



Huron River Watershed - Detection and Rectification of Failing Septics October 1, 2010 through December 31, 2013

The purpose of this project was to detect and correct failing septic systems in the rural, non-sewered areas of Mill and Honey creeksheds, part of the 292 mile² middle Huron River watershed. The project goal was to reduce phosphorus and bacteria entering the river from failing septic systems and develop a cost-effective approach for monitoring and rectifying problems with septic systems for County Health Departments. The project methodology was to: demonstrate the ability to detect failing systems using imagery and image analysis methods; optimize the use of resources for county governments in dealing with this issue; design, implement and assess an education campaign for households in high probability failure areas to take actions to prevent failures; enforce existing regulations in locations where severe problems are identified; and establish a baseline for *E. coli* levels in Mill and Honey Creeks. The middle Huron is a 2010 Nonpoint Source Program Priority Watershed.

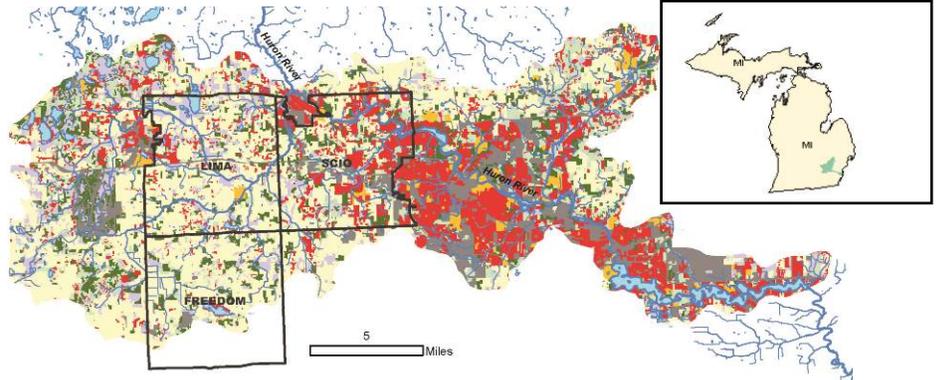
Grant Amount: \$ 208,000

Match Funds: \$ 72,900

Total Amount: \$ 280,900

Partners involved:

- Washtenaw County
- Sanborn Map Company, Inc
- Photo Science Geospatial Solutions



I&E Activities:

- Educational brochure about the risks of ignoring the signs of a failing septic system and the benefits (including cost savings) of regular inspections and pump-outs. The piece also presents the County's Public Health Department as an important resource for septic system information and care.
- Three hundred forty-three households in the project area received this new brochure along with information about EPA's "SepticSmart" program. Some residents also received their own septic system's individual risk categorization.
- An evaluative survey asking if homeowners took any action as a result of the information followed. Of the 52 completed surveys, there was a high level of participation from homeowners who reported that they regularly follow recommended practices (96%). All survey respondents reported either regular care and/or maintenance of their septic systems or some type of prompted action/change.

Study area

Freedom, Lima, and Scio townships in Washtenaw County, MI, with land use (red and grey represents developed land; yellow represents field)

Monitoring Activities:

- In project years one and two, the team field tested the method by conducting voluntary on-site inspections of roughly 78 septic systems. Results showed that analysts were able to identify most at-risk properties using the aerial imagery, but with a high percentage of false positives; further refinement of the methodology is needed.
- Characterized water quality conditions in the two focus catchments by targeting *E. coli* sampling and biological source tracking (BST) at almost 30 sites across the two catchments.
- Results: Mill Creek was consistently high in *E. coli* with no distinct "hot spot" branches. Genetic markers were found for all five potential biological sources. Honey Creek has widespread bacterial contamination, but especially concentrated in three areas.

Would you know if your Septic System needed surgery?

It's not easy to know what's going on internally in a septic system, but it isn't pretty when the system breaks down. Paying attention to clues and symptoms can help keep everything running smoothly and prevent uncomfortable, awkward, and costly issues.

Check your drainfield for these symptoms:

- Puddles or saturation
- Dead spots or suspiciously vigorous vegetation
- Sewage on the surface
- Putrid stench

Why should you take time out of your busy day to think about your septic system?

Because your septic system is the digestive system of your home. It carries away and treats waste, protecting the value of your home, the health of your family and the fresh water resources of the community. Just like your body, you can't see what's going on inside your septic system, and most people don't even think twice about it... until there is a problem.

Save Money!

The average cost of a replacement septic system is **\$9,000 - 15,000**. Even smaller repairs can be quite costly.

Save Your Yard!

Avoid the unsightly hassle of having your yard all torn up.

Don't wait until disaster strikes. Regularly pump out your system every 3-5 years.

A pump out costs a few hundred dollars depending on where you live, your tank's size and whether your service provider has to locate or uncover it.

And certainly, if you have backups in your sink and toilets, **THIS IS A SIGN OF TROUBLE!**

Watching out for these signs is a good start but accurately identifying the root cause of a failing septic system takes experience. So if there's a problem... **who you gonna call???**

The health department, a licensed septic tank pumper or a certified septic installer.

Just as you trust your doctor to help diagnose and prescribe treatments, these professionals assess the problem and make sure your system is working properly. They can also offer maintenance suggestions to save you money and aggravation.

Image left: The educational brochure produced under this project for septic system owners.

Images below: Snapshots of two parcels from the thermal imagery (May 2011) and color infra-red (Spring 2010) acquired through the project to define signatures of failing septic systems. Drain fields are outlined.

