

CAFOs' Contribution to Water Pollution

“The agriculture sector, including CAFOs, is the leading contributor of pollutants to lakes, rivers, and reservoirs. It has been found that states with high concentrations of CAFOs experience on average 20 to 30 serious water quality problems per year as a result of manure management problems.”

https://www.cdc.gov/nceh/ehs/docs/understanding_cafos_nalboh.pdf

Abundant quantities of liquefied waste must be field-spread from CAFOs holding thousands of animals in one location creating a pollution threat. Nutrients and micro-organisms are found in CAFOs and in the animal waste pits, open-air untreated waste lagoons, feedlots, compost piles of dead animals, and on poultry structure floors. The micro-organisms can be transferred to human water supplies and surface waters by runoff after spreading on fields and leaching into groundwater.

Examples of unacceptable levels of agricultural pollutants have been found in the following waters of the identified states:

- **Drinking water wells and surface water sources**

“Iowa Department of Natural Resources Watershed Basics Watershed Pollution”

“The major water quality problem in Iowa is nonpoint source pollution, and it has landed a number of streams and lakes on [Iowa's impaired waters list](#).”

Nonpoint source pollution happens when rainfall, snowmelt or irrigation water runs over land or through the ground and picks up pollutants and deposits them into streams, lakes or groundwater. Those pollutants include excess soil, bacteria and nutrients (from farm fertilizers and manure).

Keeping these pollutants out of our water is important for many reasons. People depend on clean water for drinking water and recreation like swimming, boating and fishing. Aquatic life, such as fish, depend on clean water to survive.

Solutions for curbing nonpoint pollution [Iowa, continued]

"Because nonpoint source pollution is widespread across the state, there is no quick fix to the problem. Improving our streams and lakes requires the help of all Iowans, both urban and rural.

The main solution is prevention. That means keeping excess sediment, nutrients, bacteria and other pollutants out of our water. Because the largest problems come from agricultural areas, an important solution is using conservation practices. Common conservation practices include wetlands, ponds, terraces and buffers. These practices reduce the amount of pollutants reaching a lake or stream.”

<https://www.iowadnr.gov/environmental-protection/water-quality/watershed-improvement/watershed-basics>

- **Inland streams, rivers, and lakes where manure is spilled or spread on farm fields**

“Aaron Snell was working to clear a log jam on the Coldwater River [Michigan] when he noticed the water turn murky, ‘really murky,’ he said, ‘unusually so.’

He traveled about four miles upstream and found the source. The water had turned black from manure.

Manure processed through the farm’s anaerobic digester was spread on fields March 6 about three miles east of Freeport. The ground, snow-covered and frozen, didn’t absorb it and the manure eventually ran into Messer Brook and then the Coldwater River. In the past year, the Coldwater River watershed has sustained three manure spills. For anglers and conservationists, that’s a discouraging fact.

‘I mean when you look at the Coldwater watershed over the decades, we have thousands and thousands of volunteer hours and dollars put into it, and it’s getting trashed,’ said Lance Climie, president of Schrems West Michigan Trout Unlimited.

‘Sometimes I feel like we’re fighting a lost cause ... These manure spills are going to kill the streams.’

Snell, who is a fisheries biologist and co-founder of Streamside Ecological Services, said manure spills can endanger human health by increasing levels of E. coli bacteria in the waters.

In addition, the spills can harm aquatic life and can, because of the nutrients, cause a downstream algae bloom, he said.

As of Wednesday, March 20, state officials have not seen or had any reports of a fish kill associated with the recent spill, according to Mike Worm, supervisor of the water quality unit for DEQ’s Grand Rapid district.

Climie said he wishes farmers would cooperate more in the protection of water bodies.’

<https://www.mlive.com/news/grand-rapids/2019/03/manure-spill-turns-portions-of-west-michigan-trout-stream-ink-black.html>

- **Great Lakes and bays are polluted**

- **Green Bay, WI**

“In northeast Wisconsin, agriculture is not the only source of non-point pollution; however, it is the largest source. In the 2012 [Total Maximum Daily Load and Watershed Management Plan for the Lower Fox River Basin and Lower Green Bay](https://fyi.extension.wisc.edu/foxdemofarms/the-basics/northeast-wisconsin-non-point-pollution-sources/), the baseline sources of total phosphorus (TP) and total suspended solids (TSS) for Lower Green Bay were identified. To build a comprehensive understanding of the factors contributing to TP and TSS loading, the study looked at total loading from the three prominent river basins (Lower Fox River, Upper Fox River (including Lake Winnebago), and the Wolf River, as well as specific sources from the Lower Fox River Basin. The results of the study show that while there are several factors contributing to nutrient and sediment pollution in Lower Green Bay, agriculture is the primary source for both TP and TSS.”
<https://fyi.extension.wisc.edu/foxdemofarms/the-basics/northeast-wisconsin-non-point-pollution-sources/>

- **Saginaw Bay, MI**

“CASEVILLE—Farmer Steve Tait’s decision to stop plowing his fields came one winter, as he watched snow banks near his Thumb area farm turn black as the loosened soil blew off his fields.

“I hated seeing it,” said Tait, 56. The Saginaw Bay watershed’s rich topsoil makes it one of Michigan’s most productive farming regions, and Tait was watching the precious resource wash away. “Once you lose it off the field, it doesn’t come back.”

The spring snowmelt then washed the fertilized soil toward the bay, where it contributed to the nutrient pollution that can foul beaches with plant overgrowth and fuel toxic algae blooms that endanger humans and animals.”

<https://www.bridgemi.com/michigan-environment-watch/saginaw-bay-pollution-grows-farmers-urge-other-farmers-change-ways>

Canada and the United States created the International Joint Commission (IJC) to manage lake and river systems along the border and to protect them for the benefit of today’s citizens and future generations. The IJC identified Lake Erie as once again severely threatened in 2014 and stated, “While Lake Erie’s health suffers from multiple stressors, the rising proportion of dissolved reactive phosphorus is seen as the primary cause of this decline.”

<https://legacyfiles.ijc.org/publications/2014%20IJC%20LEEP%20REPORT.pdf>

Forward, pg. 4.

- **Lake Erie and the city of Toledo, OH had a drinking water crisis in 2014**

“The International Joint Commission (IJC) today expressed empathy for Toledo area residents affected by water contamination caused by toxins from excessive

algae growth in Lake Erie. The IJC reiterated its call for action on reducing nutrient loading that contributes to the hazard.”

<https://ijc.org/en/toledo-water-crisis-ijc-lake-erie-report-template-solving-toxic-algal-blooms-shut-down-regions>

The problem – toxic algal blooms fueled by excessive agricultural fertilizer runoff and urban sources – was detailed in an IJC report released earlier this year, [A Balanced Diet for Lake Erie: Reducing Phosphorus Loadings and Harmful Algal Blooms](#). The report includes 16 recommendations to reduce nutrient loading into Lake Erie and its tributaries.”

Since the IJC 2014 report was issued, researchers used remotely sensed imagery to identify the location and size of animal feeding operations in the key drainage area to the Lake Erie Western Basin. They concluded after aggregating data from several sources, using detailed imaging of the location, type of animal, and size of livestock operations in the Maumee River Watershed from 2010 to 2018, and after implementing control variables that, “Our work presents evidence that the increasing intensity of animal agriculture in the US contributes to water quality problems. Further, the geo-locating of animal feeding operations is important for managing runoff and correctly identifying the causes of surface water quality degradation.”

<https://lakeeriewaterkeeper.org/wp-content/uploads/2022/05/maumee-drp-manure-raff-meyer-4-2022.pdf>

Additional regional examples of unacceptable levels of agricultural pollutants are found in the following waters:

- **Ocean bays and gulfs are polluted**

- **Chesapeake Bay, MD is in an impaired watershed**

“Nitrogen and chemical contaminants pose threats to the Chesapeake Bay when they enter the Bay either by falling directly into the water or by falling onto the land and being carried into the water by stormwater runoff. Excess nutrients such as nitrogen and phosphorus—most of which come from agricultural sources such as fertilizer and manure—create algae blooms that prevent sunlight from reaching submerged aquatic vegetation, limiting growth of vital underwater Bay grasses. These excess nutrients also deplete dissolved oxygen, necessary for the survival of oysters, crabs, and other bottom-dwelling species in the Bay.”

<https://www.nps.gov/chba/learn/environmental-factors.htm>

- **The Mississippi Gulf has a permanent Dead Zone**

“The numbers are in. The 2021 Gulf of Mexico Hypoxic Zone, or Dead Zone, an area of low oxygen that can kill fish and marine life near the bottom of the sea, measures six thousand three hundred and thirty-four square miles.

This “dead zone” begins innocently enough. Farmers use fertilizers and manure to increase the output of their crops so that we can have more food on our tables and more food to sell to the rest of the world. But it is this excess agricultural nutrient pollution combined with urban runoff and wastewater that brings excessive amounts of nutrients into waterways that feed the Mississippi River.”

<https://oceantoday.noaa.gov/deadzonegulf-2021/welcome.html>

- **Private and public-supply wells are affected by nitrate pollution**

“Since approximately half of all applied nitrogen drains from agricultural fields to contaminate surface and groundwater, nitrate concentrations in our water resources have also increased . . . Based on the U.S. Geological Survey’s National Water Quality Assessment study, it was estimated that 2% of public-supply wells and 6% of private wells exceeded the MCL (maximum contaminant level); whereas, in agricultural areas, 21% of private wells exceeded the MCL”

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6068531/>

The problem of contaminated water supplies from agricultural pollution affects city as well as rural residents. An isolated urban water supply in a non-agricultural state may not be directly impacted by agricultural contaminants. However, the food eaten by municipal residents comes from areas of the country where the CAFO food system is in full destructive force. Improving our recreational water and drinking water requires all Americans, both urban and rural to understand the contribution of CAFOs to water pollution.

Resources:

“Understanding Concentrated Animal Feeding Operations and Their Impact on Communities”, Page 4 “Surface Waters” section

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https://www.cdc.gov/nceh/ehs/docs/understanding_cafos_nalboh.pdf

Iowa Department of Natural Resources, “Watershed Basics”

<https://www.iowadnr.gov/environmental-protection/water-quality/watershed-improvement/watershed-basics>

“Manure spill turns portions of West Michigan trout stream ‘ink black’”,

mLIVE, Grand Rapids, Published: Mar. 21, 2019

<https://www.mlive.com/news/grand-rapids/2019/03/manure-spill-turns-portions-of-west-michigan-trout-stream-ink-black.html>

“As Saginaw Bay pollution grows, farmers urge other farmers to change ways”

Bridge Michigan, June 13, 2022

<https://www.bridgemi.com/michigan-environment-watch/saginaw-bay-pollution-grows-farmers-urge-other-farmers-change-ways>

“A Balanced Diet for Lake Erie, Reducing Phosphorus Loadings and Harmful Algal Blooms, A Report of the Lake Erie Ecosystem Priority”

International Joint Commission, February 2014—Forward, pg. 4

<https://legacyfiles.ijc.org/publications/2014%20IJC%20LEEP%20REPORT.pdf>,

“Toledo water crisis: IJC Lake Erie report a template for solving toxic algal blooms that shut down region’s water system”

International Joint Commission, August 3, 2014—Press release

<https://ijc.org/en/toledo-water-crisis-ijc-lake-erie-report-template-solving-toxic-algal-blooms-shut-down-regions>

“Remotely Sensed Imagery Reveals Animal Feeding Operations Increase Surface Waterbody Concentrations of Dissolved Reactive Phosphorus” by

Andrew G. Meyer, Marquette University, Milwaukee, WI; Zach Raff, University of Wisconsin-Stout, Menomonie, WI; Sarah Porter, Environmental Working Group

<https://lakeeriewaterkeeper.org/wp-content/uploads/2022/05/maumee-drp-manure-raff-meyer-4-2022.pdf>

National Park Service, Chesapeake Bay—Environmental Factors—Human Impact—Pollution <https://www.nps.gov/chba/learn/environmental-factors.htm>

“Happening Now: Dead Zone in the Gulf 2021—Larger-than-average Gulf of Mexico ‘dead zone’ measured

NOAA—Ocean Today

<https://oceantoday.noaa.gov/deadzonegulf-2021/welcome.html>

“Drinking Water Nitrate and Human Health: An Updated Review” National Library of Medicine [Int J Environ Res Public Health](https://pubmed.ncbi.nlm.nih.gov/36111111/), 2018 Jul; 15(7): 1557.

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6068531/>