2020 Spring Algae Bloom Event Report

Most harmful algae blooms occur during the hottest part of summer, but in 2020 an unusual early spring bloom of blue green algae occurred on several Minneapolis lakes (Cedar Lake, Lake of the Isles, Lake Nokomis). Algae are microscopic organisms that use the sun to make food. When algae grows very fast, it "blooms". A certain type of algae called blue green algae can make toxins that may make people or animals sick if they are ingested.

Plankton samples the Minneapolis Park and Recreation Board (MPRB) collected during winter showed that the blue green algae bloom at Cedar, Isles and Nokomis was present under the ice. The species of algae found in the winter and spring samples that caused the bloom grows well in cold water, unlike most blue green algae that prefer warm temperatures typically found in mid- to late-summer. In a normal year, ice would melt slowly, and the algae would die off before becoming established in the lake. Rapid ice-out and cooler than average spring temperatures in 2020 led to conditions that allowed the algae to continue growing into spring.

All three effected lakes had murky brown water and very low water clarity, but the bloom at Cedar Lake was severe enough to form a scum that was visible at the shoreline. The scum was a reddish- brown color and was initially investigated as a potential chemical spill; however, microscopic analysis by MPRB revealed that the scum was made up of strands of algae. Live samples of the algae were analyzed by MPRB's contract lab to confirm the species and identify whether it had the capability of producing toxins. The United States Geological Survey (USGS) was also requested to sample the algae in the lake.

MPRB made the decision to post a warning at each of the three lakes because the bloom was lasting into the swim season. As spring temperatures increased the potential that people would be exposed to a harmful algal bloom increased as well with the higher amount of recreation in the lake and park. MPRB also tested the water for the presence of the most common algae toxin, microcystin. Microcystin was present at Cedar and Nokomis but was below the EPA standard for body contact. Another algae toxin, anatoxin, was not present in the Cedar or Nokomis samples. Because algae toxins are not distributed evenly throughout the lake, and the bloom and scum were thick and persistent, posting the lakes was warranted.

By early June, lake water had lost its brown color and water clarity increased on all three effected lakes, and MPRB removed the warning signage. MPRB re-tested beaches and canoe launch sites for the presence of algae toxin and additionally tested Bde Maka Ska for the presence of toxin in case the toxin had moved downstream. In this round of testing, no toxin was detected at Cedar Lake, Lake of the Isles, Bde Maka Ska, or Lake Nokomis.

Carp Die Off

In May and June, park users and staff reported seeing dead carp on the shoreline of Bde Maka Ska, Lake of the Isles, and Cedar Lake and were concerned that the algae bloom caused fish to die. In some cases, blue green algae can cause fish die offs. In 2020 only carp were found dead.

Researchers at the University of Minnesota Aquatic Invasive Research Center and the Minnesota DNR concurred that the carp die-off was due to a virus called Carp Edema Virus, a relatively new virus for the State of Minnesota. More sensitive species like sunfish and crappies appeared healthy on their spawning beds.

Southwest Light Rail Transit (SWLRT) Construction

Park users and residents expressed concern that construction practices on the SWLRT site may have contributed to the algae bloom. MPRB requested that Minnehaha Creek Watershed District conduct an inspection of the site, and no significant issues were found during the inspection. The Metropolitan Council has more information on its environmental commitments and monitoring related to the SWLRT project on its Water Quality Management page: https://metrocouncil.org/Transportation/Projects/Light-Rail-Projects/Southwest-LRT/Construction/Water-Quality-Management.aspx?source=child

Fish and Health

Some park users and residents expressed concern that people were fishing in the lake and may potentially eat the fish, becoming exposed to algae toxin. Minnesota Department of Health guidance is that the guts of fish should be removed prior to eating to remove the majority of toxin from the fish. Fish caught during a severe algae bloom may taste musty. MDH guidance minimizing human exposure to potential harmful algae blooms is here: https://www.health.state.mn.us/diseases/hab/prevention.html#caution

Treatment Potential

During the algae bloom many residents requested a treatment to kill the algae. Treating blue green algae is not recommended because killing the algae causes all toxin contained in the bloom to be released at once, creating dangerous conditions. A long-term plan to reduce nutrient inputs to the lake is a slower but more successful path.

Planning Efforts

Cedar Lake Park is currently undergoing comprehensive masterplanning, and water quality is one part of this planning effort. All MPRB water quality information will be submitted to our ecological consultant so that recommendations on recommendations for improvement can be made. Planning will allow MPRB to prioritize work and create partnerships with local, state, or federal agencies that can cost share and assist with remediation and projects.