A Supervisor's Guide to our new Stormwater Regulations

Over the past year or more North Salem has been in negotiations with the New York State Department of Environmental Conservation (DEC) and the New York City Department of Environmental Protection (DEP) on stormwater regulations that will require the Towns in the NYS Watershed, of which we are one, to work on various projects to minimize the amount of **phosphorus** that makes its way into the streams, lakes and reservoirs. The focus of this work is because of new MS4 (Municipal Separate Storm Sewer System) regulations which direct us to limit the amount of runoff of phosphorus in our stormwater.

A "Municipal Separate Storm Sewer System" is a network of pipes and ditches which move water into a stream or lake. Why are the drainage systems we have built over the years causing the problem? Simply, they move stormwater rapidly from where it falls in the form of rain carrying with it a wide variety of runoff including phosphorus.

The element which limits the growth of seaweed and algae in our reservoirs, ponds and lakes is phosphorus

Phosphorus is one of the elements in the periodic table that many of us might remember from high school chemistry classes. In certain forms it is very important for living organisms and especially plants, including seaweeds and algae. Over time, vegetation on land build up soil; in lakes it causes eutrophication. Eutrophication is the process by which algae and seaweed die, sink to the bottom and decay, reducing the oxygen content and building up inch by inch until the water body fills in. As it happens in most bodies of water the one element that was not in sufficient quantities to allow seaweed and algae to grow in any significant amount is phosphorus. Humans have increased the speed of eutrophication of many of our lakes by adding extra nutriments from a variety of sources. [1]

The United States Environmental Protection Agency (EPA) has told us that a good phosphorous level in a body of water such as a lake or pond is about .025mg/liter. How much is that, you ask? Let's put it in layman's terms. Most of us know that a liter is just slightly more than a quart. What we may not know is that an *mg* or milligram is about a drop. So what we are taking about is 1/40th of a drop of

[1] This rapid eutrophication caused by us is called "Cultural Eutrophication". Google it!

phosphorus per quart or one drop of phosphorous per 10 gallons of water. Any more than that and seaweed and algae get too much of a good thing and start growing rapidly.

It is pretty easy to see what nutriments are good for plants by reading the N-P-K number off a bag of fertilizer that you might have. It might read 15-3-3 or 15% Nitrogen, 3% Phosphorus and 3% Potassium. The MS4 projects we looking at to rebuild drainage systems to limit phosphorus runoff are costing on average $55,000 for every one pound of phosphorus removed from stormwater. The phosphorus in one 30-pound bag of 15-3-3 fertilizer is slightly under a half pound, so once it gets into the water system the cost to remove it is about $25,000! This area of the country has plenty of phosphorus in the ground so you likely don't need extra for your lawn or garden. So what can we do? Stop using fertilizers with phosphorus. All companies; Scott, ACE and others now sell phosphorus-free fertilizers.

Estimated Sources of Phosphorus Loading to Peach Lake

Source	Total Phosphorus (lbs/yr)
Hay/Pasture	8.4
Forest	0.3
Wetlands	0.2
Developed Land (MS4)	23.9
Stream Bank	0.7
Septic Systems	188.1
Groundwater	64.4
TOTAL	**286.0**

*PEACH LAKE: From the report "Total Maximum Daily load of Phosphorus in Peach Lake" September 2009 The report is at url: **http://www.dec.ny.gov/docs/water_pdf/tmdlpeachlk09.pdf**. Estimates vary, but the sewage treatment system is expected to remove about around 200 pounds of phosphorus a year from the Lake. Groundwater which moves phosphorus from fertilizer as well as other nutriments from the property around the Lake is the second largest problem. Report by the Cadmus Group*

But phosphorus comes from several sources: soaps, human waste, animal waste, industrial waste and human disturbance of the land and its vegetation. As part of the MS4 regulations the Town has just passed a Septic Tank Law which goes into effect May of 2011. The law requires everyone to get their septic tanks pumped out every 5 years.

At the time of pump-out the septic hauler will inspect your system and notify the Westchester County Department of Health if it passed or is failing. If the system is failing, septic runoff containing nitrogen and phosphorus can be carried into waterways by rainfall and melting snow. Have your septic tank pumped at least once every five years.

Another very important thing that we all need to do is to stop using detergents with phosphorus. Phosphorus was placed in soaps to make things whiter. All laundry detergents sold in Westchester are phosphorus-free; however, you can still buy detergents containing phosphorus. Please don't! Some soaps are as high as 8% phosphorus or about a half pound in a gallon container. Just like in a bag of fertilizer, that much phosphorus is costing us about $25,000 to get out of the water once it gets in.

Buy laundry detergent that does not contain phosphorus.

As I mentioned above, our area of the country has phosphorus in the soil, so it is important that we make sure we limit soil erosion on our properties. The removal of natural vegetation for farming or building construction allows the soil to erode faster due to rain and melting snow. Any time the soil is disturbed it increases the likelihood that it could erode and enter our stormwater and contribute more phosphorus than would otherwise be normal. That is also the reason that putting drainage ditches and running them directly into the water bodies is <u>not a good idea</u>. Unfortunately, many of our drainage systems have been built that way. Many of our drainage systems run directly into streams and water bodies without any allowances for phosphorus or contaminant removal. Other practices such as detention basins will slow the water down and allow it to sink slowly back into the ground. This is a way of reducing the amount of phosphorus that would normally enter our lakes and streams.

What can you be doing to help our water quality? A call to action!

- Maintain your septic system and have it pumped every 5 years as required in the new legislation. If there is a problem fix it. Avoid using garbage disposals, which add excessive solids and grease to your septic systems and negatively impacts how well the system works.
- Manage lawn and garden fertilizer use. Buy phosphorus-free fertilizers only. If you are near a lake or if a heavy rain will wash the fertilizer off your lawn into a stream or lake do not use fertilizer. Although phosphorus is a limiting element, everything in fertilizer will get the seaweed and algae growing.
- Have your soil analyzed first to determine if you need fertilizer at all. Use phosphorus-free and slow release fertilizers only and never apply fertilizer before a heavy rain.
- Consider plantings that don't need much fertilizer.
- Plant a buffer strip of plants or shrubs between your lawn and any water body. This will absorb phosphorus before it can get to the water.
- Remove leaves from lakeside property in the fall as the leaves contain phosphorus. Please do not dispose of them in the water body.
- Make sure you are not using detergents with phosphates in them. Check the labels!

- Keep clear of wetlands and protect them. Wetland areas filter nutrients, including phosphorus.
- Do NOT feed the geese, ducks or swans. If you feed them they will return, leaving phosphorous-concentrated fecal matter from the plants they eat, on your lawn and beach. This will be washed back into the water.
- Direct downspouts and curtain drains into a dry well or open grassy area so the water can seep into the ground rather than run off, carrying nutrients with it. In the past the best practice was to connect them all into our drains, and the rain moved as fast as it could to the nearest body of water. See if you can get them to areas where the water can slowly sink into the ground
- Correct erosion problems immediately! Steep sloping banks and exposed soil need to be maintained properly to prevent erosion.

The Town of North Salem has been given, a five-year goal by the DEC to remove 19.2 kilograms of phosphorus from our water bodies. That's 42 pounds of phosphorus that we expect to cost us about $2,000,000 to remove. Some of the things that we are suggesting may seem simple and of little value but to meet the 5-year goal every family in Town would simply need to remove a third of an ounce of phosphorus that might run off your property over the next 5 years.

Let's see what we can do. If you want to learn more Google; MS4, Eutrophication, "phosphorus and lakes' as well as visiting this site for more detailed analysis of Peach Lake http://www.dec.ny.gov/docs/water_pdf/tmdlpeachlk09.pdf.

Sincerely,

Warren J Lucas
Supervisor
Town of North Salem
914-669-5110
wlucas@northsalemny.org