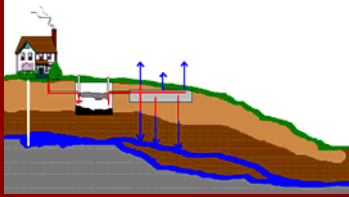



Septic Systems
They do a lousy job
Protect the Water
Protect Your
Investment



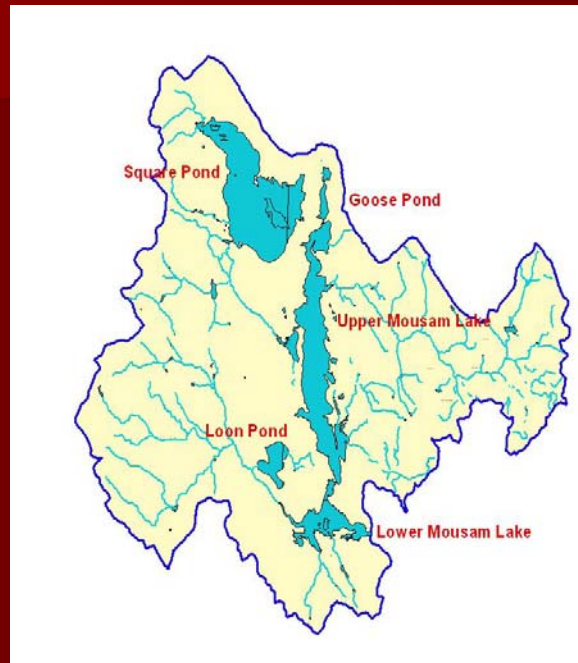
York County Soil & Water
Conservation District 

If its
yellow -
let it mellow -
If its brown -
flush it down!
(Please make sure toilet stops
running) Thank u The Management

My Name is...

Project Manager of the Mousam Lake Water Quality Improvement Project

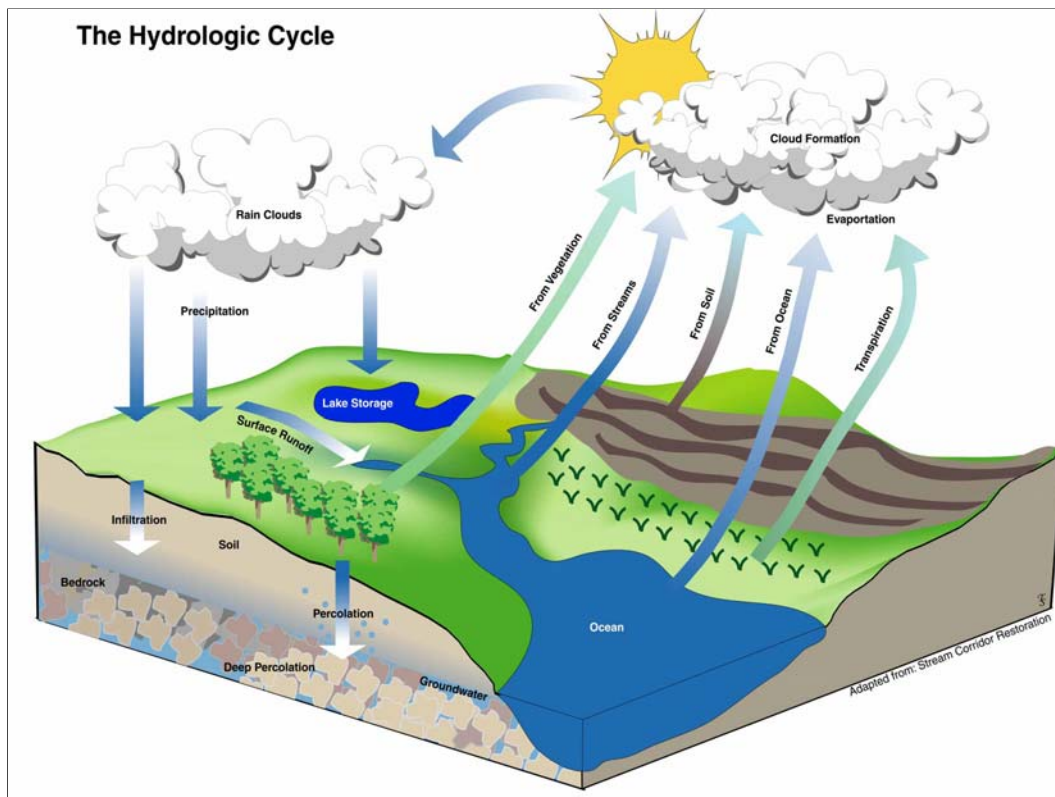
Mousam Lake Watershed



The goal of our program is to create awareness among the Mousam Lake Watershed residents and beyond, on how septic systems function and how they impact water quality. Proper care and maintenance of your system will not only protect water quality, but can save your system from premature failure, and save you thousands in replacement costs.

The Mousam Lake watershed has been experiencing water quality problems for several years. Our water quality, specifically clarity and dissolved oxygen, had declined to the point where Mousam Lake is no longer attaining state water quality standards.

We are in the Mousam Lake watershed which is a smaller semi-water system. Our watershed includes not only upper and lower Mousam, but also Square Pond, Goose Pond, and Loon Pond. Each lake is actually its own little watershed, which means that any rain falling within its boundaries, flows downhill until it reaches the lake basin. In addition the lakes are fed by small streams and groundwater springs. The Mousam Lake watershed has over 2800 residences. 700 of them are on upper Mousam alone (including back lots). That's a lot of septic systems in a relatively small area!

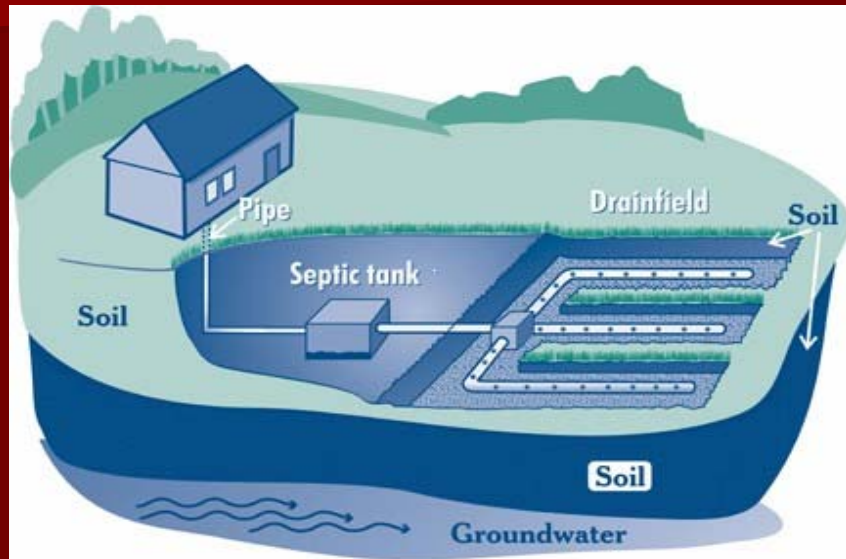


Most people think that anything that goes into the lake just disappears. The reason it is so important to protect our waters, is that the water cycle on our planet is a closed cycle with a finite amount of water.



In fact, the water we drink today is the same water that the dinosaurs drank, way back when...

Conventional Septic System



There are many different types of septic systems, but they all function basically the same. So we are going to use the standard “stone and pipe” system as our example.

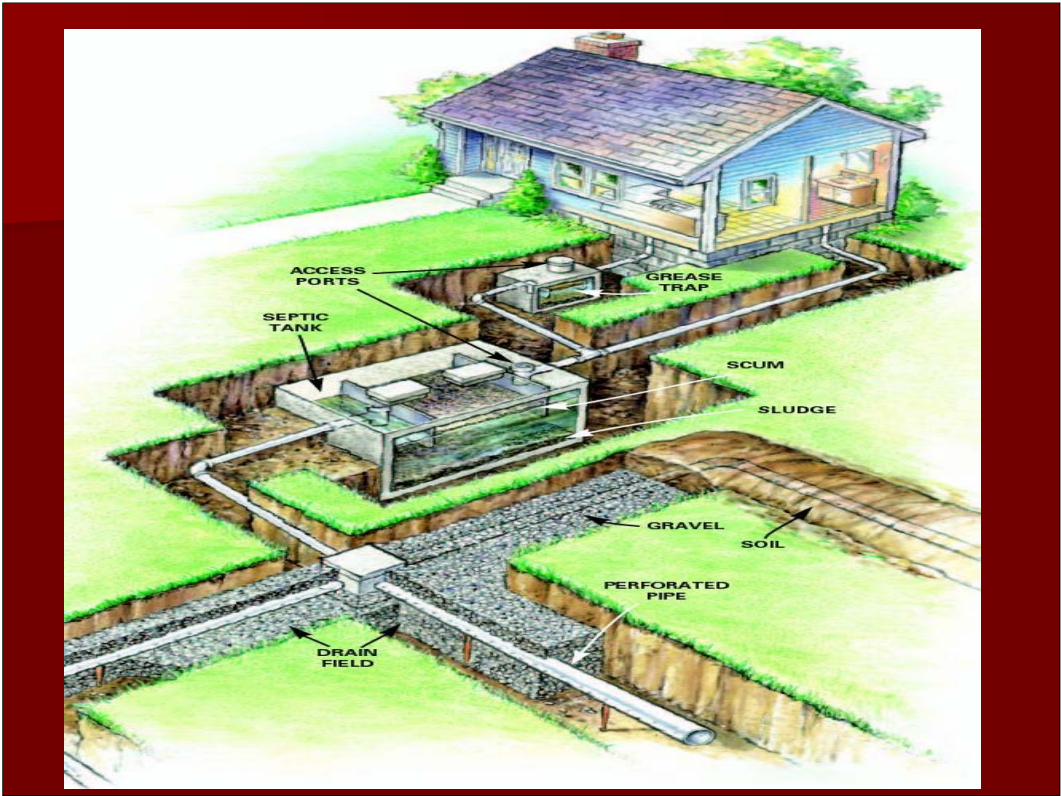
The typical septic system has 4 components...

The pipe from the house

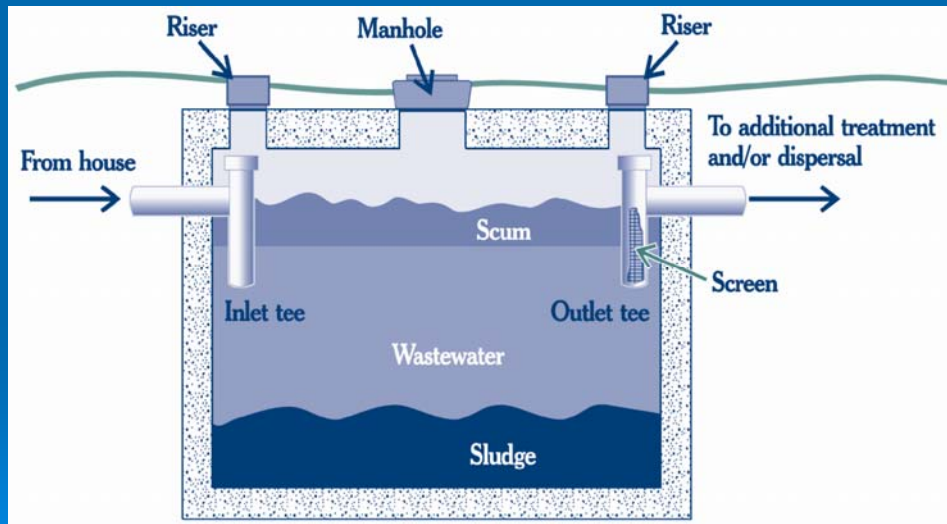
Septic tank

Leach field

And the soil surrounding it



Septic Tank

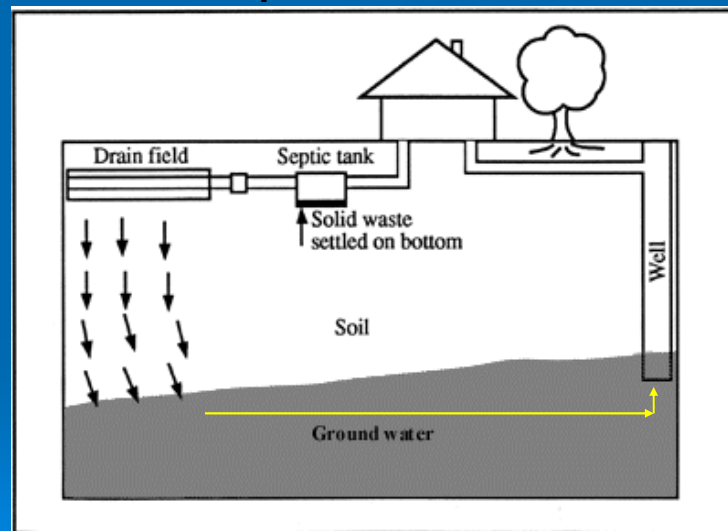


And flows into the septic tank. After it enters the tank, it separates into 3 layers: floaters, sinkers, and effluent.

Floaters, or the scum layer are oils, grease, detergents, and some papers that flow to the top

Sinkers, or the sludge layer, are solids that sink to the bottom. Naturally occurring bacteria do eat up some of the sludge, but there are some undigestible particles.

Effluent flows from the house to the septic tank...



When wastewater goes down a sink drain or is flushed down your toilet, it leaves through this pipe

Leach Field



As waste water enters the tank, the semi-clarified wastewater gets pushed out into your leachfield.

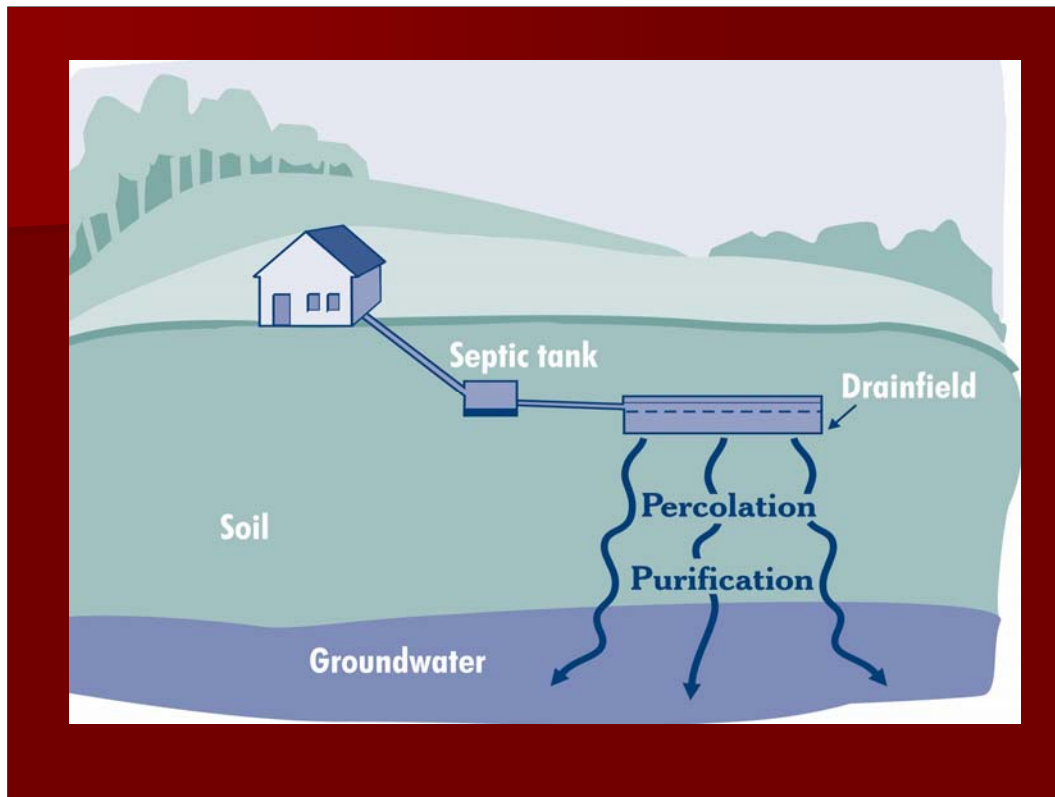
Or, Soil absorption field



Once in the drainfield, the wastewater flows out of the perforated pipes into the stone bed below, where it pools for a while and allows more bacteria and microbes to continue to digest the suspended solids that have washed out of the tank.

This pool of wastewater and microbes is called the biomat.

The microbes that live in the biomat are naturally occurring bacteria that are anaerobic, which means they don't require oxygen to live. So they, like the bacteria in your tank are pretty rugged and can tolerate a fairly wide range of conditions.



Now once the wastewater starts trickling out of the leachfield, it percolates down into the soil, which provides final treatment by removing harmful bacteria, viruses, and nutrients.

This process also relies on microbes and other naturally occurring organisms to do the dirty work. These critters are a bit different though because they require oxygen. That means they are anerobic.

Soil

The Key to Treatment

Colton series consists of very deep, excessively drained soils formed in glacio-fluvial deposits

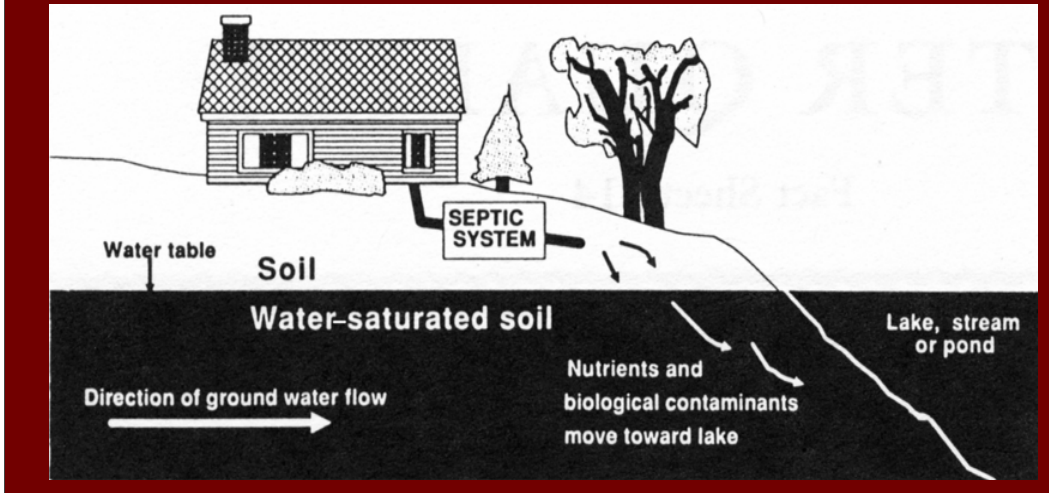


It is crucial to have the right type of soil to keep this part in balance.

You need a soil that has enough air pockets for the critters to breathe, but that also has enough organic matter to hold the moisture and give them time to do their job right.

The problem with our loose sandy soils, is that the particles are very large and there is very little organic matter, so they drain extremely quickly- at rates of up to 20inches/hour!

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





How are water-related illnesses spread?

They may be spread by swallowing or having contact with contaminated water at lakes, rivers or the ocean. The water can become contaminated by fecal matter which carries harmful bacteria, parasites and viruses. This unsanitary condition can be due to several possible causes:

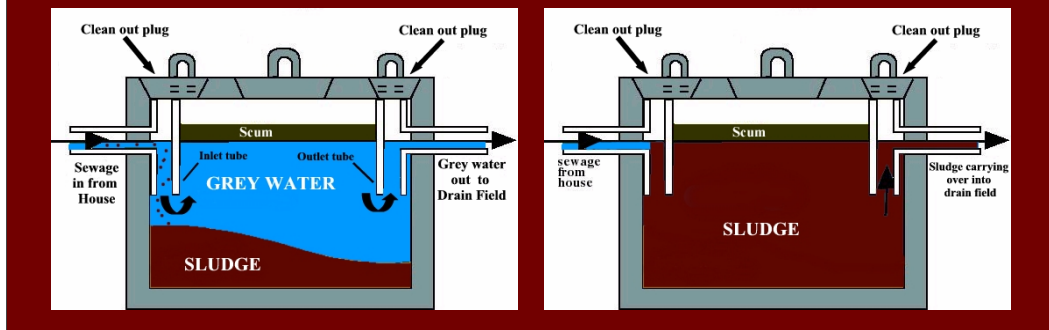
- Malfunctioning septic or sanitary collection systems in the vicinity
- Improperly disposed diapers
- Swimmers with diarrhea
- Animal feces
- Nearby boat moorings or marinas releasing sewage into the water
- Storm water run-off

Years ago, people thought this was great for septic systems because the wastewater drained away so fast.

They ultimately found, though, that the impurities were not being removed before the wastewater returned to the groundwater, so they started requiring finer, loamier soils to be used under the leach bed. That's why you see mounds.

Most Common Causes of Septic Failure:

- Too much water, or over-use
- Too many solids
- Physical damage



What can go wrong?

Now that they've figured all these things out, we have septic systems that are simple, efficient and effective when they're working properly. Since they rely on living organisms, then they should be thought of as living systems with a natural balance, much like our bodies.

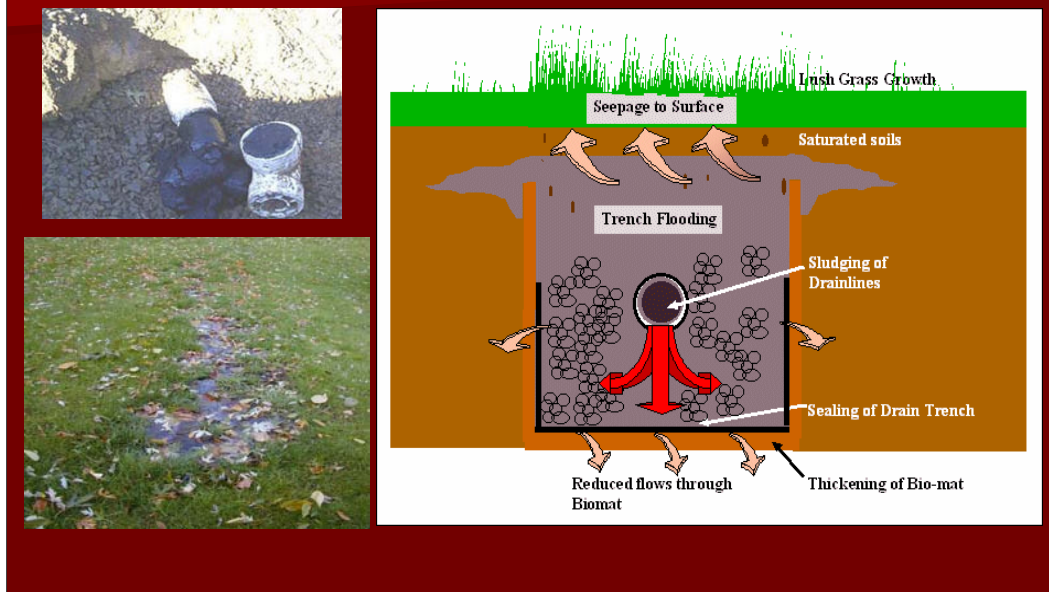
And, like our bodies if we don't care for them properly, they can get sick and even die (the dreaded septic failure).

And not only can that cause environmental problems and health hazards, it can cost lots of money to fix-which generally means replacing the leachbed or the entire system.

These days the most common causes of septic failure are:...

All of which are things that we can control.

Trench Failure



Too thick a biomat that has too many solids to be digested.

Even if most of your solids have settled out in the tank, too much water can still be an issue.

If you flood your leachfield, the soils underneath can become saturated, when this happens, the air pockets in the soils fill with water and those aerobic critters will die and not be able to eat up those harmful bacteria. This will allow wastewater to enter the ground water without being cleaned properly!

Tree Roots getting into the wastewater pipes



Physical damage can also happen from roots clogging or crushing pipes.

There are a lot of nutrients in that waste water, so any nearby trees, or woody shrubs will naturally send their roots to feed on the nutrients

Other reasons for failure...

- Improper Design
- Faulty Installation

Regular septic tank pumping and inspection will prolong the life of your septic system. Keep in mind that a septic system costs less than \$300 to pump but \$12,000 or more to replace and can affect the resale of your property.

If your system shows signs of failure, is in coarse, sandy soils, or is within 100 feet of a lakeshore or stream, plan to replace it. In the meantime reduce your waste load, don't use a garbage disposal, and, if necessary, consider a composting toilet or similar alternative.

Other reasons for failure are...

With improvements with the plumbing codes, and training and licensing of septic designers, there are very few design related failures these days. If you have an older system, though, it is something to be aware of.

Installers are not required to be licensed but there is still a small percentage of failures that relate to faulty installation. The state bureau of health offers a voluntary certification course and publishes a list of certified installers on their website.

Additives

- Chemical
- Biological
- Claim to:
 - Accelerate digestion of biosolids
 - Break-up scum
 - Improves settling through coagulation
 - Rejuvenates a clogged system

There are many products on the market that claim to eat up the sludge in your tank. There are also lots of old-time practices like dumping yeast, or rotten tomatoes down the drain.

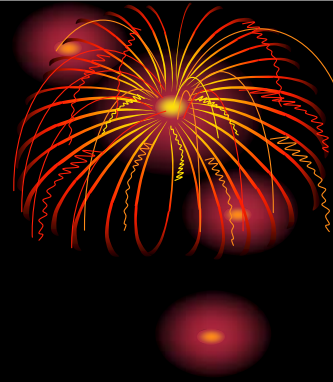
Most of these additives are totally ineffective-they are simply the wrong type of organism.

TRUTH

- *A homeowner does not need to add a stimulator or enhancer to a septic tank that is designed, operated, and maintained properly. Naturally occurring bacteria are already present in human feces.*

– Small Flows Quarterly, Winter 2002

- No known additives can reduce solids sufficiently to make pumping unnecessary.
- Household wastewater contains an abundant supply of microorganisms that provide for the proper functioning of your system.
- Additives can potentially plug the drainfield.



This causes more solids to go out into your leachfield, where they can possibly cause your leachfield to fail.

The only way to not have to pump your tank as frequently, then, is to not add as many solids to your system...

And that's the truth!

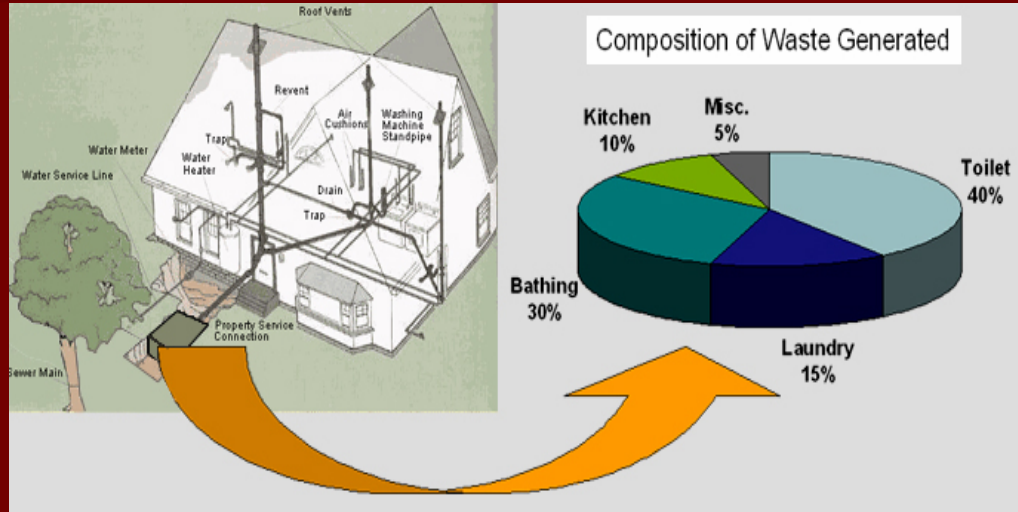
Design flows for single family dwellings

<i>Bedrooms</i>	<i>GPD per dwelling</i>
<i>2 or less</i>	<i>180</i>
<i>3</i>	<i>270</i>
<i>4</i>	<i>360</i>
<i>5</i>	<i>450</i>
<i>6</i>	<i>540</i>
<i>Each additional bedroom</i>	<i>90</i>
<i>Primitive disposal field (For each fixture, maximum of three)</i>	<i>25 (See Section 1000.2)</i>

MAINE SUBSURFACE WASTEWATER DISPOSAL RULES
10-144 CMR 241, 2005

The tank...

Water Budget-See Your Handout



Rule of Thumb is...

Don't put it down the drain if
there is another way to
dispose of it!



Have your tank pumped every 3 to 5 years



Not all solids can be broken down. Some examples are cig. Butts, kitty litter, coffee grounds, and sand. Some solids are actually dead microbes that have lived out their useful lives in your tank.

When your sludge layer builds up to 1/3 of your tank, its time to pump.

Do's and don'ts... Please

- DO: Know the location and design of your system.**
- DO: Have your tank pumped and inspected regularly.**
- DO: Spread out loads of laundry over several days & use liquid and phosphorus free detergents.**
- DO: Limit overall water usage & fix leaky faucets and toilets.**
- DO: Limit use of caustic household cleaners & chemicals (drain cleaners, oven cleaners, toilet bowl cleaners, chlorine bleaches).**
- DO: Divert storm water runoff away from your leach field.**
- DO: Plant shallow-rooted grasses, perennials or groundcovers over your leach field (or stabilize with permanent mulch cover).**

Please

DON'T: Dispose of cooking oils, grease, coffee grounds or eggshells down the drain.

DON'T: Flush non-biodegradable items (diapers, paper towels, feminine hygiene products, cigarette butts, kitty litter, sand, dirt etc.) down the toilet.

DON'T: Dispose of hazardous or toxic substances (paints, paint thinners, varnishes, pesticides, insecticides, degreasers) in your septic system.

DON'T: Use garbage disposals (unless your system is specifically designed for this purpose).

DON'T: Use additives of any kind (yeast, enzymes, root-killers, microbes, etc)

DON'T: Discharge water softener backwash into your septic.

DON'T: Drive or park on your system (unless it is specifically designed for this purpose).



Whether you are on land...or water...
your practices should remain the same



Because...it all has to go somewhere

Be consciencious of everything you are putting down your drain...no matter where you live.

And everytime you dive into a lake or ocean, or drink a glass of water, think about your septic system, your neighbors septic system and the systems of all those folks in poland springs, or wherever they bottle all of that drinking water, and remember...

We All Live Down Stream



We all live down stream!!

Please fill out your evaluation forms that are in your packets

Thanks!!

Funding for this project, in part, was provided by the U.S. Environmental Protection Agency under Section 319 of the Clean Water Act. Section 319 grants are administered by the Maine Department of Environmental Protection in partnership with EPA

