LAKE LEADER

PROMOTING STEWARDSHIP OF POLK COUNTY'S NATURAL RESOURCES

EAST POLK
SOIL AND WATER
CONSERVATION DISTRICT

SPRING 2018

SPECIAL POINTS OF INTEREST:

- **The Effects of Phosphorus on Water Quality**
- **Plans for Lake Cameron**
- **Rain Barrel Workshops**

INSIDE THIS ISSUE:

The Facts of Phosphorus

As everyone knows, Minnesota is the land of 10,000 lakes and they are well loved by residents and recreationists alike. But something else that has caught lake lovers' attention over the last few decades — the negative effects of excess phosphorus in our lakes.

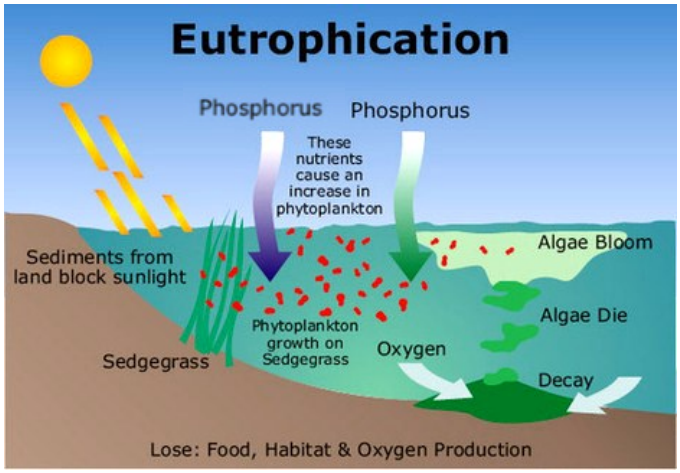
What Is Phosphorus?

Phosphorus is a naturally occurring element found in rain, plants/organic matter, and in the soil. Phosphorus is an essential nutrient required by plants to boost their growth and improves their health. Phosphorus is commonly added to lawns, as it give the grass a nice deep green appearance.

Phosphorus accelerates the growth of algae as well. Algae by definition are morphologically simple, chlorophyll-containing organisms that range from microscopic and unicellular (single-celled) to very large and multicellular. The algal body is relatively undifferentiated and there are no true roots or leaves. The more phosphorus available in the water the greater the mass of algae blooms. This decreases water clarity and has a trifold negative effect of the oxygen levels in the water. Research suggest that just one pound of phosphorus can feed the growth of 300 to 500 pounds of algae. With such a huge ratio it's important to prevent as much phosphorus as possible from entering our lakes. However algae isn't the only problem, water clarity, oxygen levels and recreation is also impacted.

How Does Phosphorus Affect Lakes?

When excess nutrients and minerals enter the water body or lake, a process called eutrophication occurs. Eutrophication is when a body of water becomes overly enriched with minerals and nutrients that cause excessive growth of plants and algae. When algae blooms cover large areas of the water surface, it blocks sunlight, without adequate sunlight to preform photosynthesis, aquatic plants must use more oxygen for respiration as a backup method to keep growing. This method will not be enough in the long term and the death and decomposition of aquatic plants is increased.

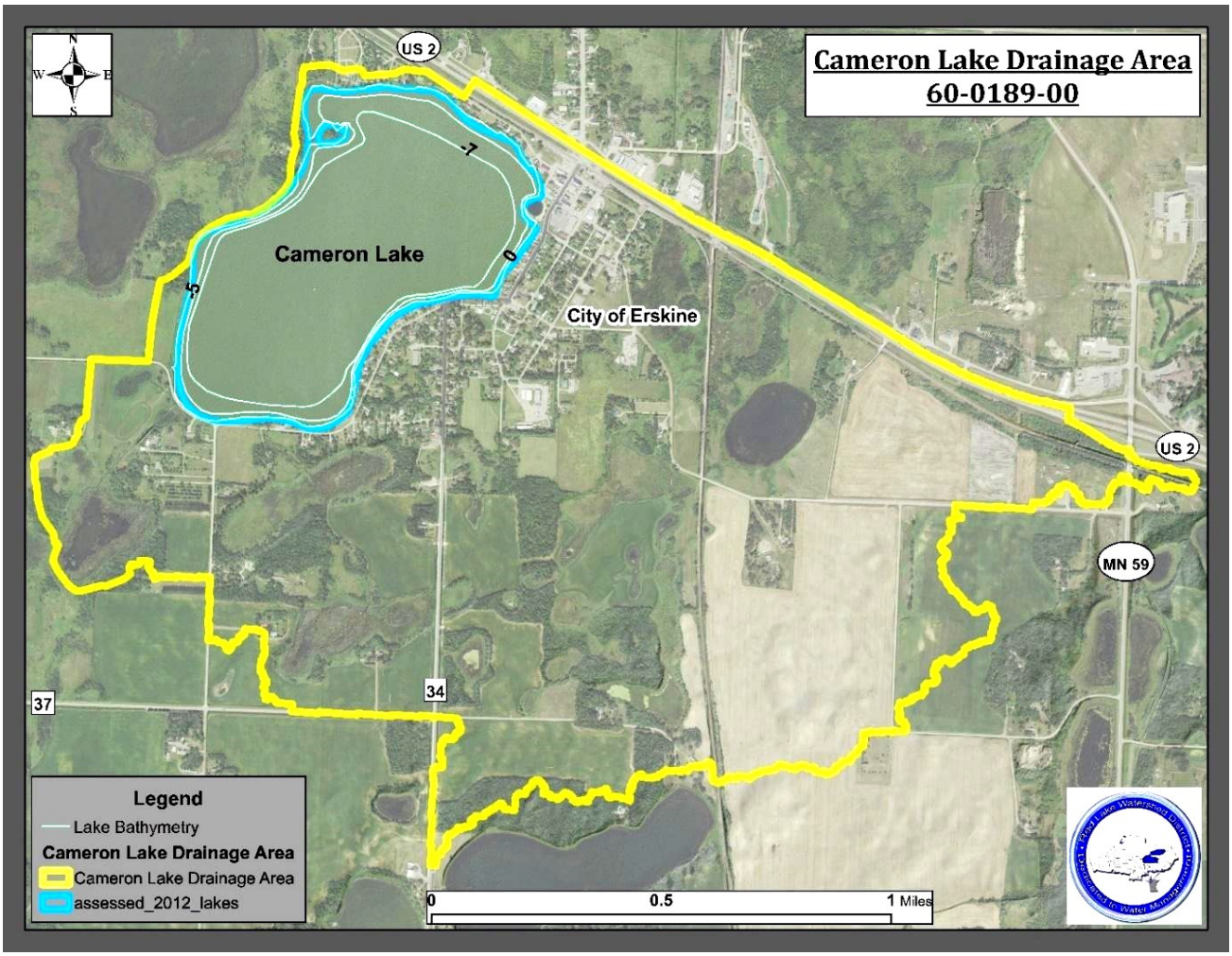


Microorganisms also use more oxygen as they break down the organic matter. Once the entire phosphorus supply has been exhausted the algae will also died back, causing even more oxygen for decomposition. If there is not enough oxygen the microorganisms will also die causing a musty odor and leaving behind partially decayed organic matter. This reduces recreational enjoyment of a lake.

Cameron Lake Will Be Targeted with Projects to Improve Water Quality

Cameron Lake is a small, shallow lake located within the city of Erskine in northwestern Minnesota. The lake is listed as impaired for aquatic recreation due to excess phosphorus, excess chlorophyll-a, and poor water clarity. Algal blooms can be severe in Cameron Lake. Because of the eutrophication problems, the recreational value of the lake (fishing, swimming, and boating) is low. The water quality within Cameron Lake deteriorated to the point that the public beach, located on the northeast shore, was separated from the rest of the lake with a dike and filled with city water.

A 1997 investigative study identified causes of the eutrophication (excess nutrients) problem within Cameron Lake. The lake is most likely experiencing internal nutrient loading from nutrient rich sediments that mix into the water column from the bottom of the lake. The sources of this sediment include historical discharge of sewage and creamery wastewater into the lake in addition to current stormwater runoff. There is little flushing of the nutrients out of the lake because the lake has minimal outflow relative to the inflow. The 1997 study monitored stormwater and natural inlets to the lake and found that stormwater outlets along 2nd Street and 3rd Street were contributing the most phosphorus to the lake. The East Polk SWCD and the Red Lake Watershed District are collaborating to collect more data from the lake, seek funding for projects, implement projects to reduce the amount of phosphorus that is entering the lake, and find a way to reduce the amount of phosphorus that is being mixed into the water column from the lake bottom.



The Faults of Phosphorus Cont.

All of this is happening in the warm season, when water naturally holds less oxygen. Fish and other aquatic organisms can also be affected by low oxygen levels. This effects is known as “fish kills”, when there is not enough oxygen left in the water for fish to “breath”. Fish kills can occur in any water body no matter how big, its the same incident as the “dead zone” in the Gulf of Mexico.

Where Does It Come From?

Reducing phosphorus in our lakes is imperative, but where all does it come from? Phosphorus is found in the soil and sediment from areas where erosion is occurring, and bacteria and nutrients from pet wastes and faulty septic systems. Ashes from fire pits, grass clippings, and leaves are also very high in phosphorus.

Sources more directly influenced by people are lawn fertilizers and boating at high speeds in shallow areas. This stirs up soil particles that are holding phosphorus at the bottom of the lake which causes the release of more phosphorus into the water. A 50-horsepower motor can stir up to 15 ft. of the water column. The wake cause by going too fast near shore also can cause bank erosion that leads to the same problem. Erosion is also more likely to happen where there is turf grass or no vegetation holding the soil in place.

Scotts Turf Builder Starter Fertilizer New Grass 1000 sq. ft. Granules 24-25-4(21701)

Minnesota’s Phosphorous Lawn Fertilizer Law states that fertilizers containing phosphorous cannot be used on lawns or turf in Minnesota unless you have a soil test or plant tissue test showing a need for phosphorous or that a new lawn is being established. When looking to buy fertilizer there are three number on the bag that indicate the nitrogen – phosphorus – potassium ratio. Always make sure that the middle number is zero, for example; 22-0-15. You need to be careful when selecting your fertilizer, “lawn starter” fertilizers contain high amounts of phosphorus (some will not show the ratio on the bag) and organic/natural fertilizers can contain phosphorus as well. Just because it is organic does not mean it won’t have negative affects on water quality.

How We Can Reduce The Amount Of Phosphorus Going Into Our Lakes?

We all need to do our part to take care of our lakes and there are many ways everyone can. Rake-up leaves and grass clippings in the lawn and away from the water. When buying and applying fertilizer check the rates carefully and don’t apply too much or too close to the water or on very steep slopes. Pick-up pet waste and dispose of properly. Keep bonfires away from the shoreline, clean out ashes regularly and don’t use too much water, try sand. Obey the no wake zones and reduce your boat speed wherever necessary.

For anyone interested in more preventative measures consider putting in a raingarden or restoring your shoreline to be more natural with native plantings. Raingardens will reduce runoff and filter water while shoreline restoration will do that as well as hold the soil in place due to the longer roots of native plants. Both also add great natural habitat and aesthetic benefits. If you would like to learn more about these projects please call our office or visit our website at 218-563-2777 & www.eastpolkswcd.org.

If we all work together we can enjoy our lakes for years to come.

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Rain Barrel Workshop!

A rain barrel is a great way to collect and store rainwater runoff from rooftops which reduces runoff and erosion, which in turn improves water quality. Homeowners with rain barrels use less municipal water which conserves water and lowers water bills. Rain barrel water can be used for watering the garden, irrigating the lawn and washing your car, however, it is not safe for drinking or cooking.

We will be doing a rain barrel workshop in McIntosh on Saturday, June 23rd at the Community Center from 10am-12pm. The address is 115 NW Broadway, McIntosh, MN. There are only 10 spots available so please call ahead of time to sign up! Cost for the workshop is $80, with 50% cost-share available for homeowners in the East Polk District. All parts needed to craft rain barrel will be included.

This is a great hands on project and provides opportunity to learn about water quality. Please consider where you might place your barrel at home in advance so you will have a better idea which side the attachments will need to be located. The barrels are 55 gallon food grade drums and are white. Feel free to decorate them at home if you wish.

Call Sarah at 218-563-2777 to sign up!