**Week 8- Goal 4-Reduce phosphorus and nitrogen loading to surface waters**

**Conservation Corner**

***Conservation Corner is a weekly article produced by the Forest County Land &Water Conservation Department. For more information contact Al Murray, Land&Water Resources Technician at 715-478-3893 or by e-mail at*** ***lcc@co.forest.wi.us******.***

**Forest County Land and Water Resource Management Plan (LWRMP) Goal 3**: Reduce phosphorus and nitrogen loading to surface waters

Why is reduction in phosphorus and nitrogen loading in surface waters a goal of the LWRMP?

Nitrogen and phosphorus are nutrients that are natural parts of aquatic ecosystems. Nitrogen is also the most abundant element in the air we breathe. Nitrogen and phosphorus support the growth of algae and aquatic plants, which provide food and habitat for fish, shellfish and smaller organisms that live in water.

When too much nitrogen and phosphorus enter the environment the air and water can become polluted. Increases in nitrogen and phosphorus in water can occur from a wide range of human activities and natural processes. Human activities include excessive use of fertilizers, detergents and release of improperly treated sewage waste. Natural processes may include slow release through natural soil depletion or increased release through ash deposition and leaching of ash from forest fires.

Nutrient pollution has impacted many streams, rivers, lakes, bays and coastal waters for the past several decades, resulting in serious environmental and human health issues, and impacting the economy. Natural [eutrophication](https://en.wikipedia.org/wiki/Eutrophication) is a process by which lakes gradually age and may take thousands of years to progress. Cultural or anthropogenic eutrophication, however increases the timing of this process by earlier introduction of phosphorus and nitrogen at unstainable levels. Both natural and anthropogenic eutrophication may results in excessive nitrogen and phosphorus in the water, which causes algae to grow faster than ecosystems can handle. Significant increases in algae harm water quality, food resources and habitats, and decrease the oxygen that fish and other aquatic life need to survive.

Large growths of algae are called algal blooms and they can severely reduce or eliminate oxygen in the water, leading to illnesses in fish and the death of large numbers of fish. Some algal blooms are harmful to humans because they produce elevated toxins and bacterial growth that can make people sick if they come into contact with polluted water, consume tainted fish or shellfish, or drink contaminated water.

In highly developed areas, human and agricultural impacts are often the main contributor to water quality reductions from phosphorus and nitrogen loading. Here in Forest County the department is concentrating on farmland assistance to reduce any runoff from farm area, storm water from construction sites and monitoring and inspecting sanitary systems to insure they properly treat sewage. This is an effort to reduce any potential anthropogenic eutrophication.

An additional item to note is that here in Forest County we also have a good number of lakes which have reduced water quality that results from natural eutrophication. This natural eutrophication likely increased from historic forest fires that occurred throughout time.. In any event, reduced water quality results in algae blooms reduces water quality and fish and wildlife habitat. Therefore, the LCC department is also working with lake groups on the possibility of reducing natural phosphorus and nitrogen deposits in lake sediment to reduce algae blooms and improve water quality for people and the fish and wildlife that depend on it.

The major items to take away from this article is that not all water quality reductions are human caused, natural deposition of naturally occurring nutrients and natural soil erosion have impacts also. We can reduce natural and human impacts and provide improvements in water quality by understanding underlying causes of reduced water quality in the ecosystem. Taking actions to improve water quality utilizing human capabilities is an important part of the equation.