

Minneapolis Park & Recreation Board

2023 Aquatic Invasive Species Inspection Report

12-20-2023

Boat Launch Hours for 2023

The 2023 season ran from May 1st through December 1st. While launches at Bde Maka Ska, Lake Harriet, and Lake Nokomis were open and staffed with a Minneapolis Park and Recreation Board (MPRB) DNR-trained inspector every day of the week, the dates and times differed by site.

Launch hours for Lake Nokomis and Lake Harriet were:

May 1st – May 12th: 6am – 8pm*
May 13th – September 4th: 6am – 10pm
September 5th - October 9th: 6am – 9pm
October 10th - November 5th, Inspector on-call hours: 7am – 8pm**
November 6th - December 1st, Inspector on-call hours: 8am – 6pm**

The launch at Bde Maka Ska was undergoing construction and reopened after construction was completed on July 7th. The hours were:

May 1st – May 12th: 6am – 8pm*
May 13th – May 14th: 6am – 10pm
July 7th - September 4th: 6am – 10pm
September 5th - October 9th: 6am – 9pm
October 10th - November 5th, Inspector on-call hours: 7am – 8pm**
November 6th - December 1st, Inspector on-call hours: 8am – 6pm**

*Normal boat launch hours were reduced by two hours in the evening due to staffing shortages.

**During on-call inspection hours from October 10th through December 1st a phone number was posted at the launches and listed on the MPRB [website](#) instructing boaters to call for an inspection. Boat launches were locked during non-staffed hours and on-call hours. The launches at Lake Harriet and Lake Nokomis were open through December 1st, 2023.

Number of Inspections and Customer Service Interactions

In 2023, MPRB watercraft inspectors conducted 6,155 watercraft, dock, and lift inspections. This was an increase from 2022 but a marked decline from the increased boating activity seen during the pandemic. The number of inspections from 2023 is similar to pre-pandemic levels. The Bde Maka Ska launch was closed for construction for approximately 25% of the season, from May 15th through July 6th, reducing the number of inspections conducted. The Bde Maka Ska pavilion was opened to the public on July 7th and access to the launch was restored. No further closures are expected in 2024.

A professional grant agreement between MPRB and Hennepin County was renewed in 2023, providing \$40,000 per year through 2025 to support expanded water access. Hennepin County's grant reimbursement accounted for 28.5% of wages for operating hours in 2023. This funding accounts for 2,446 hours of

staffing at the boat launches and 1,752 inspections. Funding from Hennepin County ensured we were able to provide satisfactory access to Minneapolis Lakes, at a level consistent with previous season.

In addition to educating the boating community, watercraft inspectors were trained to provide customer service to park patrons. All inspectors were required to read an online forum called Boat Inspector News (BIN) at the beginning of each shift to learn about local events, AIS in the news, weather updates, and parkway closures. This ensured that the inspectors were equipped to answer a wide variety of questions from park patrons. Although the Bde Maka Ska boat launch was closed and unstaffed for approximately 25% of the season, watercraft inspectors still made contact with 13,112 park patrons in 2023. Lake Harriet had the most interactions at 5,440, followed by Bde Maka Ska at 3,884 interactions, and Nokomis at 3,788 interactions.

Timing of Inspections

As in previous years, 2023 boat launch traffic generally reflected weather patterns, scheduled events, and holidays. Noticeable upticks in inspection numbers were observed on weekends preceding federal holidays and the weekend before buoyed sailboats needed to be removed in October. Launch use fell dramatically in October after sailboats were required to be taken off their buoys and the boat launch docks were removed.

In 2023, Sunday was the busiest day of the week for inspections (1,324 inspections; 22% of total); this contrasted with the previous five seasons where Saturday was the busiest day. The busiest hour of day was 3:00-4:00 PM (504 inspections; 8% of total). Weekday mornings and weekend evenings tended to be the slowest periods for inspections. As in previous years, weekday use patterns differed from weekend use patterns. Early boats arriving at 6:00 AM were more common on weekends than weekdays. Weekdays had a pronounced increase in inspections when people generally leave work between 2:00 and 5:00 PM. Weekends, on the other hand, had a more pronounced increase around the lunch hour and early afternoon. Typically, fewer inspections occurred after 5:00 PM on Saturdays and Sundays compared to weekdays.

The most inspections occurred in the month of August at Bde Maka Ska, with 397 inspections. The other two lakes had their busiest month in June with Harriet having 491 inspections and Lake Nokomis having 604 inspections. The Bde Maka Ska launch was closed for the entire month of June, which may have driven up traffic at the other lakes.

Lake Harriet was the most popular lake from September through the end of the season. This trend has been observed in previous years as well and is likely attributable to Lake Harriet's healthy muskellunge (muskie) fishery. The Minnesota Department of Natural Resources (DNR) regularly stocks Lake Harriet with true muskies (*Esox masquinongy*) and Lake Nokomis with hybrid tiger muskies (*Esox masquinongy* X *Esox lucius*). According to local anglers, the Lake Nokomis tiger muskies tend to be active in the spring months, while the Lake Harriet muskies tend to be active in the fall months.

The top five busiest days of the season include: July 23rd (Sunday; 98 inspections); September 30th (Saturday; 96 inspections), June 17th (Saturday; 92 inspections), August 20th (Sunday; 84 inspections), and October 8th (Sunday; the day before sailboats needed to be removed from buoys; 82 inspections). In previous years, Independence Day (4th of July) was one of the busiest inspection days of the year. Independence Day fell on a Tuesday in 2023 and while a total of 40 inspections occurred on the holiday, the weekend before the holiday had some of our highest levels of boating activity for the season. Our busiest holidays this season were Memorial Day (66 inspections), Labor Day (54 inspections), Indigenous Peoples'

Day (47 inspections) Juneteenth (46 inspections), and Independence Day (40 inspections). No inspections were conducted on Veterans Day or Thanksgiving Day.

Fall boat launch hours and the implementation of the seasonal on-call program started October 10th. During the seasonal on-call program a phone number was posted at the boat launches for boaters to call for inspection. The number of inspectors working at any given time decreased from three during the summer to two during the on-call season. September and October of 2023 had 957 and 588 inspections, respectively, which was similar to the 2013-2022 median. After an initial period of colder temperatures during the fall, unseasonably warm temperatures occurred in November leading to a total of 140 inspections performed, which was higher than the 2013-2022 median.

When inspectors were not performing inspections during the on-call program, they helped complete projects for MPRB Environmental Management staff in the office. For example, inspectors assisted to prepare paper water quality data records for digitizing, they helped make a map of angler behavior, updated the common customer service questions document, and performed various other duties.

Types of Watercraft Inspected

The majority of watercraft inspected in 2023 were categorized as fishing boat (38%), canoe/kayak/or similar (33%), or sailboat (22%), followed by other types of watercraft (pontoons, jon boats, etc.; 8%). While there was an initial insurgence of watercraft categorized as canoe/kayak/or similar launching during the pandemic, those numbers have leveled off over the previous two seasons; however, they are still significantly higher than pre-pandemic levels.

Hundreds of sailboats are buoyed on the lakes all summer, commonly only being inspected at the boat launches once when they enter the lake in the spring and a second time when they exit the lake in the fall. Consequently, there is more sailboat usage on the lakes than shows up in the inspection survey data. This summary only reflects inspections at boat launches, not the percentage of boats actively being used on the water at any given time. The data collected for the AIS program is not a measurement of sailing use at MPRB lakes.

Violations

According to Minnesota state law, owners of watercraft and water-related equipment are not allowed to transport aquatic plants, prohibited aquatic animals, or lake water between waterbodies, nor are they allowed to travel with their drain plugs in place. Inspectors are required to log any boats in violation with these laws during inspections. Inspectors require removal of these items before allowing a boat to launch. If the items cannot be removed by hand, requiring a pressure washer or other specialized equipment, the inspectors give the boater a DNR one-way authorization permit and ask the boaters to decontaminate their watercraft offsite before they attempt to launch again.

In total, plants, animals, mud or water were found on 82 entering watercraft and 646 exiting watercraft in 2023. The number of instances that these items were found on exiting watercraft is likely higher than the number of times they were found on entering watercraft because inspectors may have started their inspection of exiting boats before the owner had time to completely clean off their boat. It is also common for boats and trailers to pick up Eurasian watermilfoil and other plants when leaving the lake.

Of the 82 entering watercraft that were in violation of AIS laws, aquatic plants accounted for 87% of incoming AIS violations. Mud accounted for 9% and water and snails each accounted for just over 1%.

These discoveries highlight the value of the program, as plants, animals, mud, and water are all capable of contributing to new AIS infestations in the Minneapolis lakes.

MPRB watercraft inspectors logged two zebra mussel violations in 2023. On two separate occasions boaters arrived at the Minneapolis lakes with zebra mussels present on their boat or trailer. One violation occurred on a fishing boat at Lake Harriet, and one occurred on a sailboat at Bde Maka Ska.

The number of zebra mussel violations in previous years has ranged from zero in 2020 to 18 in 2014. Zebra mussel violations have occurred 85 times in the history of the program. Of those 85 violations, 38 were at Lake Harriet, 26 were at Lake Nokomis, and 21 were at Bde Maka Ska.

The zebra mussel violation rate from 2013-2023 is not evenly distributed among watercraft types. For example, sailboats have accounted for 21% of the total inspections since 2013 but have accounted for 48% of the total zebra mussel violations (40 of 85). Thus, inspectors are finding a disproportionately high number of zebra mussel violations on sailboats compared to other boat types. MPRB staff continue to work with local sailing organizations to spread awareness about zebra mussels and other AIS. Canoes and kayaks account for 32% of the inspections performed since 2013 and only account for 2% of the zebra mussel violations. Fishing boats account for 41% of the inspections since 2013 and 52% of the zebra mussel violations.

It is illegal to transport a watercraft between waterbodies while the drain plug is in place. One of the first steps during a watercraft inspection involves the inspector recording whether or not the watercraft's drain plug(s) are in place. If the drain plug happens to be in at the time of an incoming inspection, the inspector asks the boater if the drain plug was in or out when they arrived at the lake (because the boater could have put the drain plug in before the inspection started). This data is recorded in the inspection survey.

According to the survey data, 3,172 entering inspections were conducted in 2023. At the time those inspections were conducted, over 99% of boaters had their drain plugs out and only 35 (0.57%) had their drain plugs in. When considering drain plug compliance rates, it is important to acknowledge how they are influenced by watercraft that do not have drain plugs (kayaks, paddleboards, canoes, some sailboats, etc.). For those types of boats, the electronic survey instructs the inspectors to choose "Drain plug is out". There is not an option in the survey to select "watercraft does not have a drain plug". This applies to a large proportion of the boats that were inspected in Minneapolis in 2023. To address this bias, we can limit the data to just entering fishing boats. Of the 1183 inspections were performed in 2023 only 18, or 1.52% had their drain plugs in when arriving to the launch.

Last Waterbody Visited

During a watercraft inspection, boaters are asked which waterbody their watercraft was most recently in. The answers that boaters provide give insight into how AIS move around Minnesota. According to the 2023 data, 1,625 boaters, who together account for 26% of the total inspections, reported that they had previously been at a Minneapolis lake. While some boaters may not have been entirely truthful and provided this answer to avoid scrutiny, it is clear that many boaters remain in the Minneapolis area throughout the entire season. Beyond Minneapolis lakes, some of the most frequent previous waterbodies include: Lake Minnetonka (96 boaters), Mississippi River (65 boaters), St. Croix River (33 boaters), White Bear Lake (30 boaters), Mille Lacs Lake (18 boaters), and Medicine Lake (17 boaters). Boaters came in lesser quantities

from lakes all over the state, as well as from 78 boaters that came from 10 different states and 5 boaters that came from Canada.

The last waterbody data was also filtered for sailboat inspections to understand which waterbodies are most popular with sailboat owners. After Minneapolis lakes, the most common waterbodies for sailboats included: Lake Minnetonka (16 boaters), White Bear Lake (8 boaters), St. Croix River (4 boaters), Mille Lacs Lake (3 boaters), and Lake Superior (3 boaters).

Threat of New AIS

The last waterbody data can also be used to assess the risk of new AIS being introduced to MPRB waterbodies. Three AIS species of particular concern are zebra mussels, starry stonewort (*Nitellopsis obtusa*), and spiny water flea (*Bythotrephes longimanus*).

In 2023, MPRB staff performed inspections on 408 watercraft that had previously been in zebra mussel-infested waterbodies, 91 watercraft that had previously been in starry stonewort-infested waterbodies and 32 watercraft that has previously been in spiny water flea-infested waterbodies.

Zebra mussels are an invasive mollusk that are found in more than 500 lakes in Minnesota. Zebra mussels impact ecosystems in several ways, including filtering algae that native species need to survive and outcompeting native mussels. Over 10 zebra mussel infested lakes are in Hennepin County, posing large threat to Minneapolis Lakes. In 2023, MPRB staff performed inspections on 408 watercraft that had previously been in zebra mussel-infested waterbodies, excluding Bde Maka Ska, Lake Harriet, and Lake Nokomis.

Starry stonewort is an invasive macro-algae that is found in more than 25 lakes in Minnesota. Starry stonewort has the potential to grow in dense beds that can outcompete native vegetation and significantly deter recreational activities like boating and swimming. The closest that starry stonewort is currently found to Minneapolis is in Medicine Lake near Plymouth, MN. Starry stonewort was discovered in an additional six lakes in Minnesota in 2023 alone. In 2023, watercraft inspections were performed on 91 watercraft that had previously been in starry stonewort-infested waterbodies.

Spiny water fleas are an invasive zooplankton that are found in more than 25 lakes in Minnesota. Spiny water fleas are small (≈ 1 centimeter) and have a long tail that makes up over half of their total body length. The spiny water flea's long barb-covered tail serves as a defense against fish predation. Spiny water fleas have the potential to disrupt lake food chains because they compete with small fish for the same food resource. The closest that spiny water fleas are currently found to Minneapolis is Mille Lacs Lake. In 2023, watercraft inspections were performed on 44 watercraft that had previously been in spiny water flea-infested waterbodies.

Theoretically, it would only take one boat to infest one of the Minneapolis lakes. It is extremely important that the AIS Program remain robust and the inspectors remain vigilant to protect the lakes from these and other AIS that are not currently found in Minneapolis.

2023 AIS Early Detection Activities

MPRB staff used a variety of early detection techniques in 2023 and did not find an established zebra mussel population or any new AIS species in the Chain of Lakes or Lake Nokomis. Veliger sampling and Environmental DNA (eDNA) analysis were not performed this year due to logistical constraints. Both are expected to be conducted by the early detection program in 2024. The early detection techniques that were used include:

Zebra Mussel Settling Plate Program

MPRB staff and volunteers from the Friends of Lake Nokomis monitored zebra mussel settling plates at the following lakes in 2023: Wirth, Cedar, Lake of the Isles, Bde Maka Ska, Harriet, Nokomis, and Hiawatha. Zebra mussel sampling plates were deployed on each lake on May 31, 2023 and removed on October 17, 2023. No zebra mussels were detected on sampling plates at any lake in 2023. Lake Hiawatha is the only lake where zebra mussels have been detected on sampling plates, however none were found in the previous two seasons. In 2020, MPRB found several thousand zebra mussels on the Hiawatha plate. Lake Hiawatha has been infested with zebra mussels for several years, due to its connectivity with Minnehaha Creek. Drought conditions in 2022 and 2023 limited waterflow in Minnehaha Creek and may have resulted in fewer zebra mussel propagules being transported from Lake Minnetonka, resulting in a decrease of zebra mussels on the sampler.

Buoy Inspections

Similar to zebra mussel settling plates, beach and sailboat buoys serve as suitable zebra mussel substrate. MPRB watercraft inspectors inspected all of the beach buoys from Bde Maka Ska, Lake Harriet, Lake Nokomis, Lake Hiawatha, and Cedar Lake after they were removed from the lakes in the fall. Zebra mussels were not found on any of the beach buoys. MPRB watercraft inspectors inspected >99% of sailboat buoys from Bde Maka Ska, Lake Harriet, and Lake Nokomis. No evidence of zebra mussels or any other unexpected AIS was observed in 2023.

Weekly Boat Launch Surveys

Once per week from June to September specially trained watercraft inspectors came early to their shift or stayed late at their shift to conduct early detection surveys of the boat launches at Bde Maka Ska, Lake Harriet, and Lake Nokomis. The surveys involved entering the water while wearing waders and a life jacket and inspecting the dock, the boat ramp, plants, rocks, sticks, and other debris for approximately a half hour. The inspectors were trained to identify native and invasive plants and animals, so they used the surveys to look for a variety of plant and animal AIS. No unexpected AIS were observed during the surveys in 2023.

Eurasian Watermilfoil Delineations

MPRB staff delineated Eurasian watermilfoil at Wirth Lake, Cedar Lake, Lake of the Isles, Bde Maka Ska, Lake Harriet, and Lake Nokomis in August. For all the surveys except Wirth Lake, staff boated around the entire perimeter of each lake and periodically collected rake toss samples of the aquatic plant community. The Wirth Lake delineation was limited to a small portion of the lake and was conducted on foot from the shoreline and the floating dock in the swimming area. During all delineations, relative abundances of native and invasive plant species were determined via visual observation and rake toss sampling and recorded on a lake map. No new invasive plant species were detected.

SCUBA Survey

Staff from the MPRB and Blue Water Science conducted surveys for zebra mussels at Cedar Lake on October 19th. Blue Water Science SCUBA dived during the survey while MPRB staff checked rocks and other substrate along the shoreline using waders. In total, 8.5 hours of searching was conducted, and no zebra mussels were found.

Phragmites Survey

In fall 2023, staff surveyed 10 sites on MPRB property for the presence of invasive *Phragmites*. The sites were all on the shoreline of either a lake, a stream, or a stormwater pond and were selected because they appear to be hospitable sites for the plant. A new infestation of phragmites was discovered at Meadowbrook Golf Course; control efforts will begin for that population in 2024. In 2023, phragmites treatments occurred at four sites on MPRB property: the south side of Lake of the Isles, the west side of Thomas Beach on Bde Maka Ska, William Berry Park, and Wirth Lake near the sand volleyball courts.