

Information about Dinoflagellate Algae

This week a brown to reddish brown slick of algae appeared in the Waupaca Chain of Lakes. Lake residents responded to this with concern as they understandably reached the conclusion that some form of pollution had entered the Chain of Lakes. The Department of Natural Resources investigated this and found that the culprit is a harmless species of dinoflagellate algae. This single celled organism has two flagellae (whip-like structures) which enable them to move independently through the water column. Their mode of movement can best be described as a whirling motion through the water.

These organisms are important components of freshwater ecosystems because they photosynthesize sunlight and produce oxygen as primary producers. In addition, they can be utilized for food by other aquatic organisms including fish. If their numbers become too large they can cause low lake oxygen levels in the same manner as other algae. For example, when high density algae populations die their decaying bodies pull oxygen from the water to facilitate decomposition. The current population levels of dinoflagellates in the Waupaca Chain of Lakes are not large enough to lower lake oxygen levels to a point where problems could occur (fish kills, etc.).

The species of dinoflagellate algae identified in the Waupaca Chain of Lakes has been previously found in Wisconsin and is native to North America. The same species was found in Little Silver Lake (Waushara County) in 2005.

It is likely that this species of dinoflagellate algae is native to the Waupaca Chain of Lakes. In the past, it is probable that blooms were not large enough for people to notice. There are two likely causes of why this year is different.

1. Low lake levels: The recent drought has lowered lake levels to the point where boat traffic stirs up lake sediment. Dinoflagellate algae form cysts that can lay dormant in lake sediments until the correct environmental conditions are detected. These organisms need phosphorus and other nutrients to grow and reproduce. Low lake levels expose lake beds and shorelines to disturbance which directly leads to an increase in available nutrients. Hence, the conditions this year were perfect for this species of algae to live and thrive.
2. Nutrients could be excessive in the Waupaca Chain of Lakes due to failing septic systems and improper use of lawn fertilizers.

It is important to note that these organisms are not harmful to humans or animals so the main problem is that they can be a temporary visual nuisance to humans who enjoy boating, swimming and fishing. For the next month people recreating on the Waupaca Chain of Lakes should expect small algal blooms similar to what has been experienced in the last two weeks. When water temperatures decrease the algae will become dormant again and may or may not return next year depending on lake conditions.