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District of Powers Lake
NEWSLETTER
Published for all those who use and love Powers Lake
January 2023

2022 Aquatic Plant Survey and Report

As you may know, the DPL contracts with Wisconsin Lakes & Ponds Resources to perform an annual survey, post treatment. The purpose of this annual visit is to document the populations of AIS {Aquatic Invasive Species} and the condition of the existing plant community to assess the need for future management. Curly leaf pondweed {CLP} and hybrid water milfoil {E/HWM} are the 2 species of AIS which are present in the lake.The application of treatment this year was on May 23rd and the post treatment survey was conducted on September 6th.

In addition to E/HWM, the observations of native plant species were recorded to create a list of those present within the lake. Late summer patterns were typical with plants noted to be green but slowing down growth to prepare for winter. Water levels were impacted by the dry conditions and were approximately 8-12" below normal. Composition of the plant community remained steady and of good diversity for similar lakes in the region. There was high diversity per location with rooted vegetation growing to a depth of 16+ feet. Chara occupied much of the water shallower than 6 ft. which is very common in hard water lakes within the region. The lake also was noted to have an increased population of clasping leaf pondweed in 2022. This is a broad-leaved native species that provided excellent fisheries habitat. It is noted in many lakes and populations tend to be cyclical with alternating years of high then low populations. This has been noted in the past on Powers Lake. Populations were highest along the northern shoreline in 10-14 feet of water and often mixed with moderately dense coontail. The lake shows a continued stable and healthy aquatic plant community. Similar to past years, the 2022 survey identified E/HWM growing at primarily low densities and scattered in very few locations of the lake. Targeted control of this and a mix of species causing navigational impacts showed significant reduction in density and frequency with no noticeable impact to non-targeted native species.

Map of the 2022 fall survey is available on our website:
www.districtofpowerslake.org

Powers Lake Water Levels April-December 2022

See Page 4 for Graph

2013-2022

See Page 4 for Graph

Lake Bottom Mysteries: Ten Great Things to Know About Your Lake in Winter

Your lake is a very different place when encased in ice for the winter, but it's still very much a living system with many mysteries to explore. Look closely and you can appreciate the processes by which the ice forms and ultimately

disappears with spring. Meanwhile, aquatic creatures change their habits to make it through until the water warms again. Here are ten things you may not know about the life of a frozen lake.

1. It all starts with steam. If you look out on your lake on a very cold October morning, you may see tendrils of steam rising from the water. The steam forms as warmer, moist air, just above the water, rises to meet the cold, drier air above. The moisture condenses into tiny droplets to form what's known as steam fog or water smoke. It's a sure sign that the water is cooling as time for ice formation approaches.

2. Ice requires cold stillness. Have you wondered why your lake won't freeze when the days and nights are windy? It's because wave action constantly fractures tiny ice crystals as they form, keeping solid ice from taking hold. In these conditions, the water can actually super cool, remaining as liquid below the freezing point of 32 degrees F. Then, along comes a very cold, windless night, and presto! A thin sheet of ice covers your lake.

3. Your winter lake has layers. Underneath the ice, lake water has an interesting temperature profile. The warmest, densest water, at about 40 degrees F, lies at the bottom. The coldest, least dense water, at 32 degrees F, lies right under the ice. The ice itself is the least dense of all, which is why it floats. Ice expands by about 10 percent from the liquid state of water

4. The lake starts winter rich in oxygen. Fish and other water creatures need a supply of oxygen to make it through the winter. Fortunately, beneath the new ice, the lake holds more oxygen than at any other time of year. That's because water can hold much more oxygen when it's cold than when it's warm. At 32 degrees F, water holds almost twice as much oxygen as it would at 80 degrees F.

5. Water creatures need less oxygen in winter. Fish, frogs, mollusks, crayfish, and other critters are cold-blooded. In cold water, their metabolism slows down, and they move about slowly, if at all. As a result, they use less energy, and so, less oxygen. They go into winter with the most abundant oxygen they will experience all year, at a time when they need that oxygen the least. It's a good scenario for survival.

6. There's no need to fear ice "booming." Lake ice makes wondrous, almost musical, sometimes eerie sounds as it expands and contracts with changes in temperature. If you're on the lake when the ice is booming, or even if you hear a crack sizzle right past you and off into the distance, there's no need to fear. Booming and cracking do not mean the ice is weakening. Beneath the new ice, the lake holds more oxygen than at any other time of year. That's because water can hold much more oxygen when it's cold than when it's warm.

7. Ice is really a collection of crystals. We think of ice as a monolithic, solid substance, akin to a block of glass. In reality, it consists of vertically oriented crystals in the shape of hexagons, tightly packed together. These crystals grow from the surface down as the lake is continuously exposed to cold air. This structure reveals itself as the ice deteriorates toward spring: The bonds between the crystals break down, and the crystals become individual "candles" very loosely held together. At this point, the ice is extremely weak and is hazardous to walk upon.

8. No one is certain why ice is slippery. Most of us learned in grade school that we can skate on ice because the pressure of the steel blades lowers the melting temperature at the surface and creates a film of water on which we glide. Science has now rejected that explanation in favor of two theories. One is that friction, not pressure, melts the ice. The other is that ice is inherently slippery – that a tiny liquid film remains on the ice surface even at temperatures far below freezing. Scientists disagree on which theory is correct.

9. Ice is tough – and fragile. There are various ways to assess the strength of ice. One is fracture toughness – how easily a crack spreads through a material. On this measure, ice is about one-tenth as tough as window glass. Then there's tensile strength – how much force a substance can take when

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stretched from both ends. The tensile strength of ice is about half that of bricks. Its flexural strength, which measures resistance to bending under a load, is roughly the same strength as a pine board across the grain. That's pretty tough! How much ice is safe for travel? The Wisconsin DNR's guidelines for new clear ice are as follows:

- Ice fishing (person on foot) = 4 inches
- Snowmobile = 5 inches
- Car or small pick-up = 8-12 inches
- Medium sized truck = 12-15inches
- Godzilla = 100+ inches Always, the watchword is caution. One saying has it: Thick and blue, tried and true. Soft or crispy, much too risky. If in doubt, don't go out.

10. Ice melts from the bottom up. As the weather warms, the snow melts off the ice surface. Then the sun's rays penetrate the ice and warm the water below, while also warming areas of open water near shore. Warm air above the ice contributes to the thaw, but it's the warming water below that really does the trick.

Ted J. Rulseh writes the newspaper column, "The Lake Where You Live." An advocate for lake improvement and protection, he lives in the lake-rich region of northern Wisconsin. This article is adapted and excerpted from his book, A Lakeside Companion. It is printed by permission of the University of Wisconsin Press. Lake Tides 46 {1}.

DISTRICT OF POWERS LAKE MISSION STATEMENT

Within the scope of the powers vested in it under Chapter 33 and in furtherance of the Public Trust Doctrine of Wisconsin, the mission of the District of Powers Lake is:

To support, protect, preserve and enhance the native ecosystem of the watershed, shoreline, and waters of Powers Lake as a natural resource for generations to come;

To be responsive to the interests and concerns of the district residents and the public; and

To proactively advocate when faced with potential damage to Powers Lake's environmental values, wildlife, natural beauty, peacefulness, safety and/or recreational value.

Website Signup

If you have not already done so, please visit our website and sign up for notifications of lake events such as E. coli advisory/closure at the Knolls Beach or Slow No Wake.
www.districtofpowerslake.com

Quarterly Meeting

The next quarterly meeting will be held on Friday, Janurary 6th, 2023 at 5 p.m. at the Randall town Hall, 35430 Bassett Road, Bassett, WI. This meeting and others are open to the public.

Hey and Associates, Inc.
Engineering, Ecology and Landscape Architecture

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April-December
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