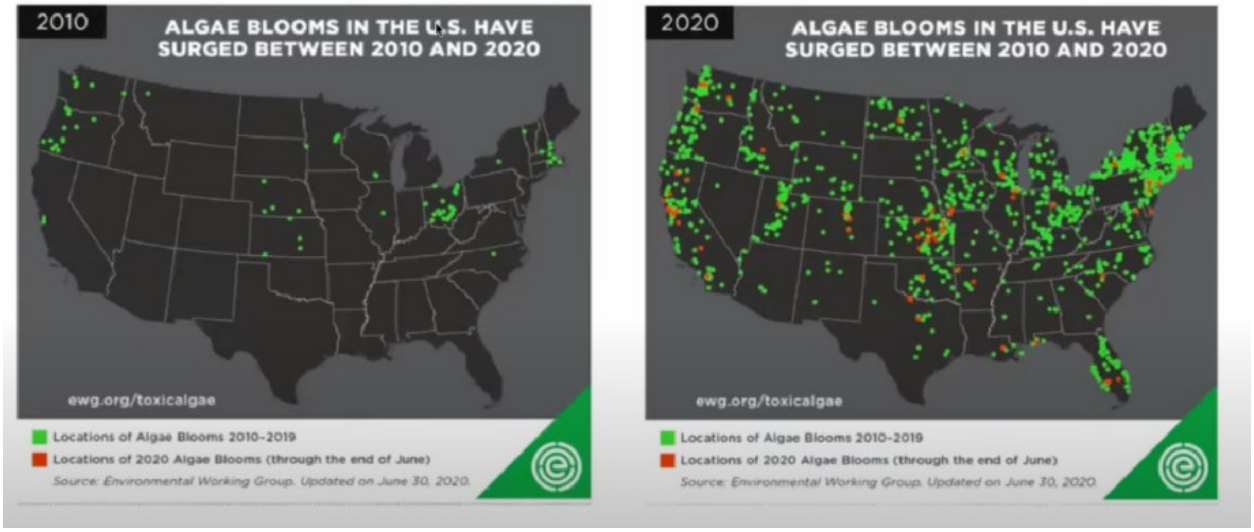
Algae blooms on our lakes

Algae blooms

In the Communication Brief #14-*Our Lake Conditions as of June 2022 and Expectations of Our Restoration Efforts* – we describe that algae blooms and other "scums" appear on some our lakes during the summer and fall. Each year it appears the situation is getting progressively worse. The accumulation of nutrients and other chemical runoff each year over the 25+ years of the lakes result in some level of algae blooms each year. But other factors are also at work which is why our situation is not unique to **Heritage Oaks**. In recent decades there has been a huge increase in algae blooms throughout North America and the whole world. For example, from satellite images we can show the surge in algae blooms in the U.S. between 2010 and 2020.



Why is this happening?

Extensive research has revealed algae blooms are due to the combination of many factors including nutrient enrichment, heat, light, carbon dioxide, water depth, water transparency, weather (El Nino, wind) - all of which are seasonally dependent. Algae are a natural and important part of any lake ecosystem and ingest nutrients and assimilate carbon dioxide to grow. Higher levels of carbon dioxide or nutrients can lead to a rapid growth of undesirable algae. If the conditions are right, within a few hours the blooms can double or more in size. Clearly this is not what we want at **Heritage Oaks**. Algae blooms can look ugly and smell awful and have detrimental effect on the water quality and habitat. Some produce chemicals that are toxic to animals and humans. What we want are clean and clear lakes that are free from toxins and smelly algae.

What are we doing to control the algae at Heritage Oaks?

Chemical treatments such as chelated copper will clear up the lake. But this is a poor option due to the toxicity to fish and other organisms that are food for fish, and the chemicals are not biodegradable. We are introducing aquatic plants in the *Littoral Zone* to alter our algae-dominated lakes to become more macrophyte-dominated (aquatic plants in the *Littoral Zone*). By changing the plant dominance, the aquatic plants will assimilate the nutrients outcompeting the algae. The result will be to minimize the frequency and number of algae blooms in our lakes and to also reduce the amount of herbicides necessary to maintain our lakes. In addition, the creation of the *Buffer Zone* reduces the influx of organic matter into the lake such as grass clippings, leaf fall, etc. Any organic matter that settles on the bottom of the lake slowly decomposes using up oxygen and producing carbon dioxide bubbles that float to the surface. These gas bubbles interact with the surface algae and promote blooms. Therefore, by simply reducing grass clippings and other organic from entering the lake we can eliminate one way of producing algae blooms and improve the water quality at the same time.