

Gratiot has 23 such operations and since 2004, 33,000 more livestock have been added to the county. The waste from the animals equals that of 500,000 humans.

Borrello said that there has been over-application of manure on the land so that the runoffs enter into the waterways; too much manure and not enough land.

Also, there has been proof of direct dumping of animal waste into the river, Borrello said.

The animal waste is also antibiotic resistant.

He showed photos as well, of manure spread on fields in the snow and ice, an illegal practice.

Even so, he was quick to point out that the problem may not stem from all the CAFO operators, who are simply following the guidelines set by the state.

While there might be a few bad actors, "It's not their fault," he said. "The laws aren't effective."

Borrello also noted that the problem is not unique to Gratiot. Research has indicated the same exact thing has been occurring in several other states.

He pointed out that increasing numbers of people no longer use the Pine River for recreational purposes. Docks have been removed, boats are fewer and decreasing numbers of people fish anymore.

The river doesn't look good, either.

He questioned the housing values of those who own homes on the river and the economic impact on the city. He also pointed to the risk of parasites invading the river, as has happened in Wisconsin,

One member of the audience asked if the city doesn't have responsibility for all this, since it currently gets 25 percent of its water from the river and has had to increase the chemicals used to make it potable. It was pointed out that the city has no control over what happens on the townships' farms.

Borrello was asked if he reported the illegal actions and he said that he delivered a package to the Michigan Department of Environmental Quality/the Department of Agriculture with tests results, photos and documented evidence. The state replied that the amounts were what it called "miniscule" and the data was "inconclusive."

No action was taken by the state.

Borrello advised those interested to expand the group, to contact local cities and townships, state authorities and government representatives but, he cautioned that it would not be an easy fix.

They may be called anti-farming and asked, "Don't you want to eat?"

But there are some solutions, he said, noting as one example, anaerobic digestion, which can reduce waste and/or create fuels.

The four Alma College students who conducted this year's study are: Tyler Foley, Allie Frost, Jessica Isler and Nikki Green.

More attention to the problem is needed, he said.

URL: <http://www.themorningsun.com/general-news/20141010/pine-river-in-alma-is-sick-with-too-much-ammonia-manure-and-ecoli>

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Pine River in Alma is sick with too much ammonia, manure and E.coli

By Linda Gittleman, The Morning Sun

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Within the last 10 years, the Pine River in Alma west of the dam has deteriorated significantly.

On Thursday, Alma College Geologist Murray Borrello presented a review of the results of the study that had taken place over the last several years.

“It’s a sick river,” Borrello told the group. “It’s unhealthy.”

Included in that study was the information collected this past summer by four of his students.

The program came about when residents who lived on or near the river couldn’t help but notice the increased amounts of algae, lilly pads and weeds.

Each year, residents on the west side of the city could see that it only got worse. There were more algae and more and bigger lilly pads and weeds, said Gary Rayburn, an Alma resident who organized a group of concerned people.

There are lower oxygen levels, a great many more nutrients and ammonia, all coming from animal waste, Borrello said.

“It’s at a danger level for ammonia,” he said. “There is a prevalence of E.coli and coliform bacteria.”

Coliform is often used as an indicator of the presence of fecal matter.

Bacteria consumes the oxygen and there’s not enough for the fish, Borrello said.

After the meeting, Borrello said that he was concerned about the E.coli levels. Following studies that have been done over the years, “We don’t do counts anymore. You can’t separate the thousands of colonies.”

So in the Pine River above the dam, the E.coli present is what is called TNC - too numerous to count.

The problem stems from Honeyoey Creek where it meets the Pine River between North Ennis and North Luce Roads in Arcada Township.

Honeyoey Creek is a natural tributary of the Pine although in parts, it appears more like a ditch because it has been dredged or straightened over the years, Borrello said.

That creek flows from Coles Creek and ultimately, through other tributaries, the water flows from Isabella County.

Lack of oxygen, excessive nutrients and ammonia all come from animal waste and concentrated animal feeding operations or CAFOS, he said.