Maintaining Your Septic System: Special Considerations for Shoreline Property Owners

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MAINTAINING YOUR SEPTIC SYSTEM:

Special Considerations For Shoreline Property Owners

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If you live on shoreline property, maintaining your septic system requires more care and work than maintaining similar systems located in other places. That's because soil and water conditions near the shoreline may make the system less efficient in treating waste, which could, in turn, cause harmful pollutants to get into your lake, stream or pond.

This bulletin is designed to help shoreline property owners understand what they can do to effectively maintain their septic systems while preserving the quality of their lake, stream or pond and the health of their families. These tips are best used in conjunction with Extension bulletin E-1521, "Maintaining Your Septic System."

How Septic Systems Work in Shoreline Property Areas

The purposes of a septic system are to effectively accept and treat liquid wastes from your house and to prevent biological and nutrient contaminants from getting into your well or nearby lakes and streams. Most of this treatment happens in the soil below the absorption field. The physical and chemical properties of the soils combine with microscopic organisms to decompose or prevent movement of contaminants.

This bulletin was developed as part of a cooperative project between the Michigan State University Cooperative Extension Service, the Michigan Department of Natural Resources, the Michigan Department of Public Health and the Soil Conservation Service.

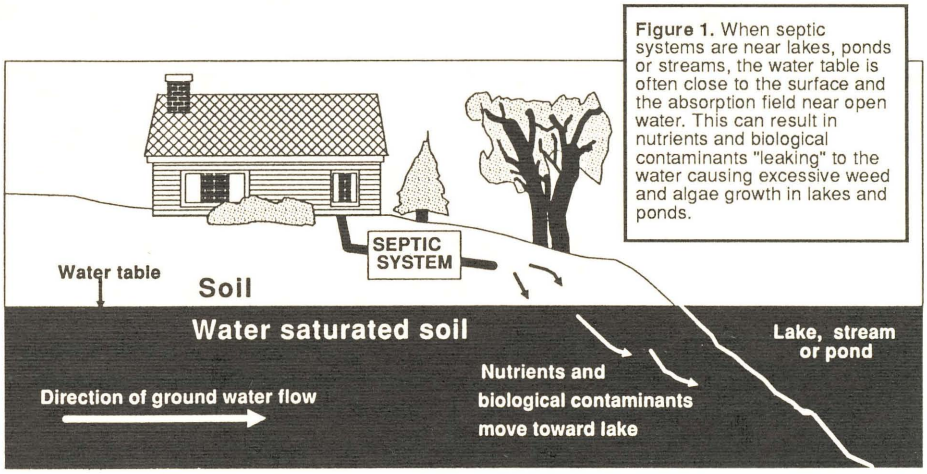

Figure 1. When septic systems are near lakes, ponds or streams, the water table is often close to the surface and the absorption field near open water. This can result in nutrients and biological contaminants "leaking" to the water causing excessive weed and algae growth in lakes and ponds.

In soil not saturated with water, biological contaminants (bacteria and viruses) are usually absorbed and rendered inactive within a few feet of the absorption field. Some nutrients, on the other hand, can travel much greater distances, depending on the type of soil, the amount and concentration of waste, and the age of the system. Loam and clay soils, for example, have a greater long-term ability to absorb nutrients and prevent them from moving through the soil than do sand and muck soils.

In their journey, nutrients or biological contaminants that encounter soil saturated with water can move much greater distances—in some instances, as much as several hundred feet.

Because septic systems on shoreline property are often close to the water and are sometimes saturated during high water periods, they are very likely to leak wastes to lakes and streams. Also, when shorelines erode, the distance between the septic system and the shoreline gets shorter and shorter, making it more likely that liquid waste could move horizontally through the soil to the bank and then quickly over the surface to the water.

This pollution can happen even though your system appears to be working well and complies with local health department codes.

Effects of Septic System Wastes on Lakes and Streams

Nutrients (especially phosphorus) from leaky septic systems play a major role in causing excessive weed and algae growth in lakes and ponds. Just a small amount of additional phosphorus in a lake or pond can make a huge difference in the amount of aquatic weeds that grow during the spring and summer.

Excessive weed growth, in turn, affects the ability of fish to grow and could even result in large fish kills in summer or winter. Too many weeds also make the water less enjoyable to use because of weed-tangled boat motors, weedy swimming areas, etc.

Liquid wastes from your septic system that reach the water increase the chance that swimmers near your shore could catch a variety of diseases and ailments, some serious, that are associated with these wastes.

How to Tell if Contaminants are Reaching the Water

Look for these symptoms to tell if waste from your system is reaching surface water:

- **Excessive weed or algae growth**

in the water near your shore. Phosphorus leaking from septic systems could be a major cause of this type of growth. Other factors, such as a combination of shallow water and a lake bottom rich in organic matter, or sediment and lawn fertilizer runoff, could also lead to this type of problem. Septic systems, however, are often prime suspects as sources of these pollutants.

- **An increase in infections or illnesses associated with swimming in the area.** These are most often minor ailments, such as ear or eye infections, but could be major diseases, such as dysentery or hepatitis.

- **Unpleasant odors, soggy soil or liquid waste flow over the land surface.** These symptoms often indicate failure and the need for drastic action or replacement of the system. Under these conditions, liquid wastes could travel directly into nearby surface waters instead of being treated in the soil.

- **Health department test results indicate the presence of biological contamination.** These free tests may show the presence of harmful bacteria in the water. Although wastes from septic tanks are not the only source of these contaminants, they are likely suspects.

- **Indicator dye put into your septic tank reaches lakes or ponds.** Special dyes are available from your local health department and may help to find problems that may otherwise be difficult to notice. This method can help verify the other symptoms listed above.

How to Prevent Problems

You can do many things to help prevent the problems associated with having a septic system near shoreline areas.

Try these activities:

- **Regularly pump and maintain your septic system.** This is the simplest yet most effective thing you can do to prevent excessive amounts of contaminants from reaching your lake, stream or pond. Regular maintenance also protects the value of your home investment by helping to ensure a safe water supply and disposal system. Shoreline property sells for a premium, but a failed septic system can reduce that value tremendously, even to the point of making the property unmarketable until the system is repaired or replaced.

- **Conserve water in your home.** The smaller the amount of water that enters your septic system, the less the likelihood of liquid wastes reaching lakes or ponds. Water conservation devices such as faucet aerators, water-saving shower heads and toilet tank inserts installed in your bathroom and kitchen are inexpensive and effective. Other practices are easy and don't change your present lifestyle.

- **Redirect surface water flow away from your absorption field.** Many times, water from driveways, roof downspouts or lawns travels toward the absorption field. This additional water travels through the soil toward lakes and ponds, picking up contaminants on the way. Make modifications to drain water away from the septic system.

- **Plant a greenbelt between your absorption field and the shoreline.** This involves planting areas of small shrubs and trees to help intercept and absorb some of the nutrients before they reach the shoreline. They also create a very attractive landscape.

- **Participate in a community sewage system or alternative disposal methods, if available.** Sometimes these systems offer cost-effective, long-range solutions to the problems caused by septic systems. Alternative systems may include multiple-home "cluster" septic systems, mound septic systems, gray water recovery and reuse systems, or improved treatment systems. The use of some of these systems is restricted by local health department codes or requires design and construction by experienced engineers and contractors.

Before selecting a larger scale, community-based solution, be sure that it will yield the hoped-for results. Many factors may contribute to excessive weed growth and other effects, so it is possible in some situations that wastes from septic systems may have a relatively minor impact on lake or stream quality.

- **Replace your septic system.** Although this alternative is costly, sometimes it is the only alternative, especially when your system is undersized because of conversion from a seasonal to a year-round residence.

- **If you're building a new home, construct the septic system as far away from the shoreline as possible.** This distance should be even farther than health department codes require. Those regulations are designed primarily to protect human health rather than prevent other effects, such as excessive weed growth. Contaminants, especially nutrients, can easily travel farther than those minimum distances in some soil conditions.

Try putting the septic system in front of the house, away from the lake. Also, design the system to meet your present as well as future needs. If, for example, you are building a small summer home with plans to enlarge and convert it to year-round use when you retire, design the septic system to accommodate that increased future use.

Where to Go For Help

For advice about your septic system's operation, condition or possible alternatives, contact your local health department, your County Cooperative Extension Service office or the MSU Agricultural Engineering Department.

For More Information About Your Septic System . . .

Check other bulletins in this series:

- WQ-16, "How to Conserve Water in Your Home and Yard."
- WQ-15, "Buying or Selling a Home? What to Find Out About Your Water and Septic Systems."
- WQ-14, "What to Do if Your Septic System Fails."

plus . . .

- Extension bulletin E-1521, "Maintaining Your Septic System."
- MWPS-24, "On-site Domestic Sewage Disposal Handbook."

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