

State of the Lake 2023

Published Spring 2024 by the Friends of Lake Wingra

Since its founding in 1998, the Friends of Lake Wingra has been dedicated to improving the health and overall quality of our lake. “Our lake”, as always, includes everyone who experiences Lake Wingra. Part of our mission is to inform the community of how the lake is faring.

This State of the Lake Report seeks to provide a brief overview of important measures of our lake’s health. We’re certainly pleased to see sustained gains in water clarity and phosphorous levels, while the increasing concentration of chloride is a great concern. We hope you find the report informative, and we welcome your thoughts and feedback.

How to contact us:

We want to hear from you! Have comments or questions about Lake Wingra? Connect with us at info@lakewingra.org or join us at our monthly board meetings (second Wednesdays at 7:00pm).

Actions you can take to protect the lake!

Follow us on Facebook or Instagram: @friendsoflakewingra

Sign up for our e-newsletter at www.lakewingra.org/newsletters to get the latest news, learn about upcoming events, and get updates on ways you can get involved.

Use the UW Arboretum’s Stormwater Outreach Calendar to plan actions with your friends, family and neighbors that improve Lake Wingra’s water quality: www.bit.ly/lake-wingra-calendar.

Volunteer: If you love our lake and would like to join our efforts to promote and improve it, please don’t hesitate to reach out to us at info@lakewingra.org.

Donate: Click the “Donate” tab on our website at LakeWingra.org. Checks are always welcome (no fees!) and can be sent to: Friends of Lake Wingra, PO Box 45071, Madison, WI 53744-5071.

About Lake Wingra

Our beautiful Lake Wingra is a eutrophic *shallow lowland* lake. Its shallowness, reaching a maximum depth of only 14 feet, is one reason why the lake is highly productive. A “eutrophic” lake has higher concentrations of nutrients and high aquatic plant and algae growth, feeding a vibrant food web of insects, amphibians, fish, mammals, and birds. Warmwater fish are abundant in the lake, including panfish, muskie and smallmouth bass.

While agricultural runoff and soil erosion had a major impact on the lake’s health in the mid-to-late 1800s, today Lake Wingra has an entirely urban watershed. Our lake’s health issues are connected to the design, development and management of the built and natural spaces in the watershed. While Lake Wingra was once almost entirely spring fed by groundwater, today much of the lake’s water comes from overland flow, stormwater inputs, and springs. The number of springs that flow into Lake Wingra has been decreasing, and the remaining springs have become smaller since the European-American settlement in the 1800s.

Phosphorus

Phosphorus is a nutrient essential for plants and animals, but too much of it in our waters can cause heightened algae growth, degrade water quality and deplete oxygen levels.

Since the carp removal in March 2008, **Lake Wingra has generally had “good” to “excellent” summer total phosphorus concentrations** based on the Wisconsin Department of Natural Resources water quality classifications. Before the carp removal from 1996-2007, summer median concentrations were 0.056 mg/L, whereas from 2008-2023 the median was 0.035 mg/L. **In 2023, the total phosphorus median reading was “good” (and almost “excellent”) at 0.031 mg/L.**

With lower carp biomass after the removal, spikes in phosphorus after 2008 align with years of high rainfall volume and intensity, as rainfall funnels phosphorus from watershed to lakes.

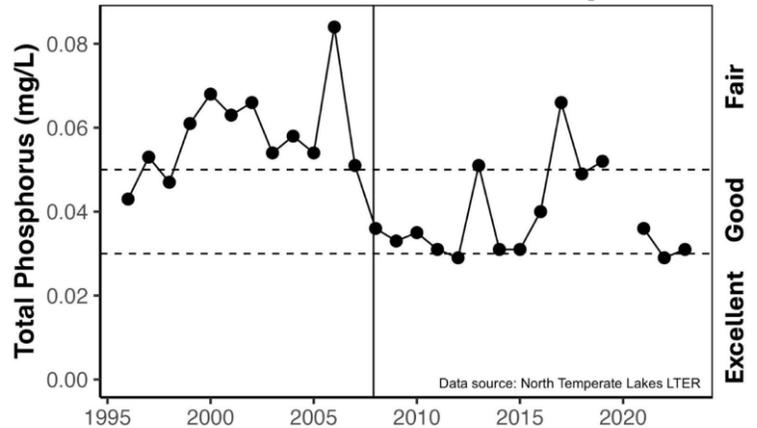
Water Clarity

Lake Wingra continues to see improved water clarity since 2008, following the removal of common carp. Carp, an introduced fish species, is known for dramatically altering aquatic ecosystems by stirring up lake bottom sediment.

We measure water clarity by lowering a black and white Secchi disk at the deepest point in the lake. When the disk can no longer be seen, we record that depth as the water clarity. All lakes’ water clarity naturally fluctuates from year to year. Lake Wingra’s median summer water clarity before the carp removal from 1997-2007 was 2 ft; for the 15 years since carp removal, median summer clarity is 4.2 ft, a major improvement for a shallow lake. **This past summer saw an increase in Lake Wingra’s water clarity, which ranged from 3.3 ft to 6.2 ft (5.2 ft median).**

Water clarity is directly linked to nutrients, such as phosphorus, and sediment delivery into the lake. Since we had a dry spring and summer with less rainfall volume and intensity, Lake Wingra’s water clarity increased. Clearer waters allow sunlight to reach the bottom of the lake and increase the growth of aquatic plants, called “macrophytes”. These plants provide important food and habitat for aquatic life in the lake. Clearer waters also improve the ability of many fish species to search for food, and of course clearer waters are generally more enjoyable to swim in!

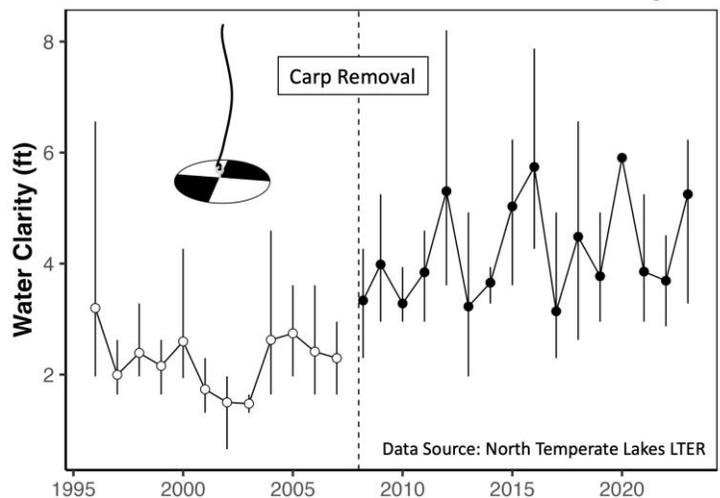
Summer Median Total Phosphorus



Solid line represents the March 2008 carp removal. Water clarity categories based on WI Department of Natural Resources criteria for shallow lakes. Data not available for 2020.

**Help keep algae down, & the water clear
In the fall, (and year-round),
keep leaves out of the streets**

Summer Median Water Clarity

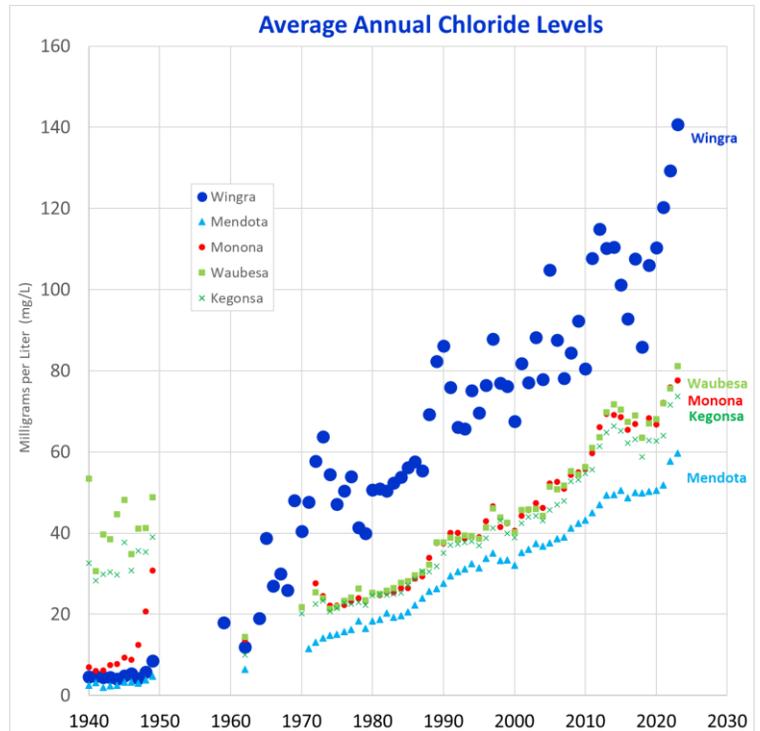


Dashed line represents the carp removal in March 2008. Circles are the median and the range is the minimum to maximum water clarity.

Chloride (salt)

Chloride levels have been generally climbing since measurements were first performed for the Yahara chain of lakes in 1940. **The last three years, Wingra’s chloride levels have exceeded 120 milligrams per liter (~1/10 teaspoon per gallon).** The EPA recommends drinking water chloride levels remain below 20 mg/L; above 250 mg/L is considered contaminated. While impacts vary, these high levels of chloride are doubtless affecting aquatic life in the lake, and vegetation surrounding it.

Particularly disturbing is the fact that these rising levels have coincided with City of Madison road salt usage *dropping* by some 40% since 2015. Lower rainfall in recent years has contributed to rising chloride as there is less water to “flush” the lake. Additionally, **Wingra’s chloride levels are nearly double those of the area lakes primarily because of its shallower depth** (average 9 feet, versus 42 feet for Mendota and 16-24 feet for the other major lakes).



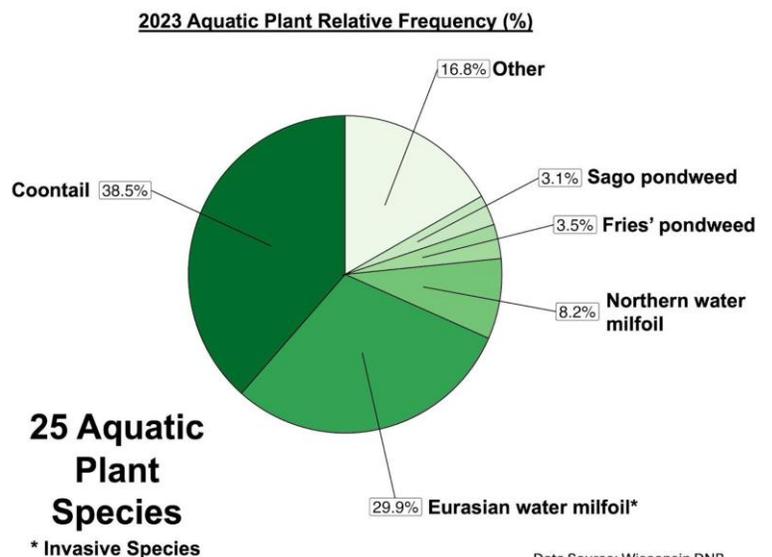
Help reduce salt, & preserve biodiversity

- After the snowstorms,
- Always **shovel**
 - Use **sand** as needed
 - Only use salt if must, & as little as possible

Aquatic Plants

Recent aquatic plant surveys completed in the summer of 2023 by Wisconsin Department of Natural Resources (DNR) biologists show that the dominant plant species in the lake are native Coontail (39%) and invasive Eurasian water milfoil (30%). Lake Wingra has **25 species** of aquatic plants. **Compared to the other Yahara chain lakes, Lake Wingra has the highest species richness** (number of different species of aquatic plants)!

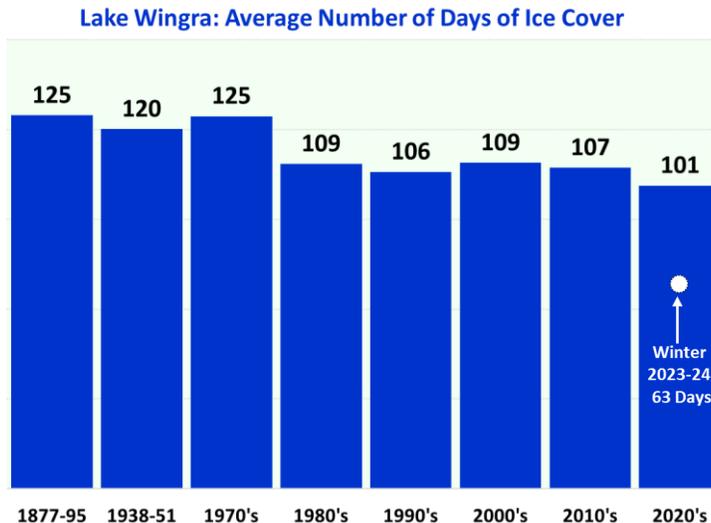
Protecting our diverse aquatic plant community by preventing the introduction and spread of new aquatic invasive species will be important to ensure a healthy aquatic ecosystem.



Ice on – Ice off

Ice cover has important ecological impacts for Lake Wingra. Ice regulates a lake’s water temperature, water levels, dissolved oxygen levels, protects fish habitat over the winter, and more. Volunteers monitor Lake Wingra’s ice-on and ice-off dates to track long-term trends. Annual variation is natural, but the long-term trend for all of Madison’s lakes is a shorter ice cover season.

This past winter, Lake Wingra had 63 days of ice cover, the shortest on record, with ice-off occurring on February 28, 2024. The chart here shows the average number of days of ice cover by decade.



History Corner

“The Pacification of Lake Wingra”

In June 1967, the Capital Times published a letter from William R Jordan III, a UW graduate biology student, calling for motorboats to be prohibited from Lake Wingra. “Let Mendota and Monona be the racetracks and leave the little carp pond to those who would paddle, row or sail,” he wrote. It is hard to imagine today that our lake once was used by water skiers content to roam in the much smaller confines of Lake Wingra, oblivious to the roars of their engines, the stirring of the sediment below, the damage to the vegetation lining the shore, and the trails of oil left behind. Jordan’s letter motivated James Devine, the 13th Ward’s alderman, to seek a water-skiing ban on the lake.

The following June, Jordan pursued the matter in more earnest. His letter to the State Journal’s Outdoor Writer Bill Stokes prompted an article calling for an outright ban. The other four major lakes were clearly more suitable for motorboats, Jordan argued. “It was insufferable and unnecessary that civilization be everywhere accompanied by noise.... The lakes are valuable to us not as facilities to make our life easy, but as resources - to make it rich.” Over the next two months Jordan gathered over 2,000 signatures supporting his cause. He also surveyed boaters over several weeks, finding of the more than one hundred boats, a quarter had motors, half of which were used to pull water skiers.

Opposing him was Motors For Wingra who collected 500 signatures of their own. The “youth of Madison have been pushed about enough” they argued, fearing a ban would put “the kids off the lake and on the streets.” Both sides faced off before the City Council’s “Committee of the Whole” on Tuesday night, August 20, 1968, with Jordan’s outright ban passing 16-3. Two nights later the Council rendered its final verdict, with a ban favored by a narrower margin of 11-8. It was not enough. A city ordinance change required 12 votes, a majority of the 22 council members; three members were absent, including one Paul Soglin. A small crowd of teenagers hailed the result announced after midnight by Mayor Festge.

Three weeks later a compromise ban *did* pass. Motorboats were banned on weekends and holidays; for weekdays they were only permitted up to a speed of 6 mph, a comfortable jogger’s pace. 46 years later that restriction remains. Bill Jordan, on behalf of the Friends of Lake Wingra, and all the friends of Lake Wingra, and all the future friends to come, thank you for your vision and passion that have so helped render our lake a peaceful oasis for all to enjoy.

And Happy 80th Birthday, Bill!