



Septic Solutions

Opportunities for Septic System
Oversight in the Burt Lake Watershed

Tip of the Mitten Watershed Council Service Area

Service Area Boundary
Michigan Counties

Watersheds

- Carp River
- Cheboygan River
- Little Traverse Bay
- Lake Charlevoix
- Elk River
- Other/Minor

MAP MADE BY
OF THE
Watershed Council

0 3 6 12 Miles

We achieve our mission by empowering others and we believe in the capacity to make a positive difference. We work locally, regionally, and throughout the Great Lakes Basin to achieve our goals.

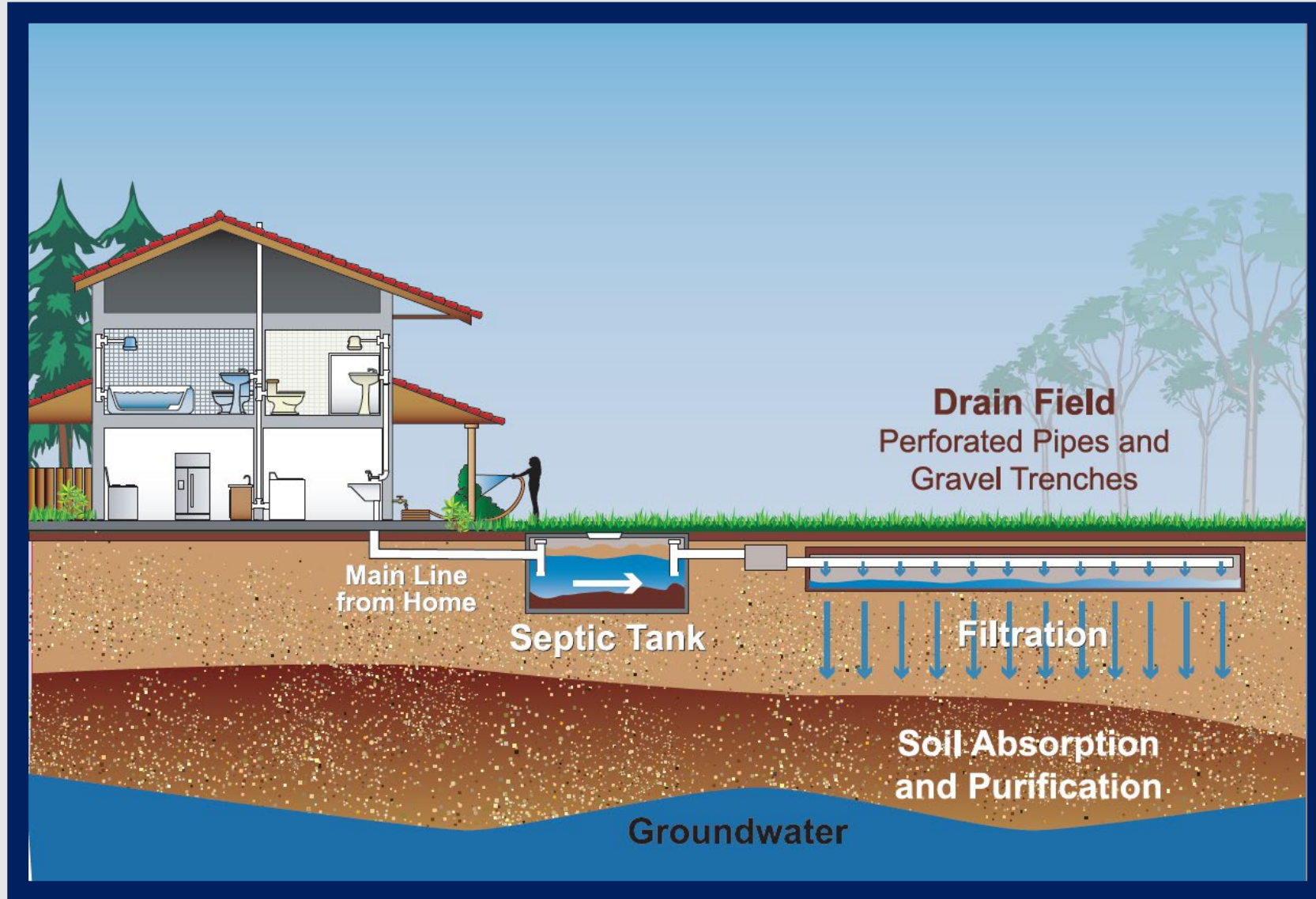
**Thank you to EGLE for supporting this
work in the Burt Lake Watershed**

And our sincere thanks to everyone who worked on and supported the Septic Question Report Series, which serves as the essential foundation for these efforts, including:

- **Dr. Grenetta Thomassey**
- **The Health Department of Northwest Michigan**
- **The Joyce Foundation**
- **And all of our community partners and committee members**



The Basics – How a Septic System Works



What is Septic System Failure?

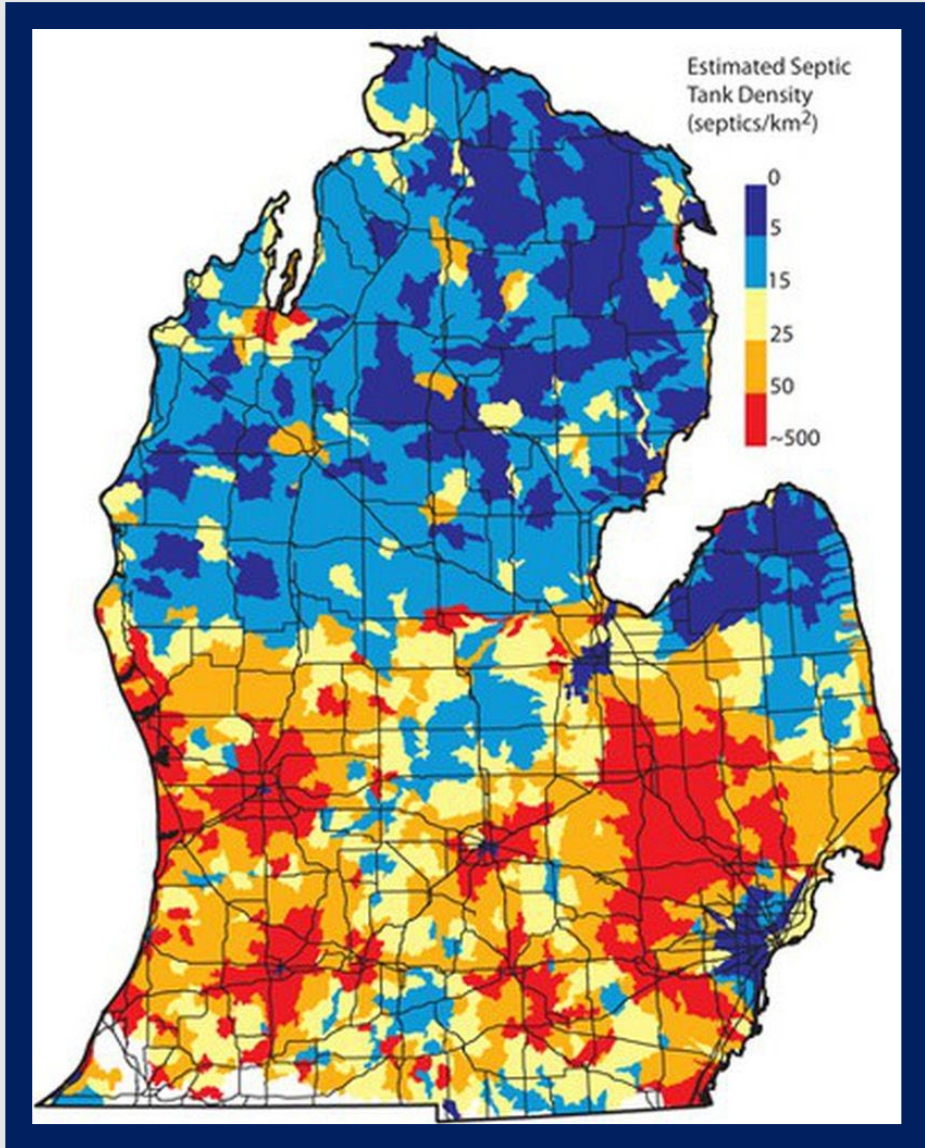
The District 20 Sanitary Code defines Failure of Sewage Treatment and Disposal Systems as:

“Where the drainfield aggregate of a sewage treatment and disposal system has hydraulically saturated or effluent from a sewage treatment and disposal system **is exposed to the surface of the ground, backing up into a structure or is permitted to drain onto the surface of the ground or into any lake, river, storm sewer or stream, or where the seepage of effluent is endangering a public or private water supply or where a public health nuisance is created by a system improperly constructed or maintained.**” (2-19)



Officials believe reported failures represent only a fraction of the total and many go undetected or remain unreported for years

The Septic Situation in Michigan



Credit: Michigan State University

- Michigan is the only state in the nation without a statewide septic code
- **Michigan has between 1.3 and 1.4 million on-site septic systems, and 35% of its residents rely on septic systems**
- Each system generates an average of 300-400 gallons of sewage daily. That means on-site systems in Michigan must treat and dispose of more than more than 455 million gallons of wastewater each day
- In most communities in Michigan, after a system is built, there is no required follow-up to ensure that systems are functioning properly
- **Michigan State University (MSU) studies suggest that at least a third of Michigan septic systems are not working properly**

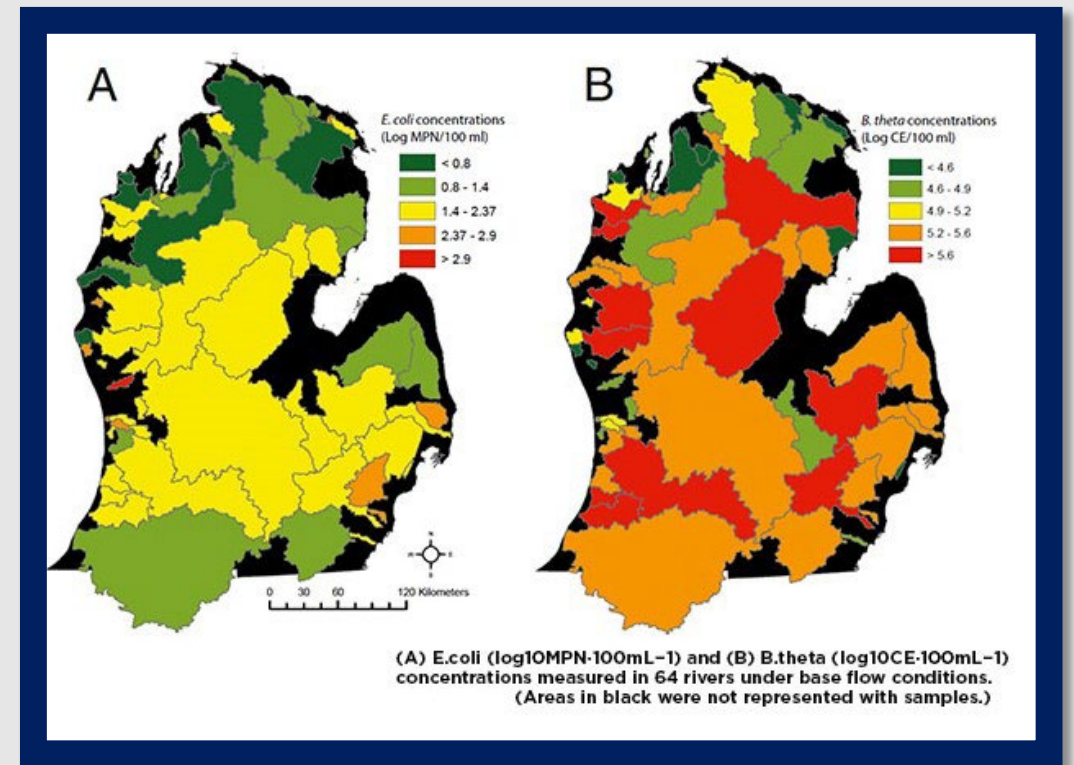
The 2015 MSU Study:

Linking fecal bacteria in rivers to landscape, geochemical, and hydrologic factors and sources at the basin scale

The study covered 64 rivers in Lower Michigan

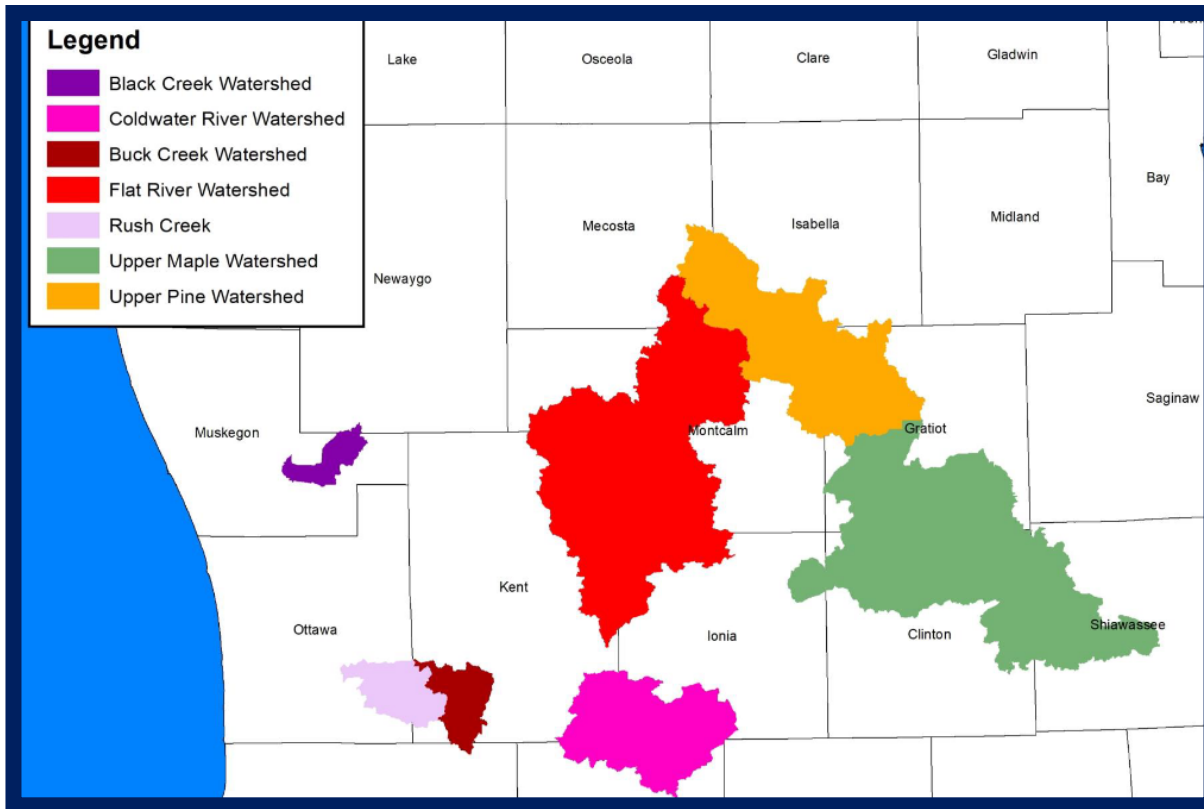
Results suggest human fecal contamination was affecting **100%** of the studied watersheds

“... bacterial concentrations were highest where there were higher numbers of septic systems in the watershed area.” –Dr. Joan Rose, co-author of the study



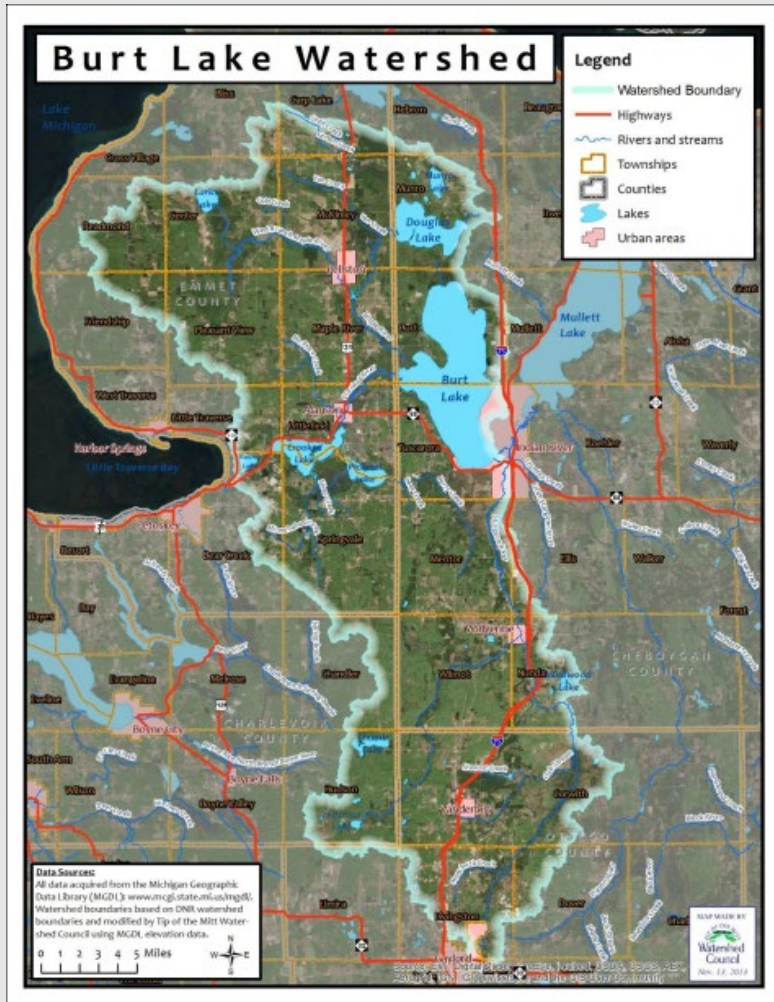
Credit: Michigan State University

Streamside Ecological Services Study



- Over 150 samples sites were tested throughout the year and under various conditions, resulting in several thousand samples of 7 mid-Michigan waterways
- Each of the 7 waterways tested exceed water quality standards for E.coli contamination at some time
- *All contained human sourced E.coli markers*

Septic System Failures and the Connection to Local Water Quality



The Burt Lake Watershed land area covers 371,173 acres and contains a diversity of water resources, including Burt Lake, Crooked Lake, and Crooked River.

Pollutants threatening water quality are mainly from human activities, including:

- shoreline development
- recreation
- streambank erosion
- agricultural activities, and
- faulty septic systems

The Impact: Nutrient and Pathogen Pollution



- Creates negative impacts on surface waters of the Elk River Chain of Lakes Watershed
- Potential to contaminate groundwater and drinking water supplies, and surface waters
- Nutrients can result in increased presence of algae along the shoreline
- Human pathogens can lead to the spread of disease



Policy Options for Local Governments

Policy Options to Consider

- 1. Maintain Status Quo**
- 2. Mandatory Pumping Ordinances**
- 3. Mandatory Inspection Ordinances**
- 4. Time-of-Transfer Ordinances**
- 5. Septic System Provisions in Short-term Rental Ordinances**
- 6. Sewer Systems**

1. Maintain the Status Quo

- Easiest option - no changes in current oversight or policy process
- Septic systems that are potentially failing could cause increased health concerns and environmental impacts
- Many systems will be properly maintained and updated over time
- Pace could potentially be unacceptable, as older systems go uninspected and unmaintained, and ultimately fail

2. Mandatory Pumping Ordinances

- Goal is to prevent septic system failures by making sure everyone pumps them out within a specific time frame, and records proof of pumping
- Some require inspection in addition to pumping; others simply require proof of pumping within specified time periods
- Requires collaborating with local septic haulers to ensure the scale of the program is feasible
- Reliable software programs exist to help a jurisdiction organize and keep track of the process

3. Mandatory Inspection Ordinances

- Inspections regularly conducted or overseen by the Health Department, or third party contractors, within a specified time period
- Homeowner only required to do whatever is appropriate, for their specific system, including pumping recommendations
- Repairs normally required within 60 days, but additional time can be extended with an agreed upon plan
- Cost of program can be offset by fees
- Reliable software programs exist to help organize and keep track of the process

4. Time-of-Transfer Ordinances

- Targeted approach that can minimize administrative burden of program
- Inspections are conducted at the time of sale or transfer of a property
- Assures septic systems are inspected at the time an improved lot is sold
- If system found to be failing or near end of effective life, a plan for remediation is required
- Follow-up inspection is done to ensure compliance
- Cost of program can be partially supported by fees, and a recording fee can also be established to offset record-keeping costs



Time-of-Transfer Success Stories in Northern Michigan

Communities in the Elk River Chain of Lakes, the District 10 Health Department, and the Health Department of Northwest Michigan are leading the way in Northern Michigan

- **Kalkaska and Manistee Counties (2009)**
- **Milton Township (2012)**
- **Village of Elk Rapids (2018)**

5. Short-Term Rental Ordinances

The Health Department of Northwest Michigan has identified short-term rental properties as a priority for protecting water quality and community health



Given that short-term rentals are often on waterfront properties, targeting these properties is a strategic first-step in efforts to protect our water resources from septic contamination

Short-term rental regulations can protect against septic system failure by:

- (1) limiting the number of guests based on septic tank size and number of bedrooms
- (2) requiring the homeowner to have a current inspection of the septic system on file



The Importance of Collaborating with Local Health Department, Inspectors, and Septic Haulers on Septic Solutions

For any septic ordinance to be successfully implemented, the local health department, inspectors, and septic haulers must have the capacity to implement the required inspections and pumping

Local governments should have these conversations early on, and throughout the planning and implementation process, to ensure that the ordinance is practical, effective, and enforceable in your community

6. The Sewer System Alternative

- Most often established through a special assessment district
- The process for establishing a special assessment district can be initiated by property owners or by the local government
- Enables the levying of special assessments for sewer systems on properties benefited by the project
- Strict procedural requirements

Examples in Northern Michigan

- Houghton Lake: Denton, Lake, Roscommon and Markey Townships
- Birch Lake: Elk Rapids Township
- The Village and Township of Northport
- Indian River: Tuscarora Township (under consideration)
- Higgins Lake: Lyon and Gerrish Townships (under consideration)
- And others . . .





THANK YOU! QUESTIONS?

**For more information or to schedule a presentation, please
contact:**

Tip of the Mitt Watershed Council
Phone: (231) 347-1181