Mille Lacs Lake Watershed
Management Group

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Topic of the Month - October 2019

Following the Phosphorus in the Fall

How managing the leaves coming off your yard trees can help water quality in Minnesota lakes.

Fall is here and the leaves look spectacular once more. The bright reds, yellows and golds reflect off the water in a breath-taking display. You wish it could last forever, but the beautiful leaves will soon be gone as the cycle of seasons turn endlessly over. But what happens to those leaves then? Where do all the minerals go? How does it affect the lake? Specifically, can managing your fallen leaves actually be used to help correct the imbalances being caused currently in lakes?

One of the biggest threats to water quality in a lake is phosphorus levels. Excessive phosphorus is one of the main contributors to algae blooms. Which is in turn a major threat to the health of a lake. The amount of phosphorus in lake systems has only grown as the lakes have become more and more developed. Regulations against using phosphorus fertilizers within the shoreland zone have attempted to control this climb. This does nothing to help take out some of the large amounts of phosphorus already stored up in the natural systems feeding the lakes of Minnesota.

How does the autumn leaf fall effect my lake?

All spring and summer long trees pull phosphorus from their surroundings using it to grow. However, as the weather turns colder and the plants prepare for the long cold Minnesota winter, they drop their leaves. These leaves still contain large amounts of minerals including phosphorus. These minerals are leached out of the leaves and carried back into the lakes during the moist fall and winter. During this time the trees and other plants are inactive and can't absorb the phosphorus as it travels toward the lakes. Massive amounts of phosphorus can be in fallen tree leaves. As found in a two-year

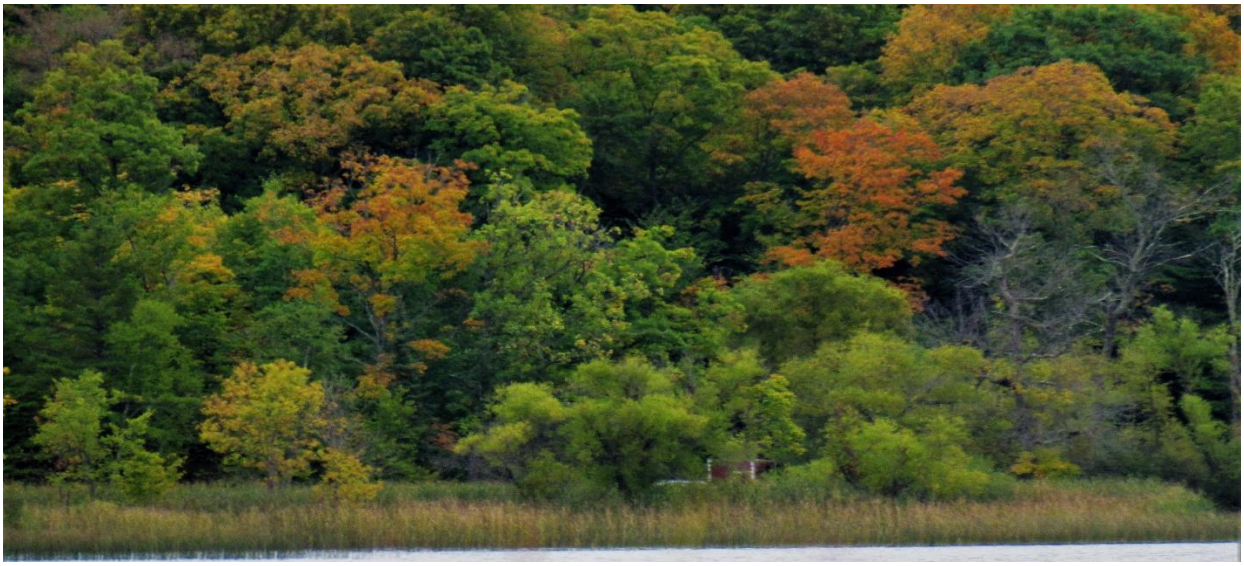
study from 2013-2015, “The timely removal of leaf litter can reduce harmful phosphorus concentrations in stormwater by over 80 percent in Madison, Wisconsin. ”[1]

What you can do?

Normally the fall of leaves in the autumn is a natural cycle that benefits the entire lake ecosystem. Unfortunately, the additional phosphorus brought in with increased development has caused the system to become unbalanced and the lakes are paying the price. One of the easiest ways of taking this excess phosphorus out of the process is to remove the leaves from shoreline immediately around the lake.

Removing the leaves from the area close to the lake is a great way to fix the runaway phosphorus cycle. If you shred or mulch the leaves it’s particularly important as those leaves break down much faster than whole leaves. “Cut up leaves released almost three times as much soluble Phosphorus as intact leaves.” [2] The area within the 0-100 feet adjacent to shoreline is especially vulnerable. This is where the water has little to no chance to be filtered in the winter before running into the lake.

So, take the leaves away from the lake and compost them on the far side of your parcel. You will help improve the water quality of the lake and ensure many more beautiful autumns for years to come.



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[1]William R. Selbig, Science of the Total Environment, pgs. 124-133, 2016
[2] William F. Cowen and G. Fred Lee, Environmental Science & Technology, pgs.853-854, 1973