

Algae in Normandale Lake

Algae are small, often single-cell, aquatic organisms that live in our ponds, lakes, and streams. Algae are an important part of our aquatic systems, as they produce oxygen through photosynthesis and are food for other aquatic species. However, in abundance, algae can create nuisance conditions and even be harmful for the health of the water body. Algae get their nutrients directly from the water, so the amount of algae in a waterbody is dependent on the amount of nutrients, such as phosphorus, in the water.

There are two primary types of algae that we see in our lakes and streams: planktonic algae and filamentous algae. Planktonic algae (free floating) are microscopic plants that live throughout the water column. Planktonic algae reduce the clarity of the water and can cause the water to look murky and green. Filamentous algae are colonies of microscopic plants that link together to form threads or mesh-like filaments. Filamentous algae typically grow on the surface of hard objects, like the lake bottom or other aquatic plants, then break loose and form floating mats (see photo to the right). The floating mats can be unsightly and cause problems such as stagnancy in ponds and lakes. When mats of filamentous algae grow to the extent that they cover large areas of a pond or lake surface, they can be more problematic, limiting the exchange of oxygen between the water and the atmosphere and preventing photosynthesis from producing oxygen in the water.

The Nine Mile Creek Watershed District, in conjunction with the City of Bloomington, recently completed two management activities in Normandale Lake to improve the water quality of the lake. The management activities included (1) a whole lake drawdown during the winter of 2018/2019 to control the invasive aquatic plant curlyleaf pondweed, and (2) and a whole lake alum treatment intended to bind phosphorus in lake bottom sediments and reduce phosphorus release (internal loading) during the summer months. The main goal of these management activities is to reduce the amount of phosphorus in Normandale Lake, and thereby reduce the amount of algae in the lake.

With the two recent management activities, it can be expected that 2019 will be a transition year in terms of the amount of algae and overall water quality. We anticipate that the amount of native aquatic plants in the beginning of the 2019 summer season will be lower than normal. Aquatic plants compete directly with planktonic and filamentous algae by taking up nutrients (phosphorus) and by causing shading. With the potential for lower aquatic plant abundance in 2019, the filamentous and planktonic algae may thrive due to the reduced competition for nutrients and sunlight. The result may be increased filamentous algae and more variable phytoplankton populations. In following years, we anticipate the native plant population rebounding and the overall amount of algae reduced. While in the long-term we anticipate reduced algal blooms, it is important to recognize that there will likely always be moderate levels of algae in Normandale Lake, with Nine Mile Creek flowing through and serving as a daily source of phosphorus to the lake.



Mats of filamentous algae in Normandale Lake (June 2016).