

Keeton however, will not be able to identify the contamination with certain precision. For example he will not, at the end of the study, be able to announce that the river contains say, 50 percent bovine waste, 30 percent human and the rest comes from pigs.

He will however, be able to identify the major source.

Once the data from the study is complete, then a fix can begin.

Gary Rayburn, chair of the Healthy Pine River group, said once the study has been completed, the first step will be to get that information out - to the public, state and federal legislators, the Michigan Department of Environmental Quality and even school children.

When it comes to fixing the problem, help will be needed, Rayburn said.

“It’s going to take a while,” he said.

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Major new Pine River bacteria study about to begin

By Linda Gittleman, The Morning Sun

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Studying fecal matter floating along the Pine River seems hardly anyone's idea of a good time but Dr. Tim Keeton, Alma College biology professor, and his students will be doing just that when their river project begins at the end of the month.

Keeton told members of the Healthy Pine River group that the goal is to determine where the pollution in the river at Alma is coming from.

They've already learned that the river has been full of e-Coli and antibiotic resistant bacteria during the warm weather months.

But the question now remains: Is it human or animal?

Studies previously done by students on manure found at various spots along the river told them that after a rainfall, the contamination in the Pine was quite literally off the charts and considered a real risk to human health.

A sign went up at Pine River Park warning of the dangers of contact with the river during the summer months.

They also learned that the "hot spots" – those areas containing unusually high levels of e-Coli and antibiotic resistant bacteria - generally came from drainage tiles near agricultural operations.

Keeton also pointed out that Gratiot has far more animals than it has people.

The county has a population of about 41,000 people, according to the U.S. Census.

But it also has about 48,000 cattle, around 70,000 pigs and about 30,000 chickens, according to a U. S. Department of Agriculture report from 2012.

Even knowing all that, there are still a few concerned that the contamination could be human.

The studies done this spring and summer will attempt to provide an answer.

But it won't be easy.

E-Coli lives in the gut, animal and human, Keeton said. And science cannot tell the difference between human and animal.

But with brand new science, another kind of bacteria - not e-Coli - can identify the origin, he said.

"It can tell if it's human, bovine, or porcine," he said.

"This is really new stuff," he added. "It's going to be an exciting summer."