARQUETTE PROFS TO ASSESS PHOSPHORUS IN MAUMEE IN AREAS WITH CAFO's/MANURE

A study using credible monitoring data will show if there are changes in phosphorus in streams where manure may drain.

BG INTERN COMPLETES STUDY OF SAGINAW DAIRY INCREASES

John O'Brien has completed an assessment of CAFO's in the Saginaw Watershed. The study shows increases in dairy cows over the past fifteen years. Saginaw Bay has a harmful algae problem. A second similar study is being conducted in the Sandusky watershed.

Great Lakes - Lake Erie Brief Updates

GREAT LAKES WATER LEVELS

The Army Corps forecast on October 29th showed levels are lower than a year ago on all lakes except Lake Ontario, which is 5 inches above its level from last year. These levels are also above their long-term average October levels on all lakes, with the exception of Lake Superior, which is 3 inches below its long-term October average level. Over the next month, all lakes are forecast to continue their seasonal declines and fall by 2 to 9 inches. Predictions indicate Lake Superior's outflow through the St. Mary's River will be below average in October. Forecasts show Lake Michigan-Huron's outflow through St. Clair River and Lake St. Clair's outflow into Detroit River will be above average for October. Predictions show Lake Erie's outflow into Niagara River will be above average for October and forecasts say Lake Ontario's outflow through St. Lawrence River will be above average in October.

LAKE SUPERIOR WARMING

Lake Superior is one of the fastest warming lakes in the world. University of Minnesota researchers on the world's largest lakes, are tracking Lake Superior temperatures and are finding that surface water temperatures are increasing at a faster rate than increases in air temperatures. Factors in the temperature are a 5% increase in winds speeds every decade, and in the last eight years, there have been three 500-year storms and one 1000-year storms. Lake Superior is forecast to be 10 degrees warmer in the next 50 years. Consequences of these changes, less ice which means more evaporation and impacts on fish species. The popular white fish is in decline with much debate on who can catch how many and long-term policies. One other concern on Superior's changes is that invasives generally do not like cold water what happens with invasives as Superior warms. No one knows.

Keep in mind that Lake Superior is the head waters of all the Great Lakes and is the deepest, largest, coldest of the Great Lakes. Because of the volume of water and fairly pristine Lake Superior watershed, Lake Superior has historically had good water quality that helps water quality in all the other downstream Great Lakes. There are no downstream water quality predictions.

ASIAN/INVASIVE BIG HEAD CARP DNA FOUND IN MILWAUKEE RIVERS

Wisconsin state and federal officials confirmed the second finding of invasive carp DNA in the Milwaukee River. The result, though, does not prove the existence of live fish, but the finding has heightened worries among fisheries experts that destructive bighead or silver carp could be in the river. The level of concern is increasing with the second finding of Big Head Carp in the Milwaukee River. The search for environmental DNA (or eDNA) is part of routine surveillance for invasive carp conducted around Lake Michigan. The testing is designed to detect traces of skin cells, feces, reproductive secretions and other genetic material shed into the environment.

NEW YORK WIND TURBINE STUDY IN LAKE ERIE & ONTARIO AT PHASE 4

The New York Public Service Commission is in its 4th and final phase of its wind turbine study on the portions of Lake Erie Lake Ontario in New York. New York is assessing wind in the Great Lakes to meet its renewable energy goal of 70% by 2030. The extensive studies include assessing wind located five miles off shore in Lake Erie and ten miles off shore in Lake Ontario. Factors for the study include habitat, cost for installation and transmission to users. The study shows depth to bed rock, ice cover period ranges and more. Wind speed is a bit more in Lake Ontario and there is the opportunity for a market for transmission from wind produced in Lake Ontario. And the study shows the extensive permits needed for wind turbines in the Great Lakes. If wind is approved in Lake Erie and or Lake Ontario in New York, it will set a Great Lakes wind turbine precedent. An interesting finding of the study is that the ship canals to get the turbine barges to the construction site would be too small so alternate barge construction is being assessed.

If you are interested in wind turbines in Lake Erie and the other Great Lakes, New York is holding the 4th public session on November 17 from 1:30-2:30. Registration is open. Google New York Great Lakes Wind Study to register in the Phase 4 session. You can also request to be on the email list. New York's wind turbine Great Lakes Assessment process has a lot of great information on the eastern end of Lake Erie in New York.

LAKE ERIE EXECUTIVE ORDER – LOCAL GOVERNMENT RESOLUTIONS

Twelve local governments are requesting President Biden to issue a Lake Erie executive order. The local governments are: Toledo, Lucas County, Oregon, Sandusky, Lakewood, Whitehouse, Perrysburg, Bowling Green, Luna Pier, Kelleys Island, PutnBay, TMACOG. A group of local officials are working with Congresswoman Kaptur, and Senators Brown and Portman's office to work on the request to President Biden. It is important to have the federal government manage the algae reduction because three states are involved along with the province of Ontario. Local governments are concerned that more phosphorus reductions will be placed on the wastewater plants, which have already reduced outputs increasing costs in Environmental Justice areas and other users. Also, there is no consistent framework between the states to meet the 40% reduction. The Chesapeake Bay executive order issued in 2008 by President Obama, is seen as the pivotal action that has since resulted in over ½ of the needed 40% nutrient reduction.

OHIO KEEPS PERMITTING MORE LARGE CAFO's IN MAUMEE WATERSHED

There was a hearing near Bryan, Ohio for 6000 hogs to be located near farm homes with 11 artesian wells. Then in the last several weeks, a permit for 7350 hogs has been submitted near a large wetland and the Ohio portion of the St. Joseph River that flows to Fort Wayne where it meets the Maumee River. The collective amount of untreated manure land applied from vast numbers of cows, pigs and poultry in the Maumee watershed is about the equivalent of the sewage produced by the population of Ohio – over 11 million people! And Ohio keeps attracting more and more cows, pigs and poultry that result in more and more untreated manure land applied in the Lake Erie watershed with too much phosphorus. Studies underway looking at acres needed and phosphorus increases where CAFO's are located.

LAKE ERIE MAY HAVE THE GREATEST DENSITY OF SHIPWRECKS IN THE WORLD

From article by [STACY LIBERATORE FOR DAILYMAL.COM](https://www.dailymail.com) October 28, 2021

Lurking below the surface of Lake Erie is a ship graveyard that is estimated to include up to 2,500 vessels, with the earliest wreck dating to the 1800s when it was part of the water route from the Atlantic Ocean to the upper Midwest. Kevin Magee, an engineer at NASA's Glenn Research Center, said in a statement: 'Storms and waves are probably the number one reason ships sank in Lake Erie. In fact, we think Lake Erie has a greater density of shipwrecks than virtually anywhere else in the world—even the Bermuda triangle. The oldest shipwreck lurking below Lake Erie is the Lake Serpent, a 47-foot schooner that was lost in 1829, and then there is the Sir CT Van Straubenzie that is the deepest known wreck in the lake. The exact number of wrecks in Lake Erie is not known – it could be anywhere from 500 to 2,500 – but explorers and researchers have been able to confirm 277 sunken ships. 'One of the remarkable things about Lake Erie and Great Lakes shipwrecks is how well they are preserved due to the cold, fresh water,' said Magee. 'Wrecks in saltwater start corroding immediately. In the Great Lakes, you can find old wooden ships that are hundreds of years old that look like they just sank.'

LAKE ERIE WATERKEEPER (LEW)

Advocates for fishable, swimmable, & drinkable water through advocacy, education, litigation and technology. LEW, founded in 2004 is licensed by the International Waterkeeper Alliance. LEW is helping the entire Lake Erie watershed. For more information go to lakeeriewaterkeeper.org.

LAKE ERIE WATERKEEPER CALENDAR

- November 11 Scott Carpenter from Metroparks will talk about the Glass City Metropark on the Maumee River at 7 pm at Toledo Yacht Club followed by Lake Erie discussion
- December 9 Ohio State Representative Mike Sheehy will discuss his efforts to help Lake Erie at 7 pm at Toledo Yacht Club followed by Lake Erie discussion
- January, February, and March 2022 meetings will be virtual via ZOOM at 7 pm on the 2nd Thursday of each month. Annual meeting April 14 at 7 pm at Toledo Yacht Club
- April 27 Lake Erie Conference at Glass City Metropark – registration details coming