A Dirty River Still Runs Beneath It

In 2003, local author Dr. Janet Kauffman wrote *A Dirty River Runs Beneath It*. She described how liquid manure from huge livestock confinement farms called CAFOs (Concentrated Animal Feeding Operations) seeps from local farm fields where it's used as fertilizer down into our rural underground drainage system, comparing it to an unregulated city sewer system. Pipes, called tiles, were buried by pioneers to drain swamps so they could farm. This mostly unmapped network of connected pipes meandered (in 2003) beneath 3 million miles and 60% of the farm fields from northern Ohio to Iowa, including Michigan. She wrote, "In large livestock operations … the waste is liquefied, pumped to a lagoon, then sprayed untreated on farm fields, where it runs quickly into drain tiles." In South Central Michigan, those tiles empty into Raisin and Maumee tributaries that eventually reach Lake Erie, and in Michigan's Thumb, they empty into the Saginaw Bay and Lake Huron.

Michigan introduced its voluntary MAEAP (Michigan Agriculture Environmental Assurance Program) with best management practices for agriculture in 1999. In 2005, The Blade referenced Janet's article. In 2006, a local agricultural consultant used smoke to demonstrate that liquid manure enters drain tiles in seconds when it's injected too deep into a no-till field. In 2008, the Ohio Phosphorus Task Force's agenda included dissolved phosphorus, which feeds toxic algae. In 2009, the River Raisin Watershed Council published its *River Raisin Watershed Management Plan*, by the University of Michigan. It warned that dissolved phosphorus from agriculture (the major source) should be a priority. It included CAFOs, drain tiles, and manure.

Michigan issued its first EPA-sanctioned CAFO general permits in 2010. Each of Michigan's 272 permitted megafarms must submit manure management plans, which require them to keep pollutants out of waterways.

Ohio towns along western Lake Erie found microcystin in their drinking water in 2010. A record-setting bloom hit Lake Erie and Lake Huron's Saginaw Bay in 2011. In 2014, The International Joint Commission published its Lake Erie report, targeting dissolved phosphorus and calling for a ban on manure application on frozen, snow-covered ground.

Then came the Toledo water crisis in 2014, along with a frenzy by those tasked with preventing this very thing, and an avalanche of new tax dollars to keep it from happening again. Caught by surprise, everybody said. Seriously?

Our group, Environmentally Concerned Citizens of South Central Michigan, has sampled the water around factory farms in Lake Erie's Raisin and Bean/Tiffin Michigan headwaters for 17 years. At 49 sites just north of the Ohio border, we test for things like E. coli and ever-increasing, algae-feeding, orthophosphate, and DNA from cattle and pigs. We found over 4,700 violations of state and Federal water pollution laws, including the Clean Water Act, involving manure applications, mostly coming from tiled fields. Even from fields where best management practices are used, even from fields where manure was applied to frozen or snow-covered soil according to the state's rules.

In June, 2017, Michigan agency officials held a meeting in Adrian to explain the second phase of its plan for tackling its contribution to Lake Erie's phosphorus problem. Eight years after the Raisin Plan's warning, they're just now starting to look at the actual cause – dissolved phosphorus, not total phosphorus – and the vast network of subsurface tile drainage under our farm fields. Recent researchers in this region have found that as much as 80% of the dissolved phosphorus enters the surface water from those tiles.

MAEAP was designed to control sediment and erosion, not dissolved phosphorus or dissolved nitrogen. The enormous amounts of subsidy money are geared toward controlling the particulate forms of these nutrients found in sediment, and specifically Total Phosphorus. But the larger particles of phosphorus (Total P) that can be filtered out by vegetation and buffer strips in the current MAEAP aren't the problem. It's the *dissolved* form, called dissolved reactive phosphorus or soluble phosphorus, which "feeds" the toxic algae. DP goes wherever the water goes, and it isn't filtered out by natural barriers. Yet, MDEQ and MDARD want more time, more taxpayer money, and more research. Worse yet, even more money here in Lenawee is going towards implementing management practices that don't work to control dissolved phosphorus.

Questionable items from the plan's first phase remain. The scientifically weak statement, based on questionable data, claiming that Total P in the Raisin was reduced by 20% is extremely misleading, yet gets repeated. The fact that dissolved or soluble phosphorus - the real problem - has increased greatly in the Raisin and Maumee Rivers gets completely ignored. Over 80% of Lake Erie's water comes through the Detroit River, yet upstream phosphorus sources aren't adequately addressed in Michigan's plan.

Those officials announced that the MAEAP, with its voluntary farming practices that haven't reduced dissolved phosphorus here, is suddenly the magic cure.

Bad data leads to faulty models and bad decision-making by policy makers. Bad decisions mean that those who didn't cause this problem might have to pay to fix it.

At that meeting, environmental groups from all over Michigan and Ohio asked instead for data identifying all sources and amounts, and for water monitoring results (not current models that have shown to be unreliable and invalid) to be used in a comprehensive plan. We need action items, benchmarks, deadlines, results, transparency, and progress reports. We need accountability for taxpayer money. We need total maximum daily loads (TMDLs).

Almost 20% of the megafarm manure produced in the Western Lake Erie Watershed comes from Michigan. The same problems exist in the Saginaw Bay watershed, and in parts of Western Michigan. Michigan's permits must ban spreading manure on snow-covered or frozen ground, without exception, and restrict manure application so the phosphorus in soil doesn't exceed what's used by that year's crop. Michigan must enact a moratorium on new factory farms and the expansion of herds and flocks at the ones in the state's Lake Erie watershed. Better yet – these farms should treat their waste to municipal standards.

That dirty river still runs beneath it, just as dirty as ever.

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Links:

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http://www.maeap.org/about/history_of_maeap
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