



## 2022 Season Report



### Dakota County Watercraft Inspections

Waterfront Restoration, LLC  
December 30, 2022

## Table of Contents

<b>2022 Dakota County Watercraft Inspection Program .....</b>	<b>3</b>
<b><i>Watercraft Inspection Summary.....</i></b>	<b>3</b>
<b><i>Inspection Findings, Violations, and Decontaminations.....</i></b>	<b>9</b>
<b><i>Crystal Lake.....</i></b>	<b>13</b>
<b><i>Lake Byllesby.....</i></b>	<b>17</b>
<b><i>Lake Marion .....</i></b>	<b>21</b>
<b><i>Orchard Lake.....</i></b>	<b>25</b>
<b><i>Trends .....</i></b>	<b>29</b>
<b><i>Summary and Comments .....</i></b>	<b>34</b>
<b><i>Appendix.....</i></b>	<b>35</b>

# 2022 Dakota County Watercraft Inspection Program

## Watercraft Inspection Summary

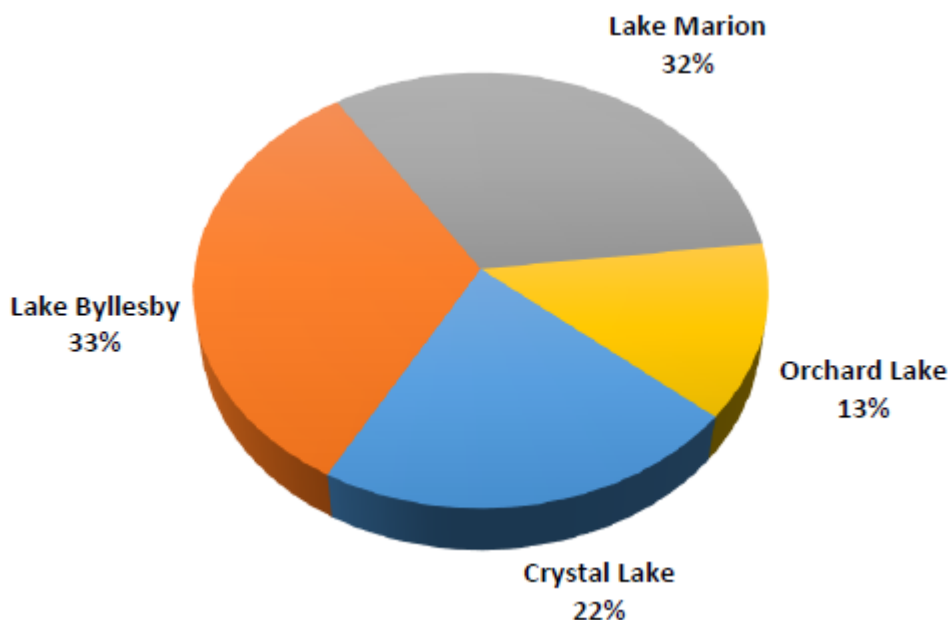
Waterfront Restoration was contracted to administer the Dakota County's 2022 Aquatic Invasive Species (AIS) watercraft inspection program. The city provided a list of the four lake launches on which they desired watercraft inspector coverage, as well as the days and hours during which the inspector coverage was to take place. The staffed launches were located at Crystal Lake, Lake Byllesby, Lake Marion and Orchard Lake. For the majority of the season (5/13/22 through 9/5/22) it was requested that Lake Byllesby and Crystal Lake have inspector coverage from 8:00 A.M. – 4:30 P.M. every Friday through Sunday and holidays. Lake Marion and Orchard Lake was requested to have inspector coverage from 10:00 A.M. – 5:00 P.M. on Fridays, 8:00 A.M. – 6 P.M. on Saturdays, and 8 A.M. – 4:30 P.M on Sundays and holidays.

**Table 1: 2022 Watercraft Inspection Totals**

Lake Name	Inspections	Inspection Hours
Crystal Lake	1,443	395
Lake Byllesby	2,141	990
Lake Marion	2,111	474
Orchard Lake	854	398
<b>Total</b>	<b>6,549</b>	<b>2,257</b>

The 2022 AIS inspection program kicked-off on Saturday May 14<sup>th</sup> and concluded on Sunday September 25<sup>th</sup>. According to official MN DNR inspector survey data, 6,549 watercraft inspections were completed during the 2022 program season (Table 1). Of that total, 4,279 were entering inspections, and 2,253 were exiting inspections. There were also 10 lifts and 7 courtesy inspections. Lake Byllesby accounted for the largest portion of inspections at 33%, (Figure 1). Lake Marion and Crystal Lake accounted for 32% and 22% respectively. Orchard Lake accounted for 13% of the total inspection.

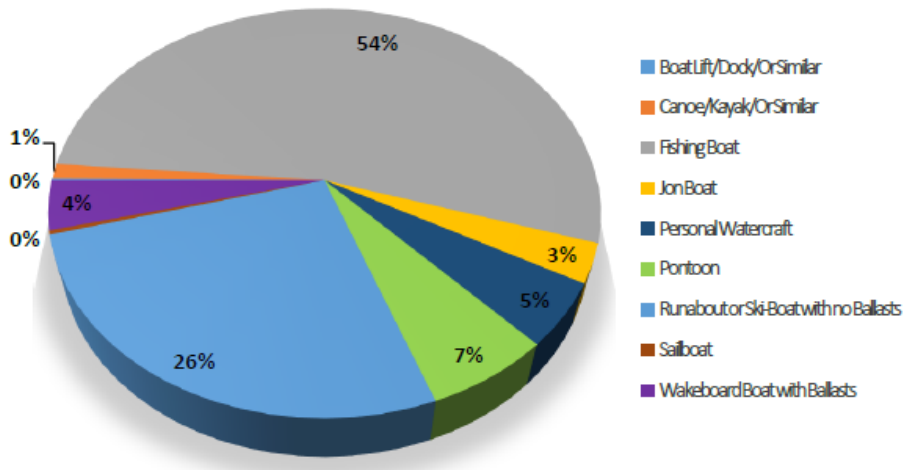
## 2022 Watercraft Inspection Percentages



**Figure 1:** Chart (above) reflects the percentage of total inspections completed at each lake during the 2022 inspection season.

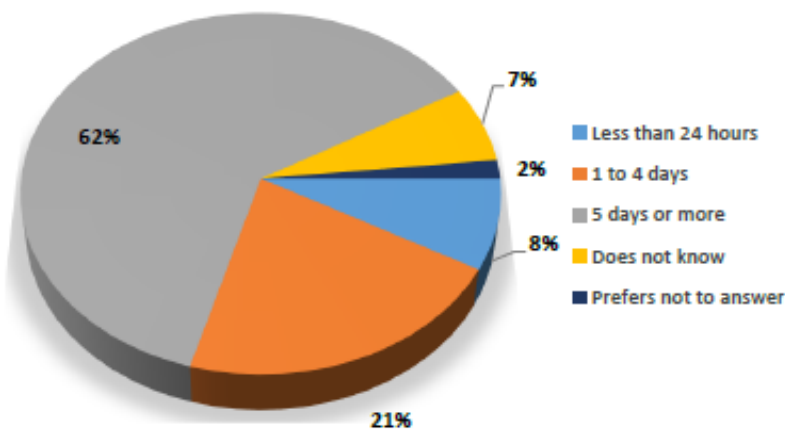
The inspection survey data reveals that 54% of all inspections were conducted on fishing boats, while runabouts were the second most inspected watercraft at 26% (Figure 2). Pontoons, personal watercrafts, and wakeboards accounted for 7%, 5%, and 4% of the total inspections, respectively. Jon Boats, Canoe/Kayaks, Sailboats and Boat Lifts/Docks accounted for 1% or less of the total each. Typically, wakeboard boats, or boats with ballast tanks are the most difficult to clean drain dry due to their more complicated build and mechanics. Only 255 boats with ballasts tanks were inspected in Dakota County in 2022 which is 4% of the total.

### Type of Watercraft



**Figure 2:** Chart (above) reflects the percentage of total inspections conducted on watercraft types during the 2022 inspection season.

### Time Out of Water Before Entering

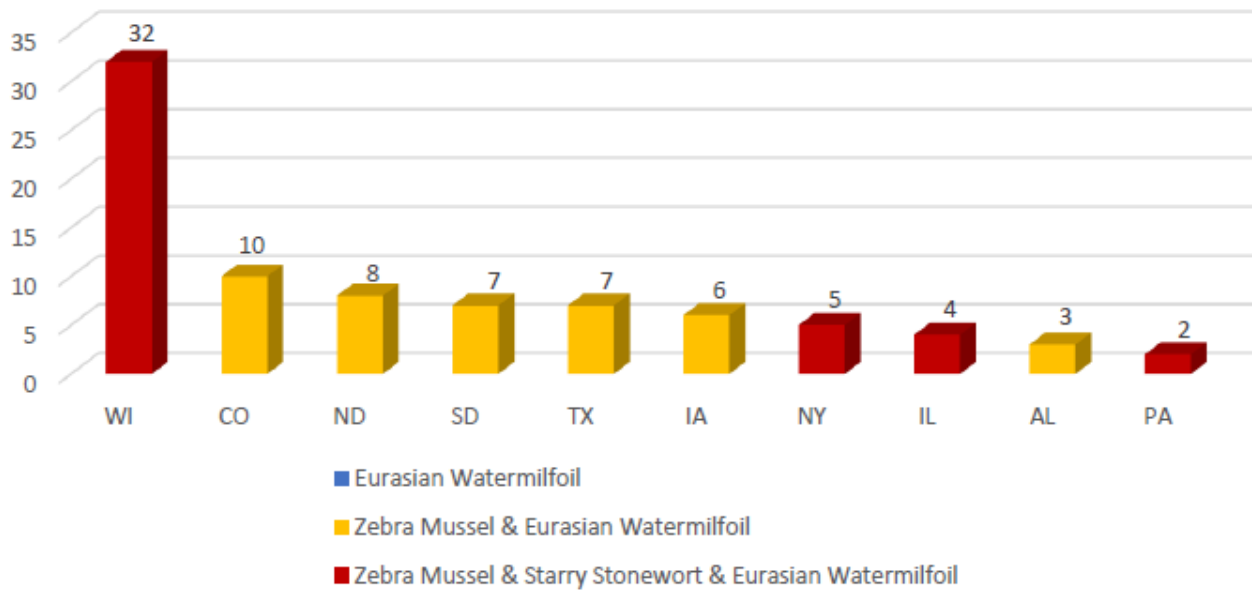


**Figure 3:** Chart (above) reflects the percent of responses from entering boaters regarding the amount of time their watercraft had been out of the water prior to entering a staffed lake.

The data also shows that throughout the 2022 inspection season 62% of watercrafts entering had been kept out water for the recommended 5 days or more, while 21% were reported as only being out for 1-4 days (Figure 3). However, 346 of the entering watercrafts (3%) were reported as being out of the water for less than 24 hours. The remaining 7% of boaters reported that they did not know how long the watercraft had been out of the water for, and 71 boaters preferred not to answer.

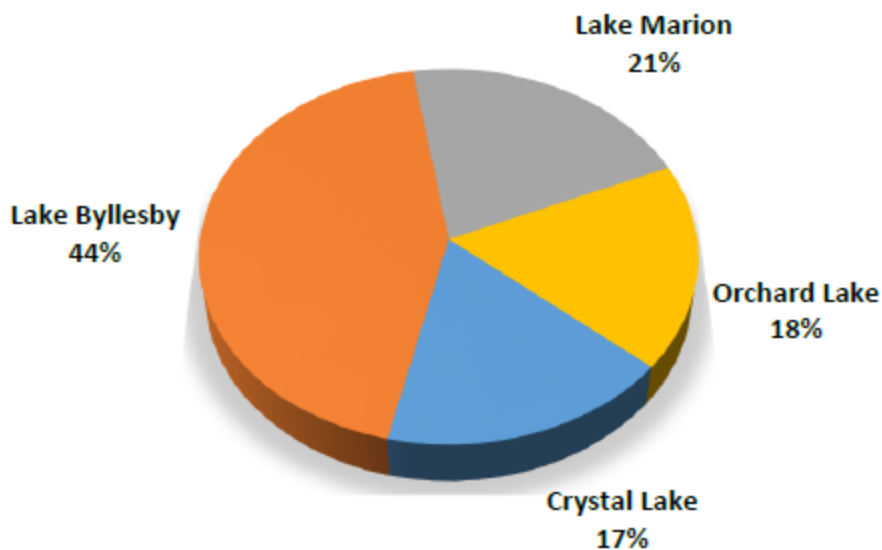
While the majority of inspected watercrafts were recorded as being trailered by vehicles from Minnesota, the remaining watercrafts were recorded as being brought in by out-of-state vehicles. The most common out-of-state vehicles trailering a watercraft were from Wisconsin at 32, followed by Colorado at 10 and North Dakota at 8 (Figure 4). Note that when determining what state, a watercraft is from, only the license number of the vehicle pulling the watercraft is recorded.

**Number of Out-of-state Watercraft Inspected**



**Figure 4:** Graph (above) reflects the number of watercrafts recorded as being from out-of-state. Each state is color coded to indicate certain AIS that have been reported in each state. **Note, “No infestation” only suggests that neither Zebra Mussels, Eurasian Watermilfoil nor Starry Stonewort have been recorded in the given state.**

**2022 Watercraft Inspection Staffing Allocation Percentages**

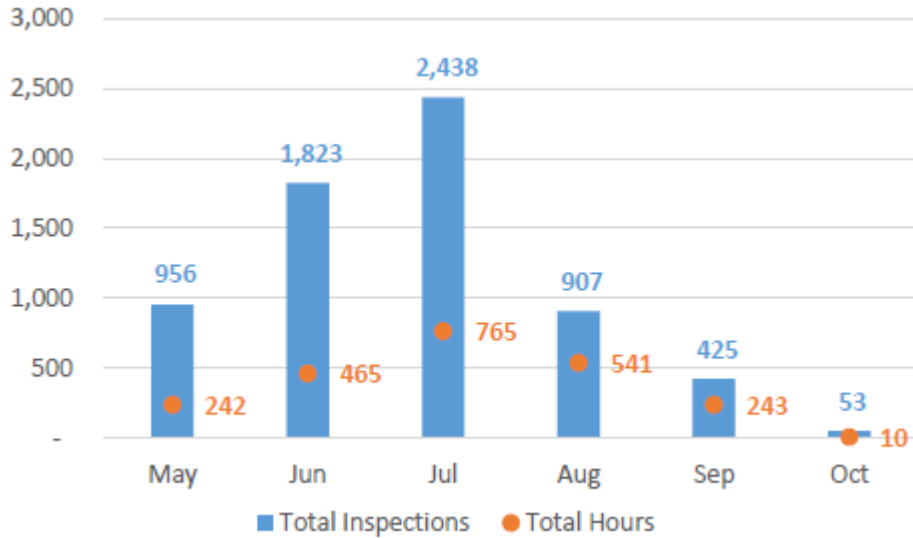


**Figure 5:** Chart (above) reflects the percent of total hours received by each lake during the 2022 inspection season.

The four Dakota County launches were staffed for a total of 2,257 hours in 2022. Lake Byllesby received the highest percent of inspection hours at 44% (990 hours) due to level 1 and level 2 inspector staffing. (Figure 5). Lake Marion received 21% (474 hours) and Crystal Lake received 17% (395 hours) of the inspection hours. Orchard Lake received 18% (398 hours) of the inspection hours.

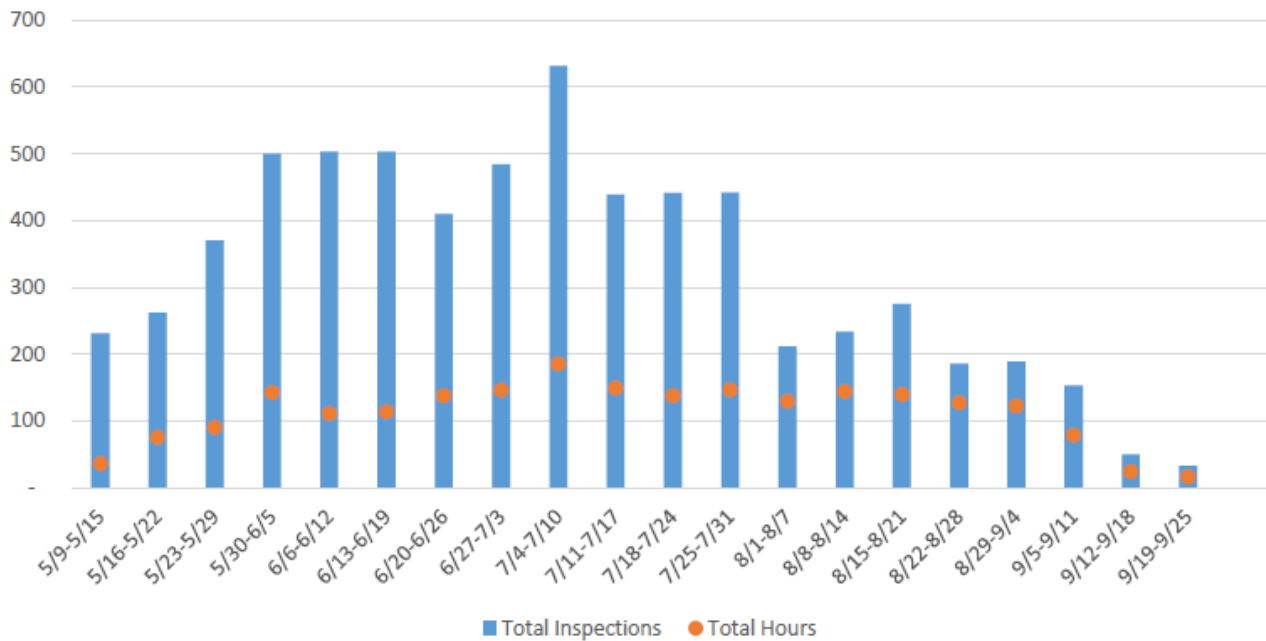
### Inspections by Month

From the survey data we determined that the busiest month for watercraft inspections was July, with 2,438 completed surveys. June followed close by at 1,823 surveys logged (Figure 6). May, August, and September have understandably lower inspection counts since coverage hours significantly decreased and it is at the end of the season. Further detail by week can be found in Figure 7, where it shows that the week of the 4<sup>th</sup> of July had the highest count of inspection surveys at 632.



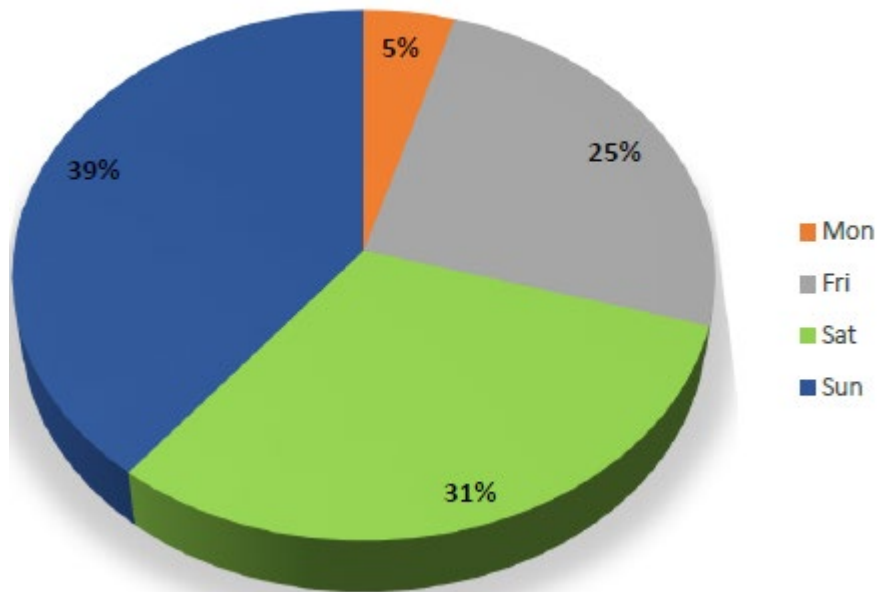
**Figure 6:** Graph (above) reflects the number of inspection surveys, and the hours of inspector coverage logged each month during the 2022 inspection season.

### Inspections by Week



**Figure 7:** Graph (above) reflects the number of inspection surveys, and the hours of inspector coverage logged each week during the 2022 inspection season.

### Inspections by Weekday

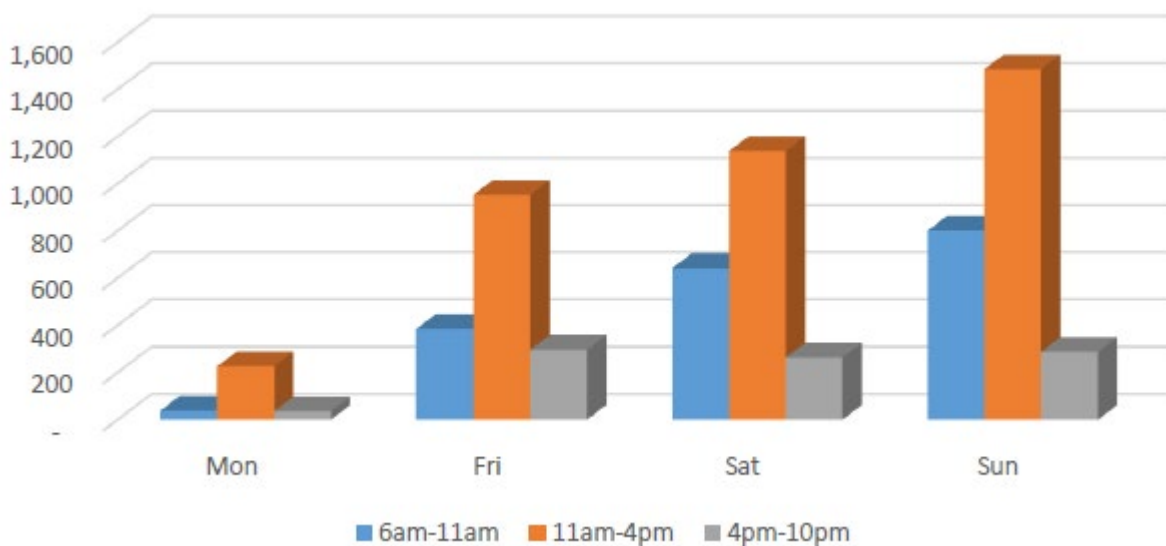


**Figure 8:** Chart (above) reflects the distribution of completed inspection surveys by day of week during the 2022 inspection season.

The data shows that the busiest days for inspections was Sunday, which accounted for 39% of inspections (Figure 8). Saturday followed with 31% of the total inspections being completed. On all days, the data shows that the busiest time of day for inspections is between 11 A.M. to 4 P.M. The second busiest time is between 6 A.M. to 11 A.M.

299 inspections were completed on three Mondays which were the summer holidays (Memorial Day, 4<sup>th</sup> of July and Labor Day).

### Inspections by Time of Day



**Figure 9:** Graph (above) reflects the number of inspection surveys completed at specific times of day, and by day of week during the 2022 inspection season.



Of the entering inspections, the waterbody most visited by boaters prior to entering an inspector staffed launch within the Dakota County was Lake Marion, with 1,011 boaters reporting last being there (Figure 10). The other most common responses were Lake Byllesby (726), Crystal Lake (677) and Orchard Lake (304). This information can help us understand where new AIS infestations arise from since AIS are often unintentionally transported between bodies of water via watercrafts, trailers, and other water-related equipment.

### LAST Body of Water Visited

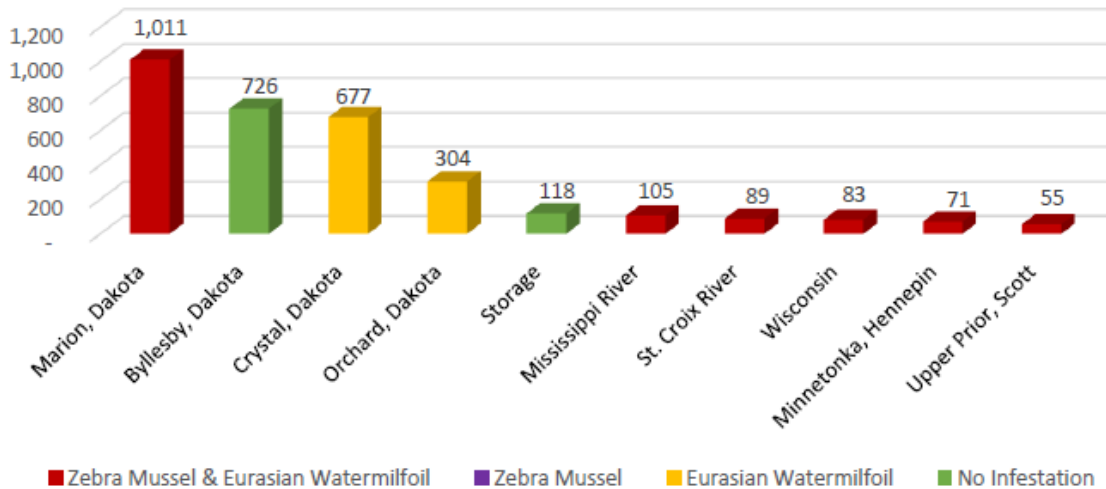


Figure 10: Graph (above) reflects the number of boaters that reported the last lake visited prior to entering another waterbody via one of the Dakota County staffed launches during the 2022 inspection season. Note: “No infestation” only means that such lakes are not infested with the mentioned AIS. Graph only shows the top ten responses.

Likewise, of the same entering inspections, the boater responses pertaining to which waterbody they would be visiting next, showed that the majority of boaters leaving an inspector staffed launch within the Dakota County would head to lakes Byllesby (493), Marion (423), Crystal Lake (314), and Orchard Lake (201) (Figure 11).

### NEXT Body of Water Planning to Visit

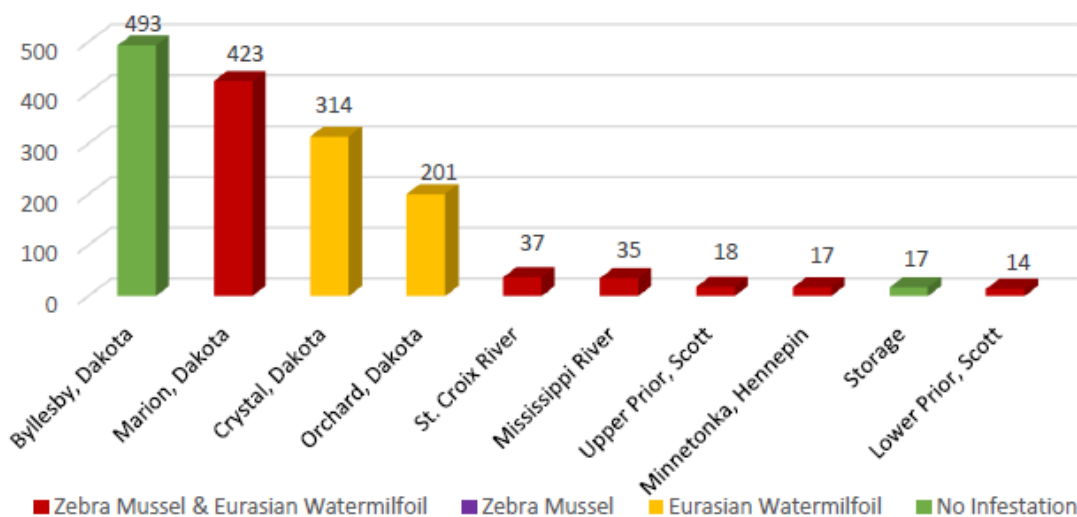


Figure 11: Graph (above) reflects the number of boaters that reported the next lake they expected to visit after exiting a Dakota County inspector staffed launch during the 2022 inspection season. Note: “No infestation” only means that such lakes are not infested with the mentioned AIS. Graph only shows the top ten responses.



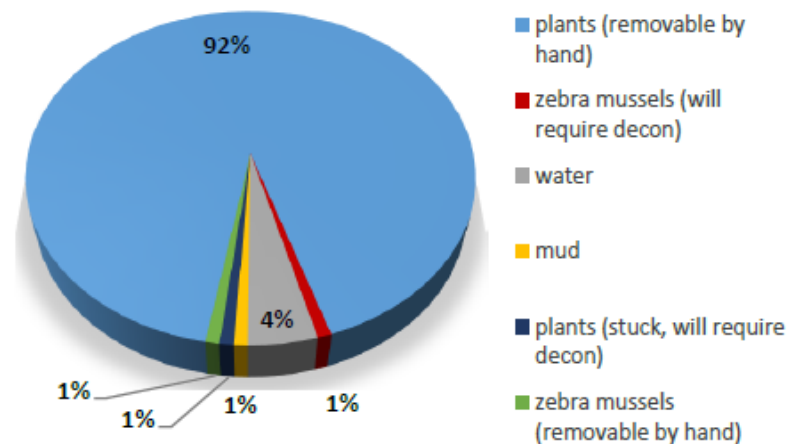
## Inspection Findings, Violations, and Decontaminations

There were 115 entering inspections that were in violation of Minnesota AIS laws (nearly 2% of all inspections). Additionally, 37 watercrafts were in violation of the drain plug law by arriving at the launch with the drain plug still in or already in. On 524 exiting watercrafts there was at least one finding on and/or in the watercraft, trailer, or equipment. However, exiting inspection findings are not considered AIS violations since they were caught prior to the boater leaving the launch.

Regardless, these findings during exiting inspections provide useful information when determining what could be leaving an infested lake and entering a new lake.

### Findings During Entering Inspections

92% of the entering inspections were plants (removeable by hand) (Figure 12). The rest were water (4%), mud (1%), plants (stuck, will require decon) (1%), zebra mussels (removable by hand) (1%), and zebra mussels (will require decon) (1%).



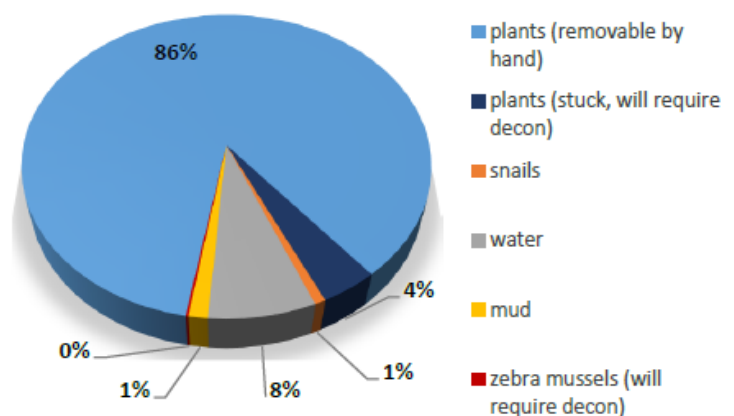
**Figure 12:** Chart (above) reflects the distribution of findings during entering inspections during the 2022 inspector season.

### Findings During Exiting Inspections

The most common finding during exiting inspections were plants (removeable by hand) at 86% (Figure 13). The rest were water (8%), plants (stuck, will require decon) (4%), mud (1%), snails (1%), and one instance of a zebra mussel (will require decon).

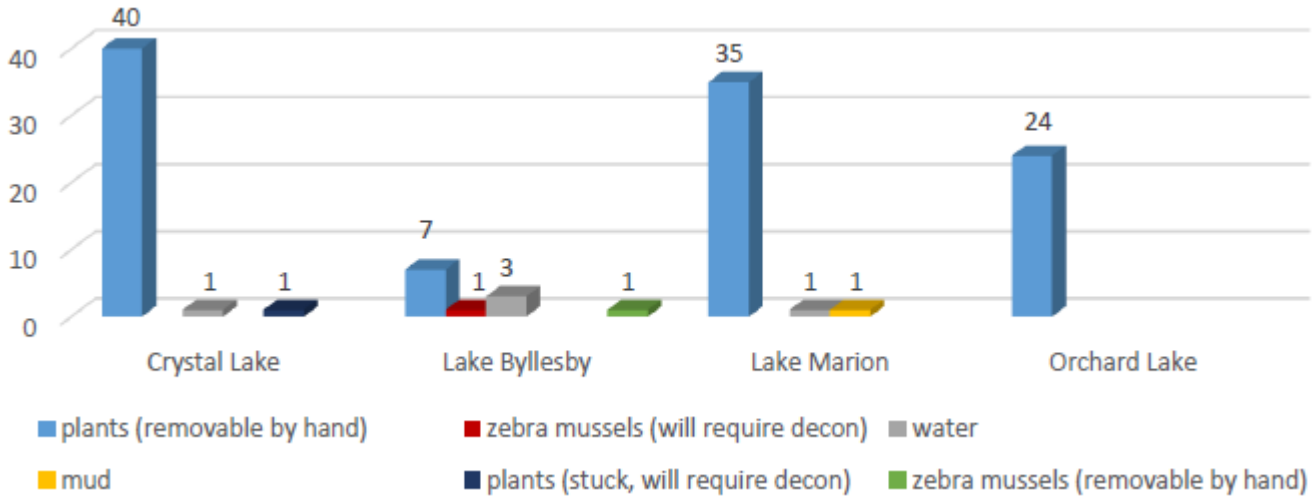
None of the 524 exiting inspections that contained findings were deemed as AIS violations since they were caught and resolved prior to the watercraft leaving the launch.

**Figure 13:** Chart (right) reflects the distribution of findings during exiting inspections during the 2022 inspection season. Watercraft requiring decontamination were encouraged to go to a nearby decon station (i.e., DNR staffed decon, Lake Byllesby, or to a professional watercraft dealer service for cleaning before entering the next body of water.)



The data shows that 42 entering findings were reported from Crystal Lake, 12 were reported from Lake Byllesby, 37 were reported from Lake Marion and 24 were reported from Orchard Lake. All for findings of plants (removable by hand) at Orchard Lake (Figure 14).

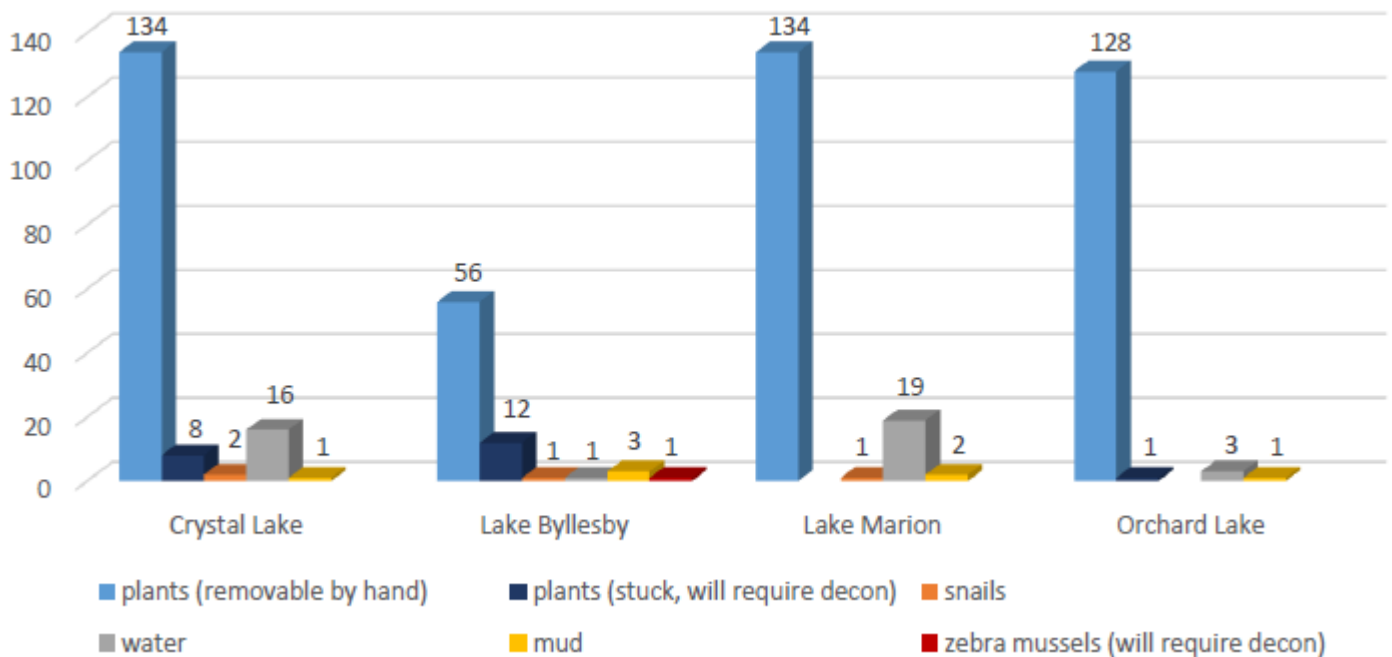
**Entering Violations by Lake**



**Figure 14:** Graph (above) reflects the number of findings by lake during entering inspections during the 2022 inspection season.

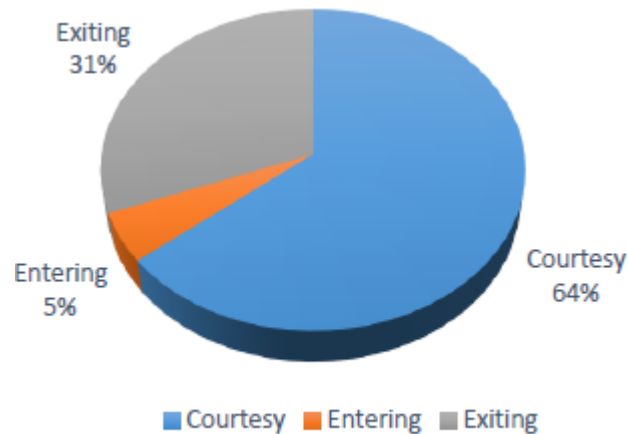
Looking at potential exiting violations, Crystal Lake, and Lake Marion both experienced the highest number of “plants (removable by hand)” at 134 (Figure 15). The third most frequent lake reporting findings of “plants (removable by hand)” was Orchard Lake at 128, followed by Lake Byllesby at 56.

**Exiting Violations by Lake**



**Figure 15:** Graph (above) reflects the distribution of findings during exiting inspections during the 2022 inspection season. Watercraft requiring decontamination were encouraged to go to a decontamination site (i.e., a DNR staffed location, the Lake Byllesby launch, or to a professional watercraft dealer service for cleaning before entering the next body of water.).

## Entering, Exit and Courtesy



**Figure 16:** Above graph reflects the total number of decontaminations completed during the 2022 inspection season.

Staffing and operating the decontamination unit at Lake Byllesby every weekend is a critical component of our work preventing the spread of AIS in Dakota County. This page shows decon data.

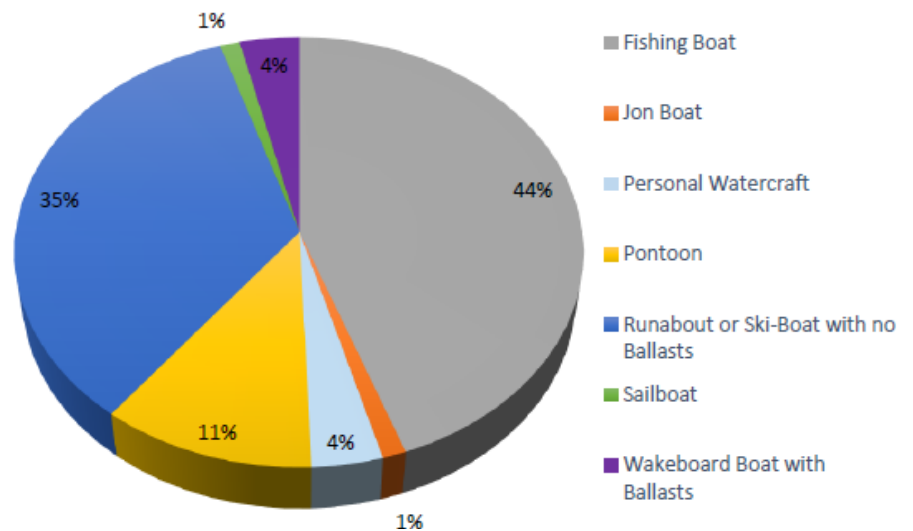
Of the 81 decontaminations completed, 31% were conducted on exiting watercrafts and/or other water related equipment (Figure 16).

Courtesy decontaminations accounted for approximately 64%, while the remaining 5% of decontaminations were conducted on entering watercrafts and/or other water related equipment. All recorded decontaminations were conducted at the Lake Byllesby Regional Park decontamination station.

## Decontamination by Watercraft

The most common watercraft to receive a decontamination was fishing boats which accounted for 44%, followed by runabout watercrafts at 35% and pontoons at 11% (Figure 17).

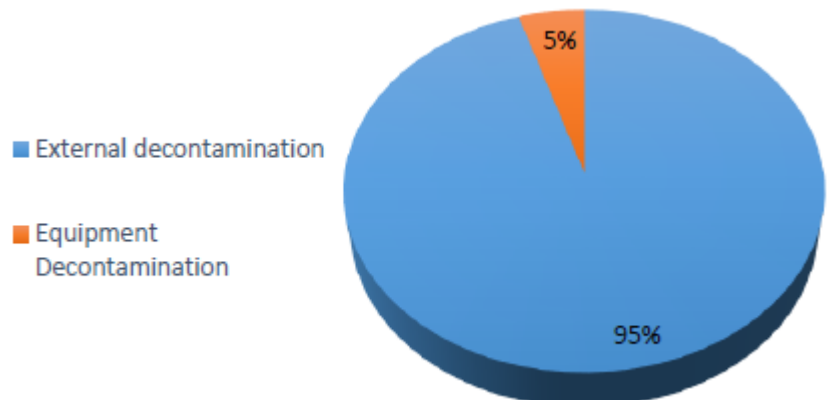
**Figure 17:** Chart (right) reflects the distribution of decontaminations by watercraft type during the 2022 inspection season.



## Decontamination Type

The majority of decontaminations conducted were external (95%), followed by equipment decontaminations (5%) (Figure 18).

**Figure 18:** Chart (right) reflects the distribution of decontaminations by type during the 2022 inspection season.



AIS prevented from entering Lake Byllesby:

Inspector(s) at Lake Byllesby in Dakota County encountered an entering zebra mussel violation on the afternoon of Sunday, August 28th, 2022.

On Sunday afternoon, a boat owner arrived at the Dakota County Lake Byllesby launch trailering a personal watercraft after being denied launching from the Goodhue County launch inspector on Lake Byllesby. The personal watercraft had last been on the Mississippi River for 3 seasons. During the inspection the watercraft was found to have attached shellfish in the intakes, exhaust areas. The boat owner originally was unaware of the mussels and the AIS risk they posed. The mussels appeared to be zebra mussels and/or quagga mussels. Inspectors Dan and Rob educated the boat owner of the state AIS statues he violated by transporting the watercraft with the mussels on it. They further explained the ecological risk him transporting them poses, especially to a non-infested body of water like Lake Byllesby. Dan then proceeded to complete a full decontamination at the launch.

The AIS violation was reported to the Waterfront Restoration supervisor who then completed and emailed the detailed report follow-up to Dakota County and the MN DNR. The pictures below were taken during the inspection and decontamination of the personal watercraft.



## Crystal Lake

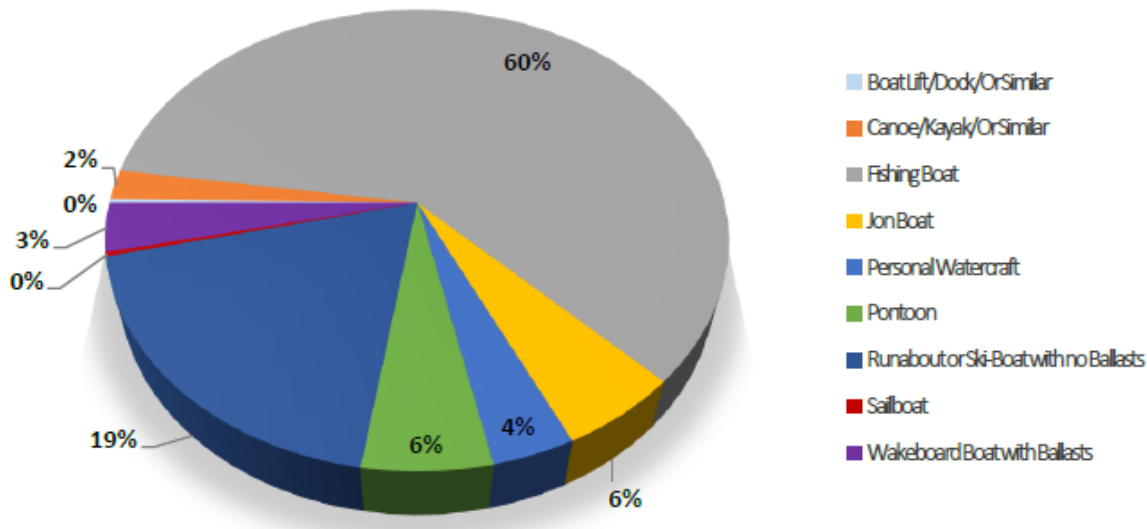
In total, Crystal Lake was staffed for 395 hours from May 15<sup>th</sup> through September 18<sup>th</sup> and had 1,438 inspections completed (Table 2). Dakota County required inspector staffing 8.5 hours every Friday, Saturday, and Sunday. This schedule was accomplished, with only a few exceptions caused by sick inspectors and limited availability to shift coverage around.

The survey data reveals that 60% of all inspections were conducted on fishing boats, while runabouts were the second most inspected watercraft at 19% (Figure 19). Pontoons and Jon boats accounted for 6% each of the total inspections. Personal watercraft, wakeboard boats, canoe/kayaks and sailboats accounted for 4%, 3%, 2% and less than 1% of the total inspections, respectively. Four boat lifts/docks/or similar were also inspected at the launch.

**Table 2: Crystal Lake 2022 Inspection Types**

Month	Enter	Exit	Inspection Hours
May	116	56	51
Jun	288	133	91
Jul	414	217	147
Aug	118	57	86
Sep	16	23	20
<b>Total</b>	<b>952</b>	<b>486</b>	<b>395</b>

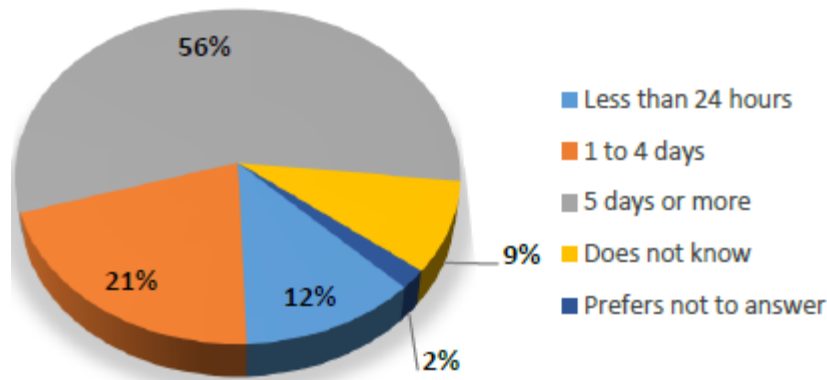
### Type of Watercraft



**Figure 19:** Chart (above) reflects the percentage of total inspections conducted on watercraft types at Crystal Lake during the 2022 inspection season.

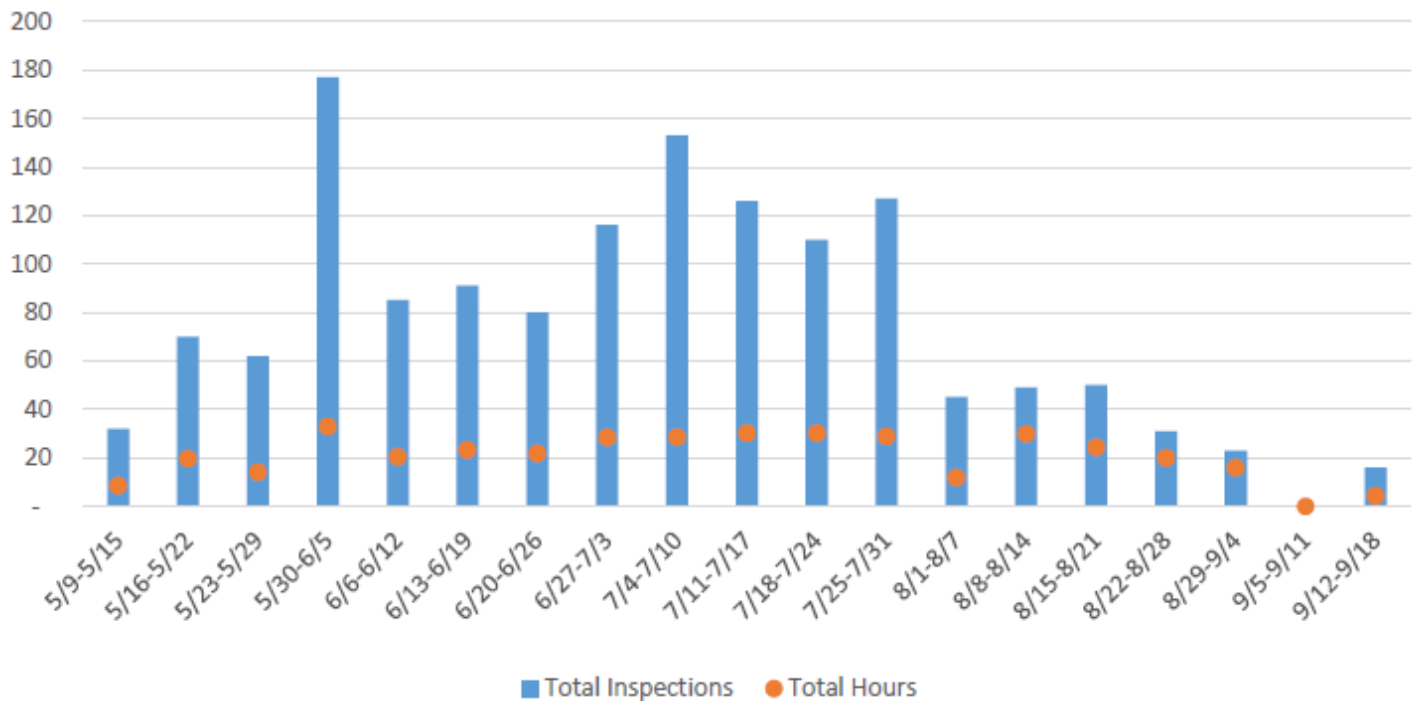
### Time Out of Water

The data also shows that throughout the 2022 inspection season only 56% of watercrafts entering had been kept out of water for the recommended 5 days or more, while 21% were reported as only being out for 1-4 days (Figure 20). However, another 12% of entering watercrafts were recorded as being out the water for less than 24 hours. 9% of boaters reported that they did not know how long the watercraft had been out of the water for, and the remaining 2% of boaters preferred not to answer.



**Figure 20:** Chart (above) reflects the percent of responses from entering boaters at Crystal Lake regarding the amount of time their watercraft had been out of the water prior to entering.

### Inspections by Week

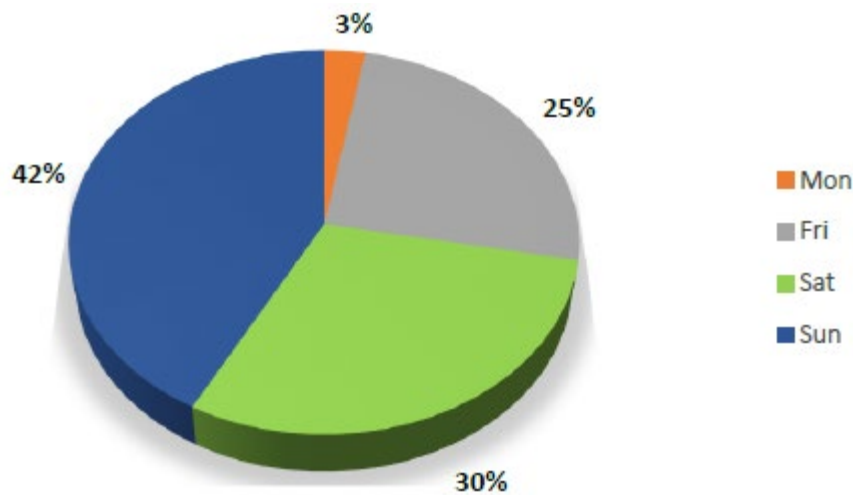


**Figure 21:** Graph (above) reflects the number of inspection surveys and the hours of inspector coverage logged at Crystal Lake each week during the 2022 inspection season.

From the survey data we determined that the busiest month for watercraft inspections at Crystal Lake was July at 631 surveys logged, followed by June at 421 surveys logged. Further detail by week can be found in Figure 21, where it shows that the first week of June has the highest count of inspection surveys at 177 surveys logged.



### Inspections by Weekday



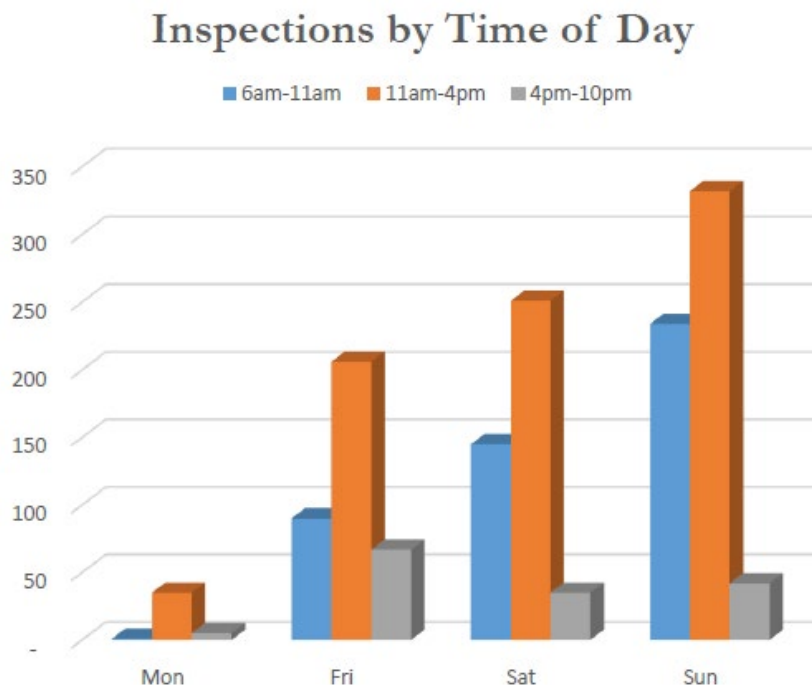
**Figure 22:** Chart (above) reflects the distribution of completed inspection surveys on Crystal Lake by day of week during the 2022 inspection season.

The data also allowed us to determine the busiest days and busiest times of day over the course of the inspection season. It is shown that the busiest days for inspections were Sunday at 42% and Saturday at 30%. (Figure 22).

All three summer holidays (Memorial Day, 4<sup>th</sup> of July, and Labor Day) were all on a Monday this year which is reflected by the 41 boats inspected (3% of total inspections).

### Inspections by Time of Day

On all days, the busiest time of day for inspections was between 11 A.M. to 4 P.M. (Figure 23). The second busiest time of day was shown to be from 6 A.M. to 11 A.M.



**Figure 23:** Graph (above) reflects the number of inspection surveys reported by the time of day, and day of week at Crystal Lake during the 2022 inspection season.



Of the entering inspections, the waterbody most visited by boaters prior to entering Crystal Lake was Crystal Lake itself, with 529 boaters reporting last being there (Figure 24). The other most common responses were Lake Marion (60), Orchard Lake (47) and Lake Minnetonka (21). Based on this data there is a real threat to Crystal Lake to be exposed to invasive zebra mussels due to the number of launches of watercraft who reported LAST being on a zebra mussel infested lake. Adding to the AIS risk is that 12% of boaters at Crystal Lake reported being out of the water drying for less than 24 hours.

**LAST Body of Water Visited**

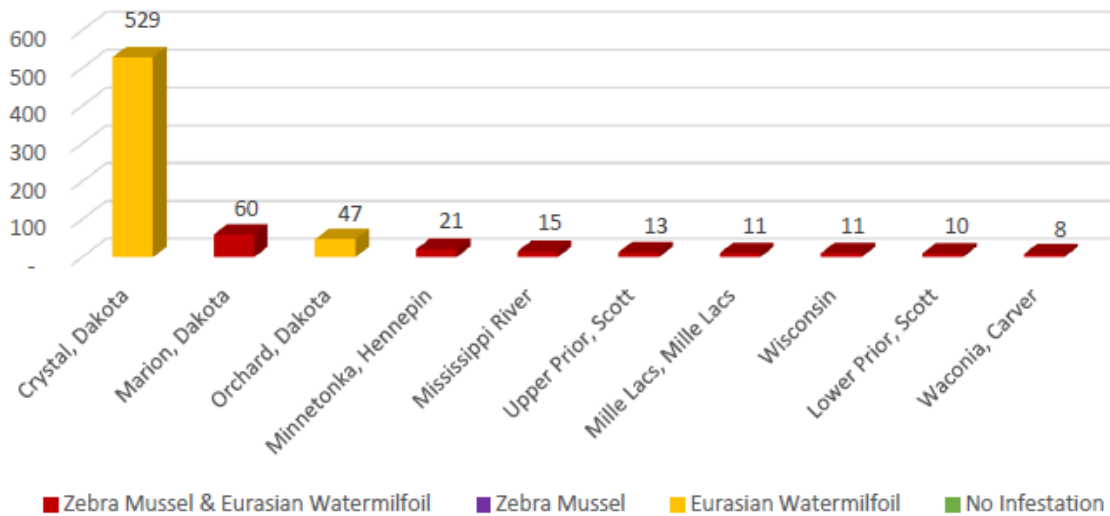


Figure 24: Graph (above) reflects the number of boaters that reported the last lake visited prior to entering Crystal Lake during the 2022 inspection season. Note: “No infestation” only means that such lakes are not infested with the mentioned AIS. Graph only shows the top ten responses.

The boater responses pertaining to which waterbody they would be visiting next, showed that most boaters leaving Crystal Lake would head back to Crystal Lake (268), or go to Marion Lake (25) (Figure 25).

**NEXT Body of Water Planning to Visit**

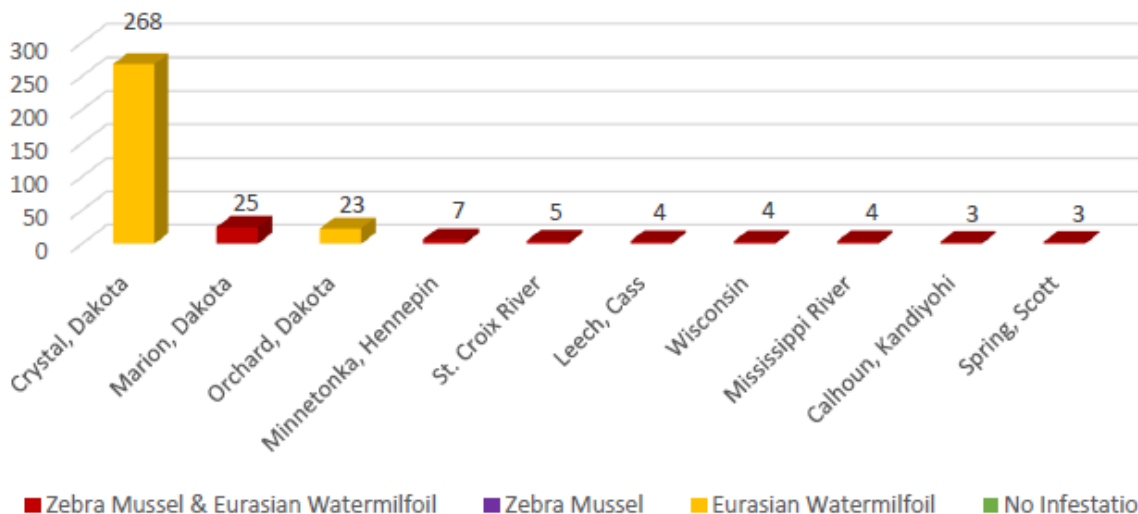


Figure 25: Graph (above) reflects the number of boaters that reported the next lake they expected to visit after Crystal Lake during the 2022 inspection season. Note: “No infestation” only means that such lakes are not infested with the mentioned AIS. Graph only shows the top ten responses.

## Lake Byllesby

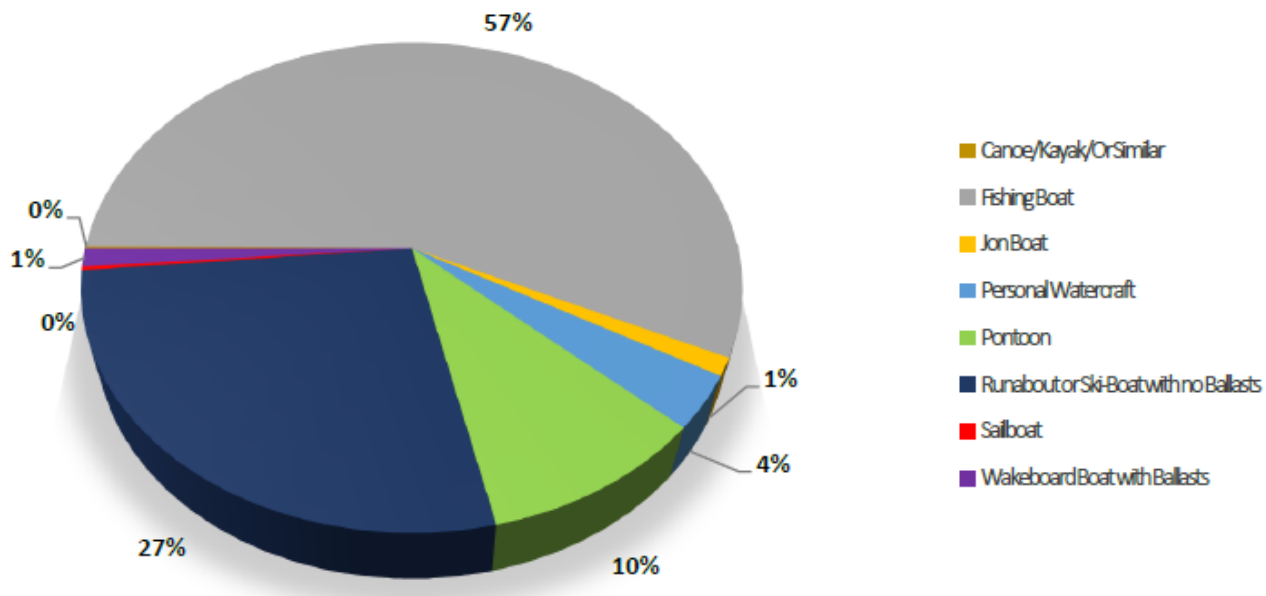
Lake Byllesby received the highest inspector coverage of 990 hours from May 14<sup>th</sup> through September 25<sup>th</sup> and had 2,137 inspections completed (Table 3). Dakota County required Level 1 and a Level 2 inspector staffed for 8.5 hours every Friday, Saturday, Sunday, and holidays. This coverage expectation was met with only a few exceptions throughout the season.

The inspection survey data reveals that 1,219 fishing boats were inspected this season which is 57% of all inspections conducted. Runabouts were the second most inspected watercraft at 27% (Figure 26). Pontoons, personal watercrafts, and wake boats accounted for 10%, 4% and 1% of the total inspections, respectively.

**Table 3: Lake Byllesby 2022 Watercraft Inspection Totals**

Month	Enter	Exit	Inspection Hours
May	234	165	95
Jun	322	198	214
Jul	477	273	299
Aug	151	102	229
Sep	127	88	153
<b>Total</b>	<b>1,311</b>	<b>826</b>	<b>990</b>

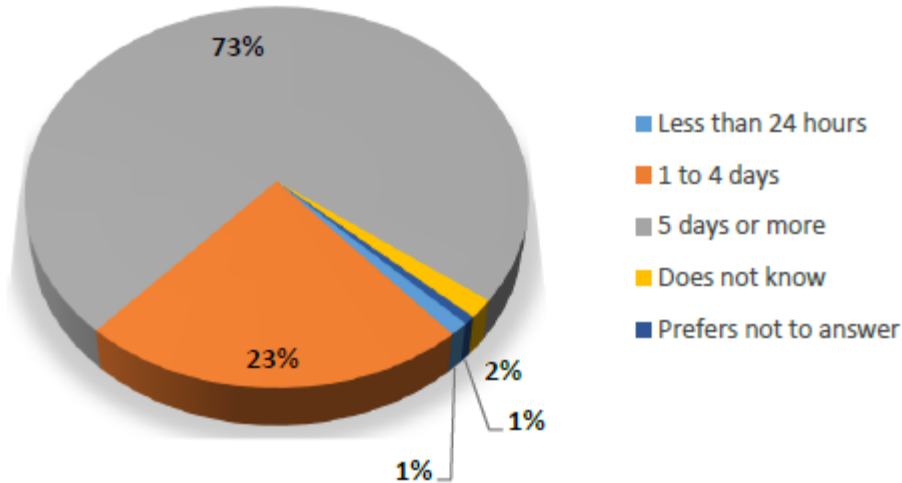
### Type of Watercraft



**Figure 26:** Chart (above) reflects the percentage of total inspections conducted on watercraft types during the 2022 inspection season.

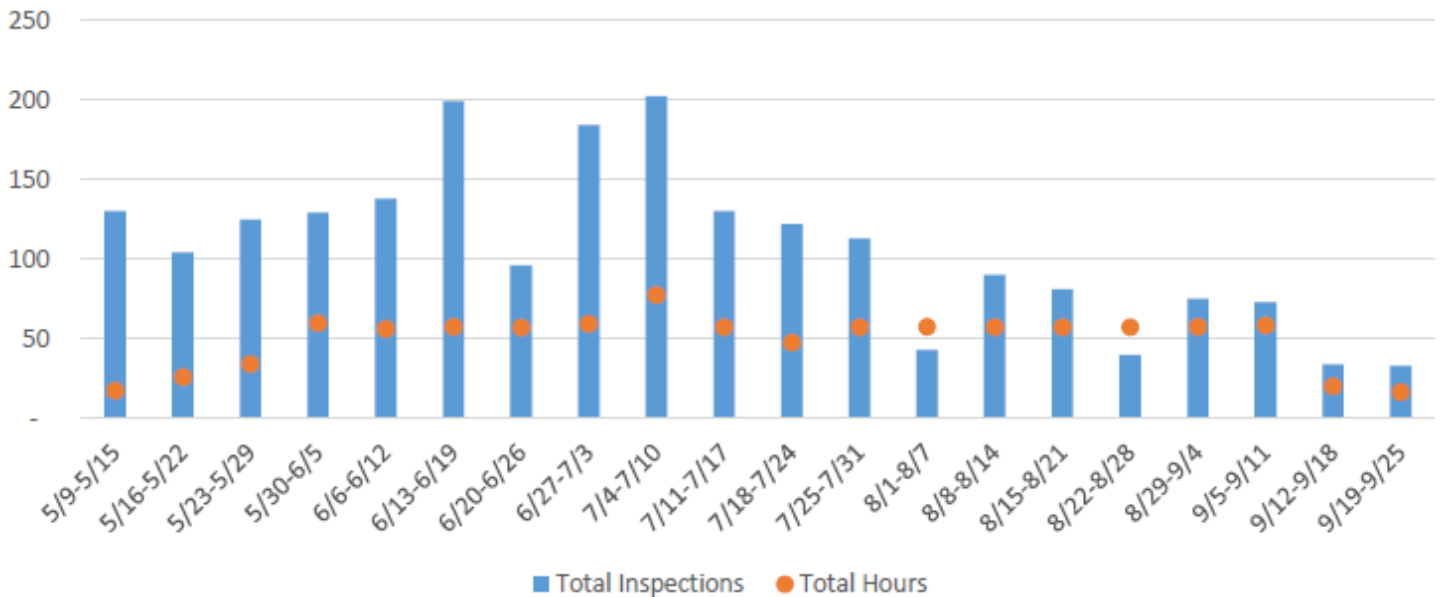
### Time Out of Water

The data also shows that throughout the 2022 inspection season 73% of watercrafts entering had been left out of any body of water for the recommended 5 days or more, while 23% were reported as only being out for 1-4 days (Figure 27). However, 15 boats, or 1% of entering watercrafts were recorded as being out the water for less than 24 hours. 21 boaters reported that they did not know how long the watercraft had been out of the water for, and 9 boaters reported that they preferred not to answer.



**Figure 27:** Chart (above) reflects the percent of responses from entering boaters at Lake Byllesby regarding the amount of time their watercraft had been out of the water prior to entering.

### Inspections by Week



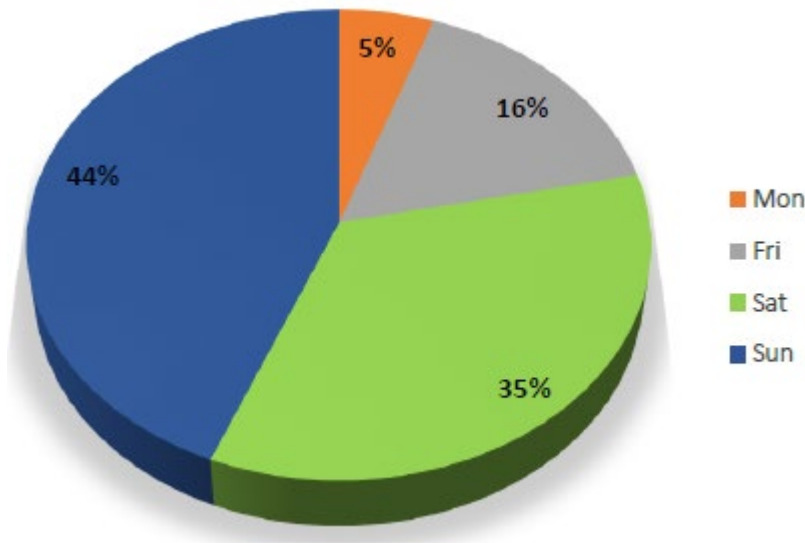
**Figure 28:** Graph (above) reflects the number of inspection surveys and the hours of inspector coverage logged at Lake Byllesby each week during the 2022 inspection season.

From the survey data we determined that the busiest month for watercraft inspections was July, with 750 completed surveys. June followed at 520 surveys logged. August and September had understandably lower inspection counts since coverage hours significantly decreased and it is at the end of the season. Further detail by week can be found in Figure 28, where it shows that the 4<sup>th</sup> of July week had the highest count of inspection surveys at 202.

### Inspections by Weekday

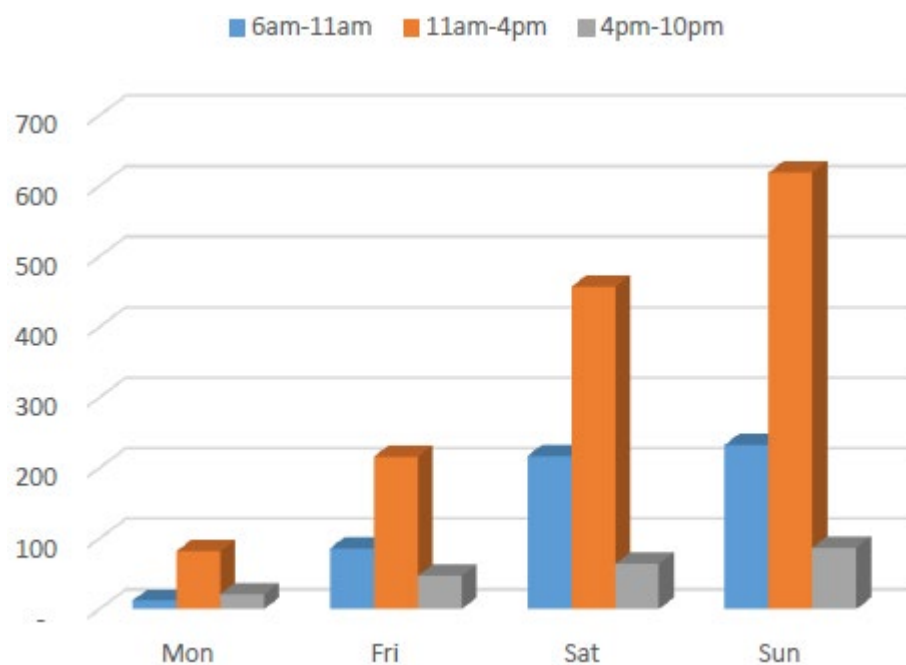
The data also allowed us to determine the busiest days and busiest times of day over the course of the inspection season. It is shown that the busiest days for inspections were Sundays (44%) followed by Saturdays (35%) (Figure 31).

All three summer holidays (Memorial Day, 4<sup>th</sup> of July, and Labor Day) were all on a Monday this year which is reflected by the 115 boats inspected (5% of total inspections).



**Figure 29:** Chart (above) reflects the distribution of completed inspection surveys on Lake Byllesby by day of week during the 2022 inspection season.

### Inspections by Time of Day

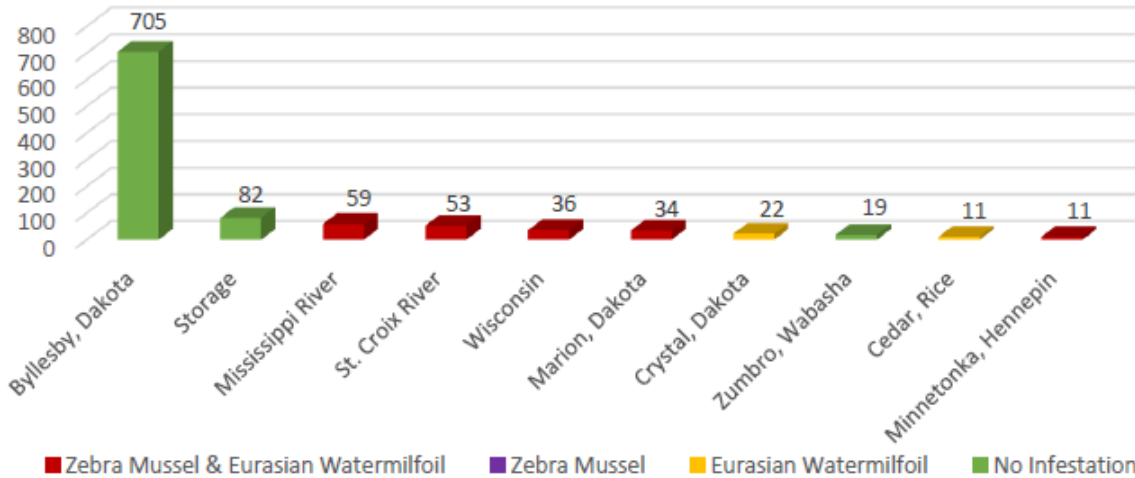


**Figure 30:** Graph (above) reflects the number of inspection surveys reported by day of week at Lake Byllesby during the 2022 inspection season.

On Sunday, Monday, Friday, and Saturday alike, the data shows that the busiest time of day for inspections is between 11AM to 4PM (Figure 30). The second busiest time of day is shown to be from 6AM to 11AM.

Of the entering inspections, the waterbody most visited by boaters prior to entering Lake Byllesby was Lake Byllesby itself, with 705 boaters reporting last being there (Figure 31). The other most common responses were storage (82), Mississippi River (59) and St. Croix River (53). This information can help us understand where new AIS infestations arise from since AIS are often unintentionally transported between bodies of water via watercrafts, trailers, and other water-related equipment. Lake Byllesby is currently classified as a clean lake with no known AIS infested in it, but there is reason to be concerned about the volume of watercraft entering after LAST being on a body of water known to be infested with AIS such as zebra mussels and Eurasian watermilfoil.

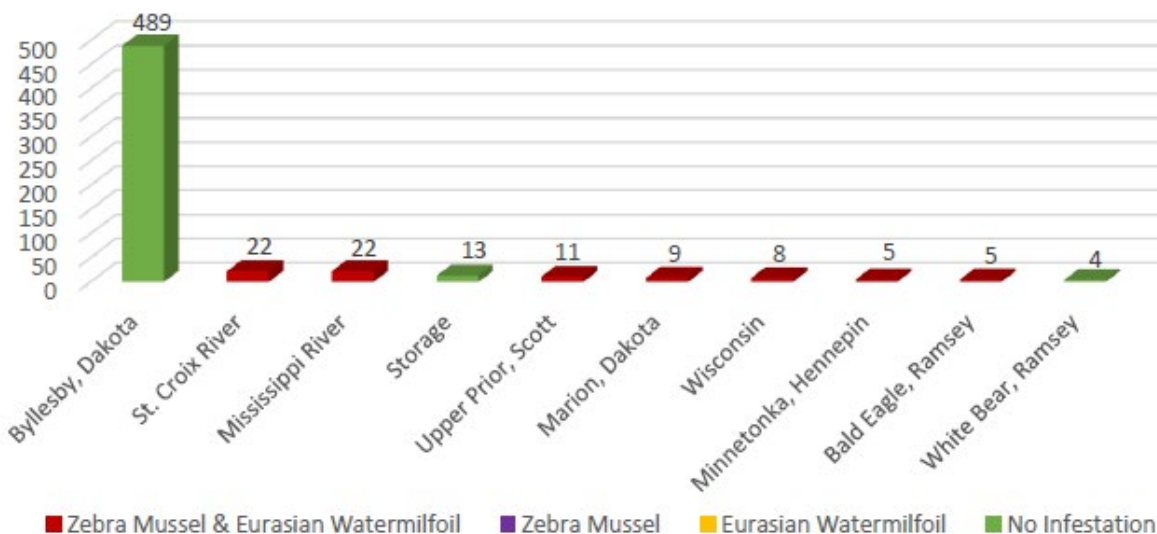
**LAST Body of Water Visited**



**Figure 31:** Graph (above) reflects the number of boaters that reported the last lake visited prior to entering Lake Byllesby during the 2022 inspection season. Note: “No infestation” only means that such lakes are not infested with the mentioned AIS. Graph only shows the top ten responses.

Likewise, of the same entering inspections, the boater responses pertaining to which waterbody they would be visiting next, showed that most boaters leaving Lake Byllesby would be heading right back to Lake Byllesby (489). (Figure 32).

**NEXT Body of Water Planning to Visit**



**Figure 32:** Graph (above) reflects the number of boaters that reported the next lake they expected to visit after Lake Byllesby during the 2022 inspection season. Note: “No infestation” only means that such lakes are not infested with the mentioned AIS.

## Lake Marion

In total, Lake Marion was staffed for 474 hours from May 14<sup>th</sup> through September 5<sup>th</sup> and had 2,106 inspections completed (Table 4). Dakota County required inspector staffing for 7 hours on Fridays, 10 hours on Saturdays, and 8.5 hours on Sundays. The scheduling expectation was met minus only a couple of days when inspectors were sick and limited availability of other inspectors did not allow for management to shift coverage to the launch. The Lake Marion boat launch at Casperson Park is the busiest location in Dakota County as inspectors conducted an average of 4.4 inspections per hour.

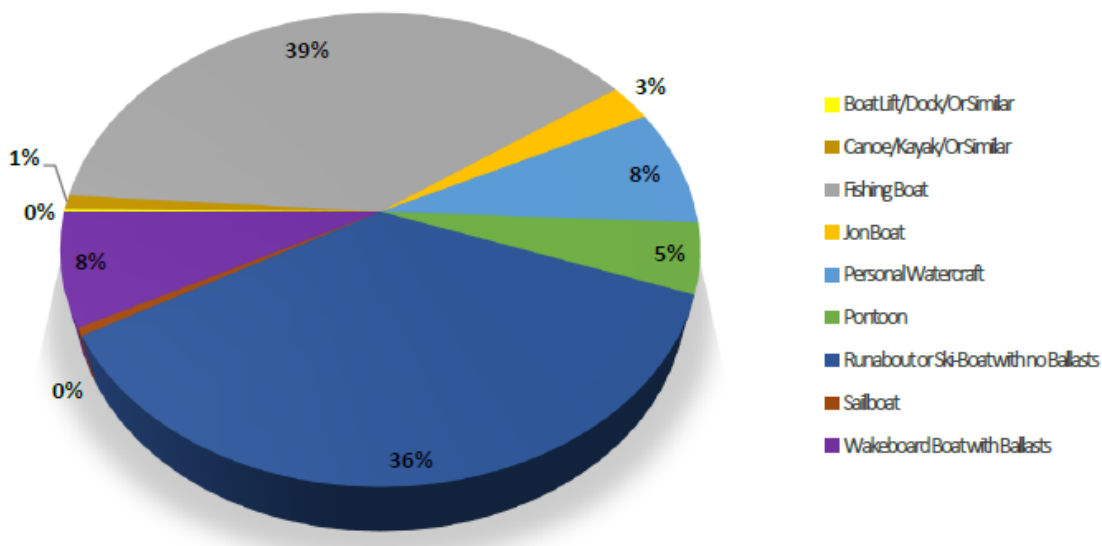
**Table 4: Lake Marion 2022 Watercraft Inspection Totals**

Month	Enter	Exit	Inspection Hours
May	215	118	75
Jun	487	223	94
Jul	499	173	159
Aug	240	67	106
Sep	77	7	40
<b>Total</b>	<b>1,518</b>	<b>588</b>	<b>474</b>

The inspection survey data reveals that over one third (39%) of all inspections were conducted on fishing boats, while runabouts were the second most inspected watercraft at 36% (Figure 33).

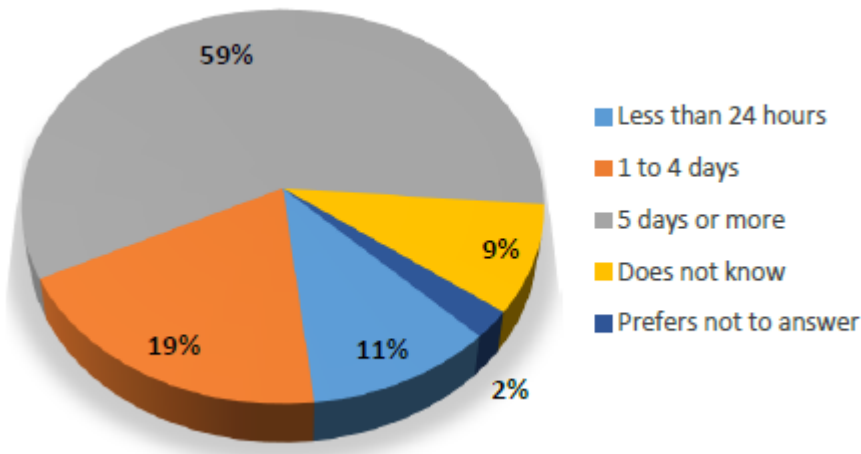
Personal watercrafts and wakeboard boats accounted for 8% each. Pontoons (5%), Jon boats (3%), and canoe/kayaks, sailboats, and boat lift/docks accounted for 1%, or less of the total inspections.

### Type of Watercraft



**Figure 33:** Chart (above) reflects the percentage of total inspections conducted on watercraft types during the 2022 inspection season.

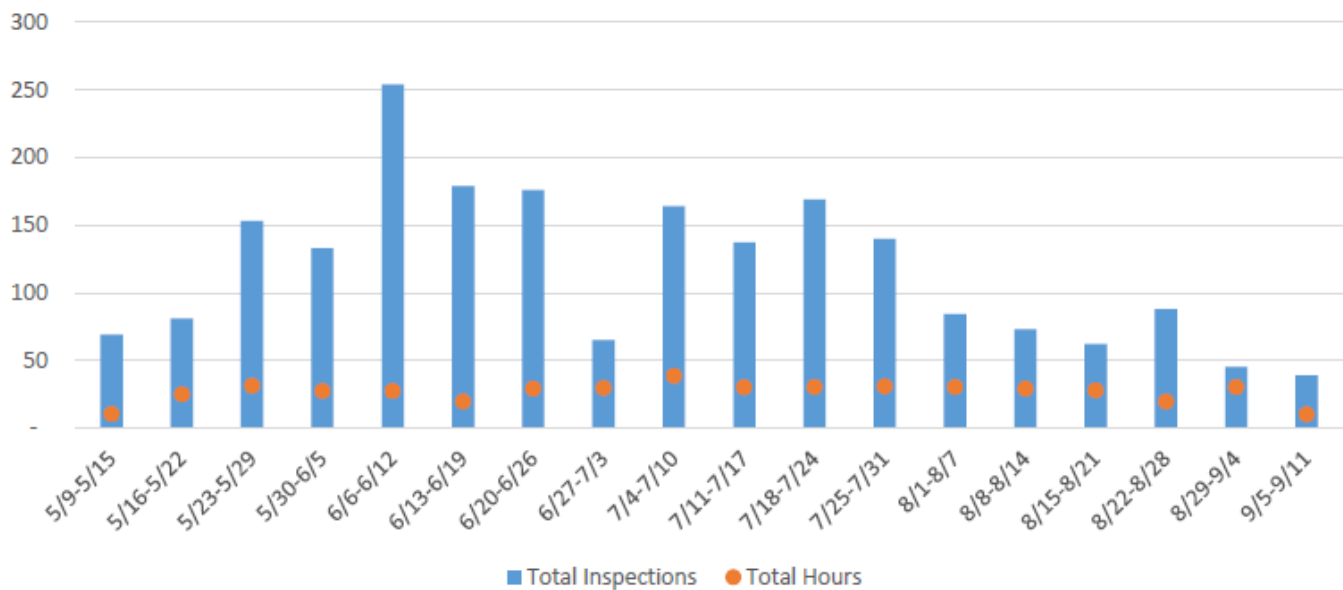
### Time Out of Water



**Figure 34:** Chart (above) reflects the percent of responses from entering boaters at Lake Marion regarding the amount of time their watercraft had been out of the water prior to entering.

The data also shows that throughout the 2022 inspection season 59% of watercrafts entering had been kept out of any body of water for the recommended 5 days or more, while 19% were reported as only being out for 1-4 days. However, another 163 boats (11% of entering watercrafts) were recorded as being out the water for less than 24 hours. The remaining 11% of boaters reported that they either did not know or preferred not to answer. (Figure 34).

### Inspections by Week



**Figure 35:** Graph (above) reflects the number of inspection surveys and the hours of inspector coverage logged at Lake Marion each week during the 2022 inspection season.

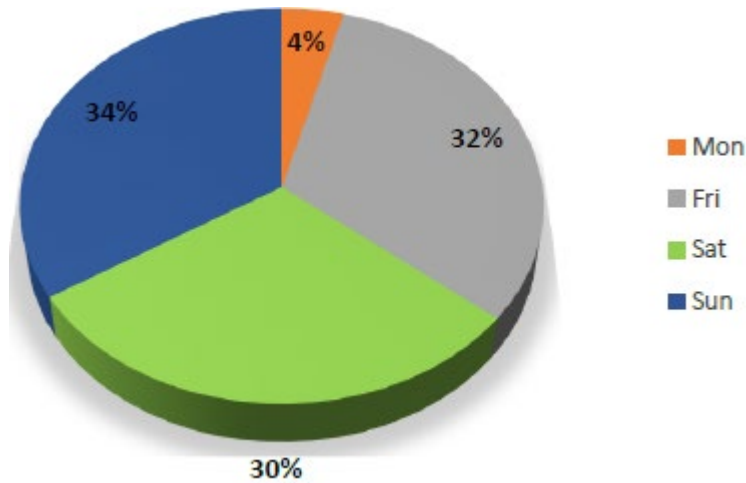
From the survey data we determined that the busiest month for watercraft inspections was June with 710 completed surveys followed closely by July, with 672. May and August were also busy months with over 300 surveys each. September has understandably lower inspection counts since coverage hours significantly decreased and it is at the end of the season. Further detail by week can be found in Figure 35, where it shows that the second week of June had the highest count of inspection surveys at 254.



The data also allowed us to determine the busiest days and busiest times of day over the course of the inspection season. It is shown that the busiest days for inspections were Sundays, followed by Saturdays and Fridays. (Figure 36).

All three summer holidays (Memorial Day, 4<sup>th</sup> of July, and Labor Day) were all on a Monday this year which is reflected by the 88 boats inspected (4% of total inspections).

### Inspections by Weekday

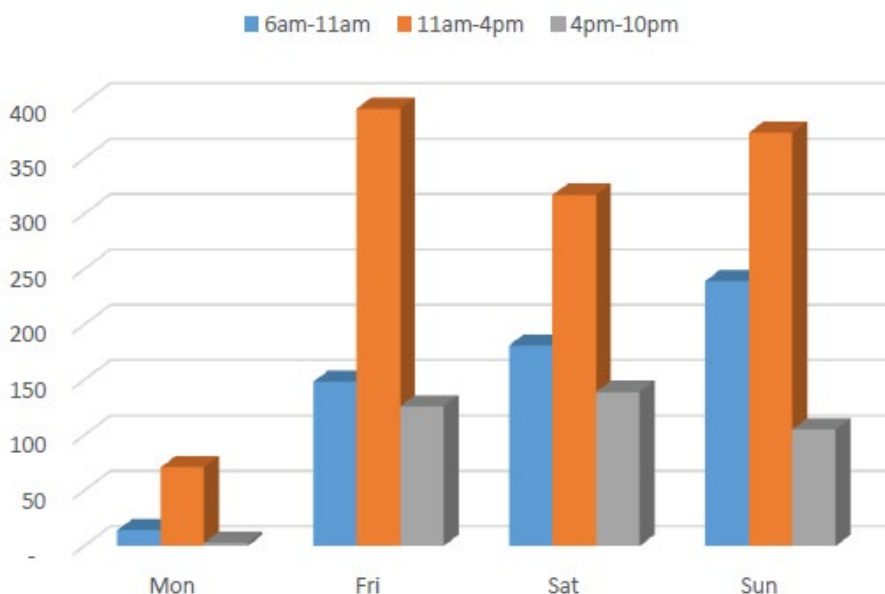


**Figure 36:** Chart (above) reflects the distribution of completed inspection surveys at Lake Marion by day of week during the 2022 inspection season.

### Inspections by Time of Day

On Mondays, Fridays, Saturdays, and Sundays alike, the data shows that the busiest time of day for inspections is between 11 A.M. to 4

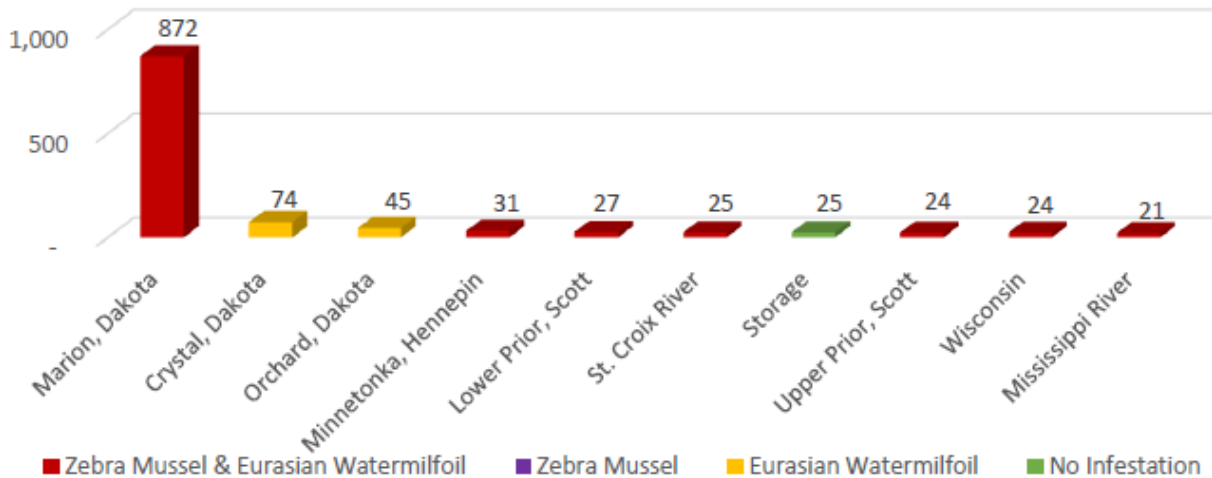
P.M. (Figure 37). The second busiest time of day is shown to be from 6 A.M. to 11 A.M.



**Figure 37:** Graph (above) reflects the number of inspection surveys reported by day of week at Lake Marion during the 2022 inspection season.

Of the entering inspections, the waterbody most visited by boaters prior to entering Lake Marion was Lake Marion itself, with 872 boaters reporting last being there (Figure 38). The other most common responses were lakes Crystal (74) and Orchard (45). This boater traffic and lake specific AIS knowledge can help us understand where new AIS infestations arise from since AIS are often unintentionally transported between bodies of water via watercrafts, trailers, and other water-related equipment.

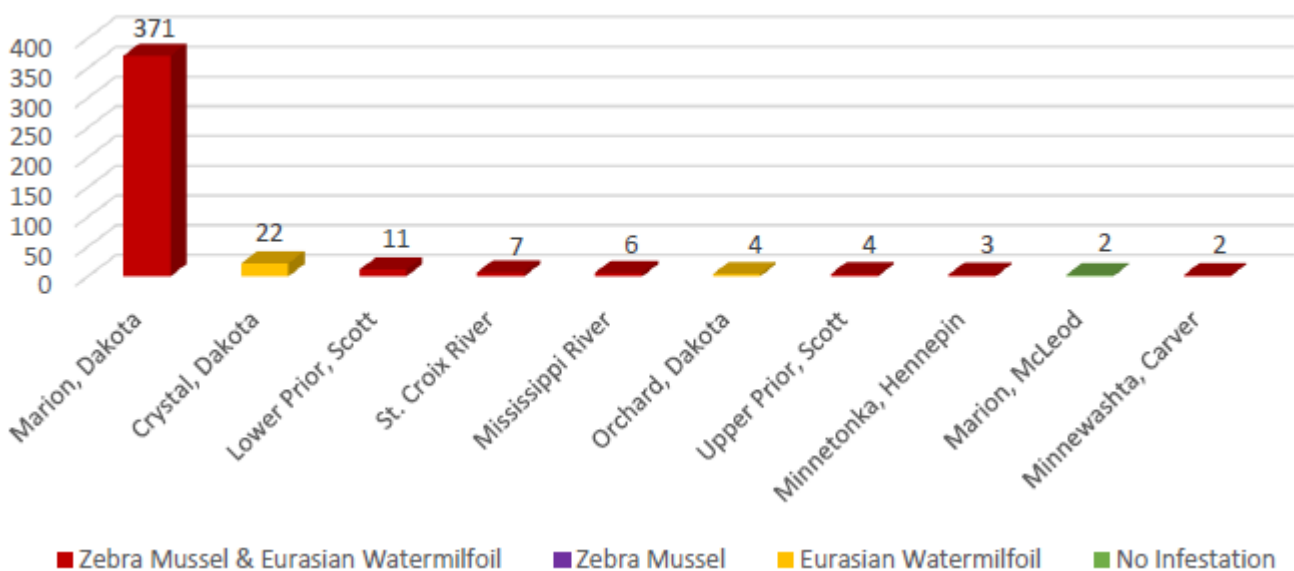
**LAST Body of Water Visited**



**Figure 38:** Graph (above) reflects the number of boaters that reported the last lake visited prior to entering Lake Marion during the 2022 inspection season.

Likewise, of the same entering inspections, the boater responses pertaining to which waterbody they would be visiting next, showed that the majority of boaters leaving Lake Marion would be going back to Lake Marion (371) (Figure 39).

**NEXT Body of Water Planning to Visit**



**Figure 39:** Graph (above) reflects the number of boaters that reported the next lake they expected to visit after Lake Marion during the 2022 inspection season. Note: “No infestation” only means that such lakes are not infested with the mentioned AIS. Graph only shows the top ten responses.

## Orchard Lake

Orchard Lake had the lowest count of inspection surveys compared to the other three staffed lakes in the Dakota County. In total, Orchard Lake was staffed for 398 hours from May 20<sup>th</sup> through September 5<sup>th</sup> and had 851 inspections completed over this period (Table 2). Staffing was requested for 7 hours on Fridays, 10 hours on Saturdays, and

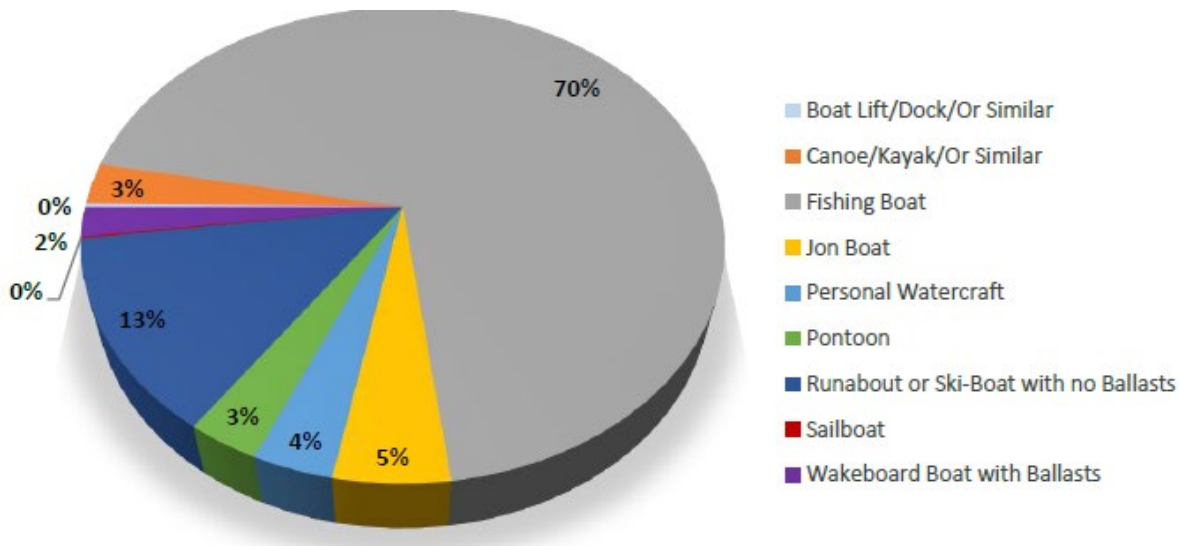
8.5 hours on Sundays. This schedule was accomplished, except for a few additional shifts that were put in place to make up for lost hours from the season start date delay.

The inspection survey data reveals that 597 fishing boats were inspected, accounting for 70% of all inspections. Runabouts were the second most inspected watercraft at 13% (Figure 40). Other types of watercraft made up the remainder of the launch traffic with Jon boats (5%), personal watercrafts (4%), pontoons (3%), canoe/kayaks (3%), wakeboard boats (2%), and 1 sailboat.

**Table 5: Orchard Lake 2022 Watercraft Inspection Totals**

Month	Enter	Exit	Inspection Hours
May	29	18	22
Jun	98	70	66
Jul	219	161	161
Aug	105	66	119
Sep	47	38	29
<b>Total</b>	<b>498</b>	<b>353</b>	<b>398</b>

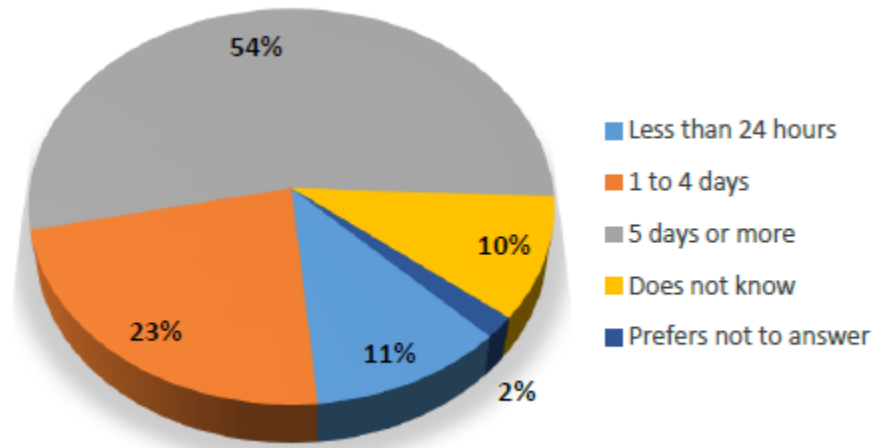
### Type of Watercraft



**Figure 40:** Chart (above) reflects the percentage of total inspections conducted on watercraft types during the 2022 inspection season.

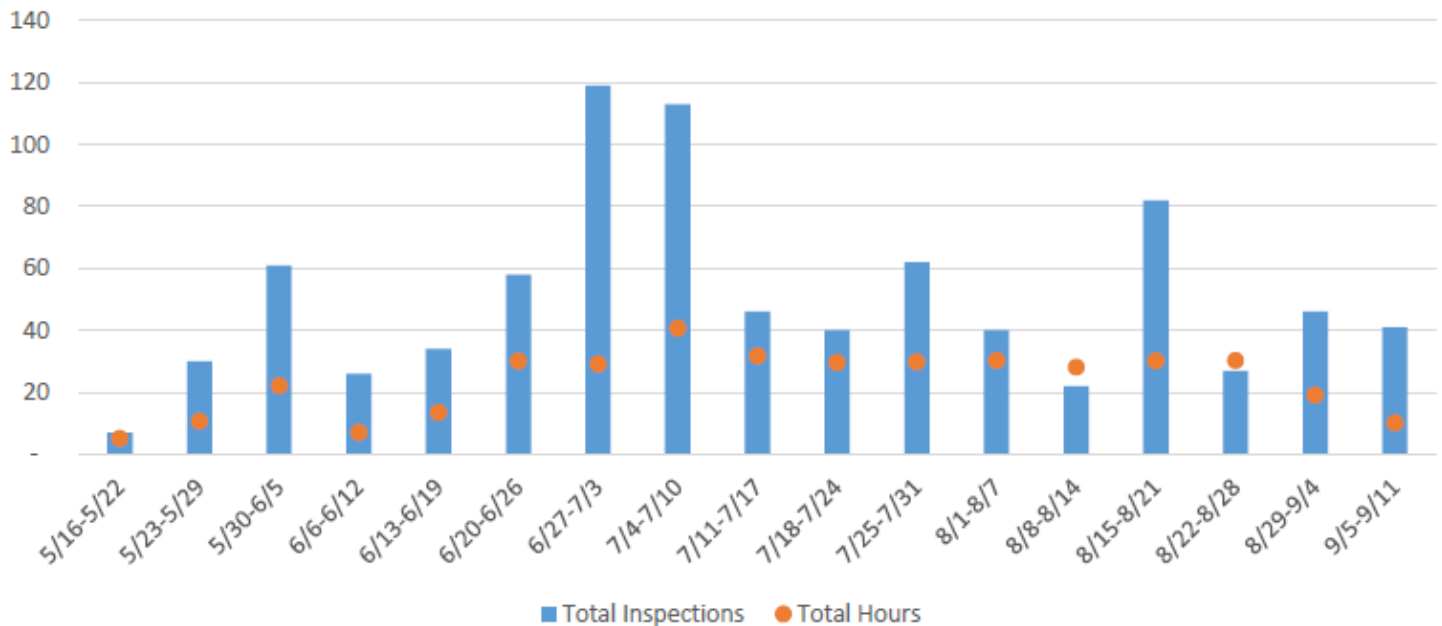
### Time Out of Water

The data also shows that throughout the 2022 inspection season 54% of watercrafts entering had been kept out of any body of water for the recommended 5 days or more, while 23% were reported as only being out for 1-4 days. However, another 11% of entering watercrafts were recorded as being out the water for less than 24 hours. The remaining 12% of boaters reported that they did not know or preferred not to answer. (Figure 41).



**Figure 41:** Chart (above) reflects the percent of responses from entering boaters at Orchard Lake regarding the amount of time their watercraft had been out of the water prior to entering.

### Inspections by Week



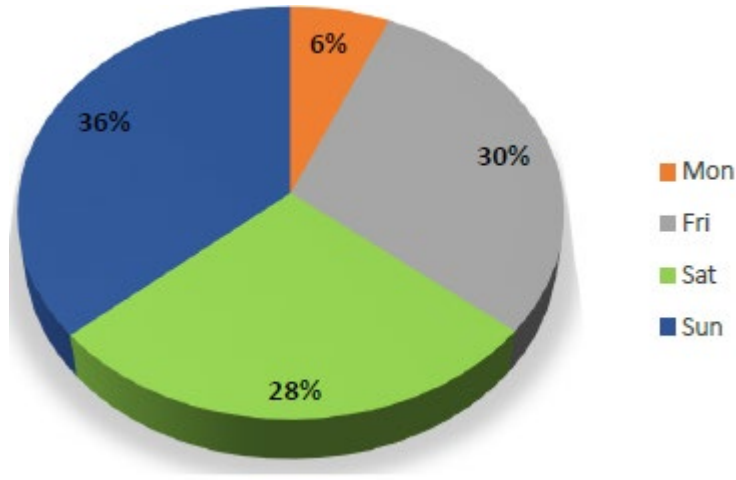
**Figure 42:** Graph (above) reflects the number of inspection surveys and the hours of inspector coverage logged at Orchard Lake each week during the 2022 inspection season.

From the survey data we determined that the busiest month for watercraft inspections was July, with 380 completed surveys each. August had half as many inspections at 171 surveys logged. May, June, and September have understandably lower inspection counts since coverage hours significantly decreased. Further detail by week can be found in Figure 42, where it shows that the last week of June (119) and the week of the 4<sup>th</sup> of July (113) had the highest count of inspections.

The data also allowed us to determine the busiest days and busiest times of day over the course of the inspection season. It is shown that the busiest days for inspections were Sundays, followed by Fridays. (Figure 43).

All three summer holidays (Memorial Day, 4<sup>th</sup> of July, and Labor Day) were all on a Monday this year which is reflected by the 55 boats inspected (6% of total inspections).

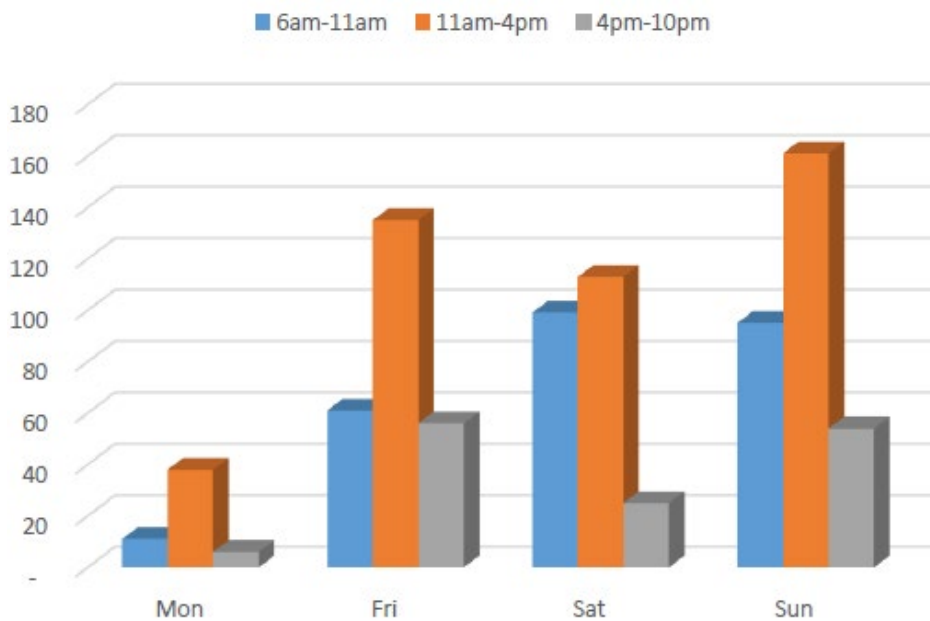
**Inspections by Weekday**



**Figure 43:** Chart (above) reflects the distribution of completed inspection surveys at Orchard Lake by day of week during the 2022 inspection season.

**Inspections by Time of Day**

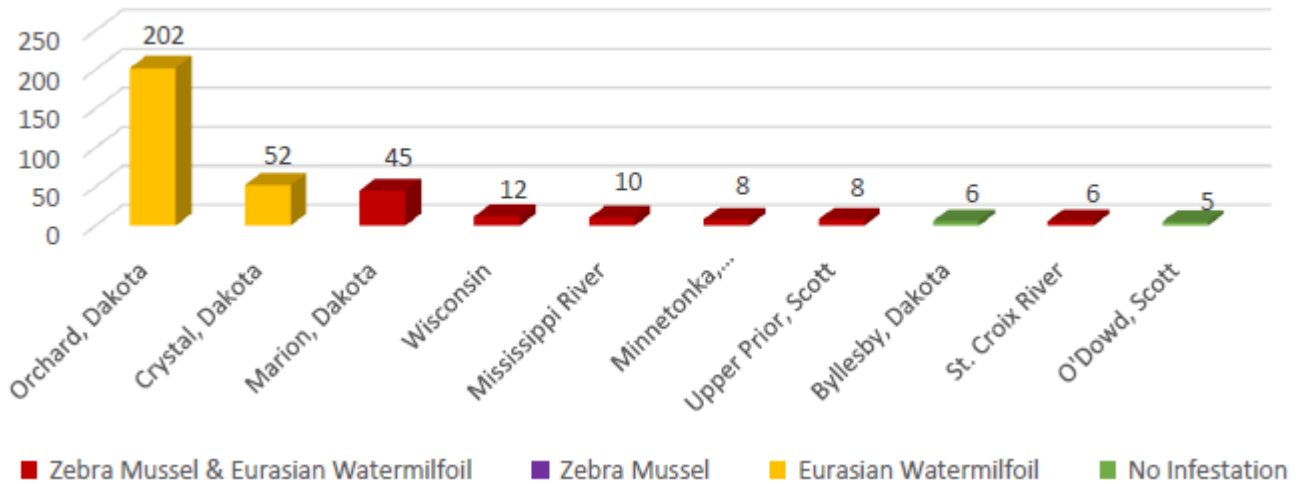
On Fridays, Saturdays, and Sundays alike, the data shows that the busiest time of day for inspections is between 11 A.M. to 4 P.M. (Figure 44). The second busiest time of day is shown to be from 6 A.M. to 11 A.M.



**Figure 44:** Graph (above) reflects the number of inspection surveys reported by day of week at Orchard Lake during the 2022 inspection season.

Of the entering inspections, the waterbody most visited by boaters prior to entering Orchard Lake was Orchard Lake itself, with 202 boaters reporting last being there (Figure 45). The other most common responses were Crystal Lake (52) and Lake Marion (45). This boater traffic and lake specific AIS knowledge can help us understand where new AIS infestations arise from since AIS are often unintentionally transported between bodies of water via watercrafts, trailers, and other water-related equipment.

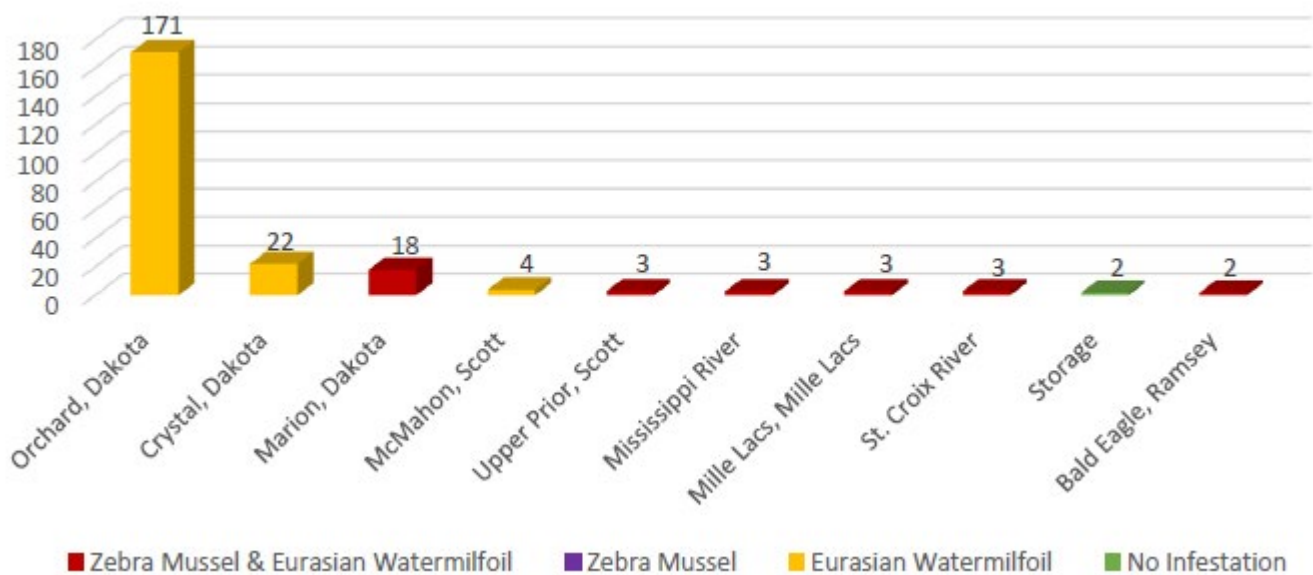
**LAST Body of Water Visited**



**Figure 45:** Graph (above) reflects the number of boaters that reported the last lake visited prior to entering Orchard Lake during the 2022 inspection season.

Likewise, of the same entering inspections, the boater responses pertaining to which waterbody they would be visiting next, showed that the majority of boaters leaving Orchard Lake would be going back to Orchard Lake (171) (Figure 46).

**NEXT Body of Water Planning to Visit**



**Figure 46:** Graph (above) reflects the number of boaters that reported the next lake they expected to visit after Orchard Lake during the 2022 inspection season. Note: “No infestation” only means that such lakes are not infested with the mentioned AIS. Graph only shows the top ten responses.

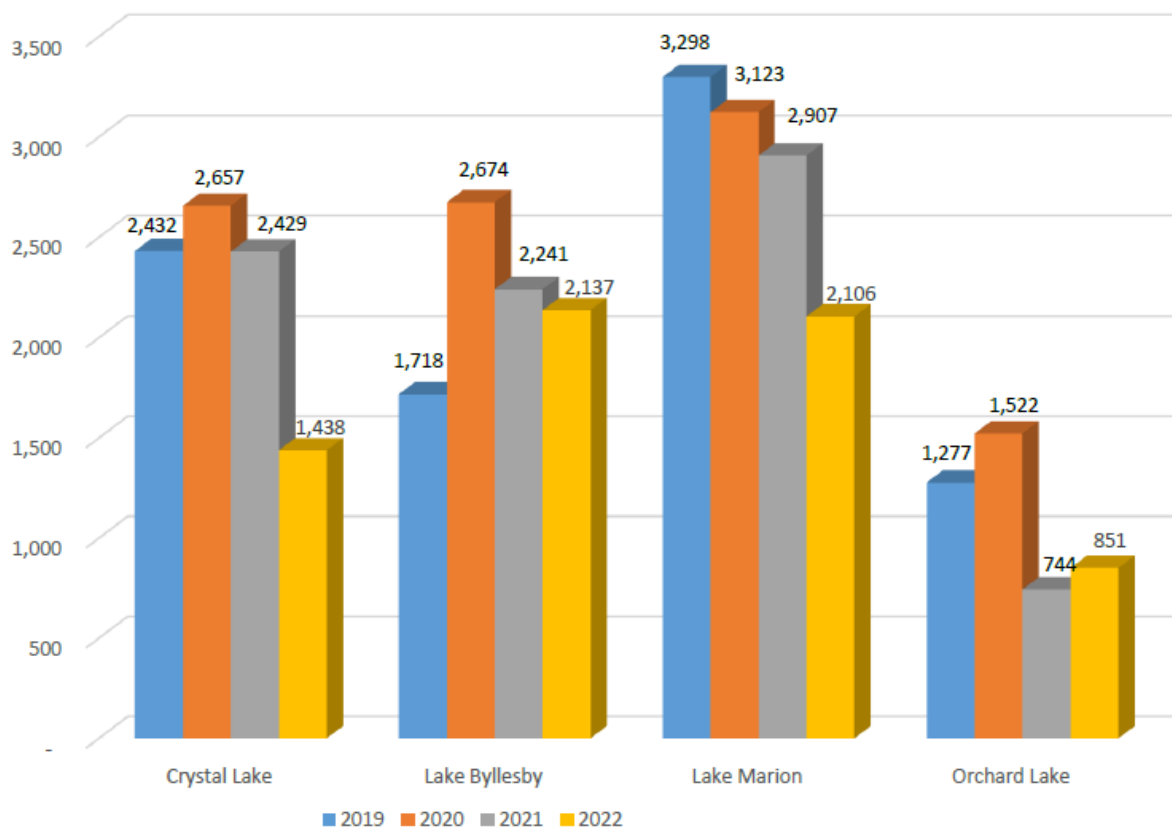
## Trends

The following graphs were created using the data gathered from the 2022 watercraft inspection program administered by Waterfront Restoration, while data collected from the DNR survey database was used to supply the 2019 - 2021 counts. Note that because Waterfront Restoration administered the 2019 - 2022 watercraft inspector program, we can compare the difference of inspector coverage hours by lake for each year and analyze the data in greater depth.

Using this watercraft inspections survey data, we created the following graphs and analyzed them to check for trends from season to season within the inspections program. The knowledge gathered from the provided information can then be used by Dakota County to adjust and improve the inspection program as desired.

The boat traffic decreased across Dakota County by 1,772 inspections. Orchard Lake experienced 107 more inspections than in 2021, while traffic on Crystal Lake, Lake Byllesby and Lake Marion only noticeably decreased (Figure 47). Lake Marion and Lake Byllesby had a similar number of inspections this season.

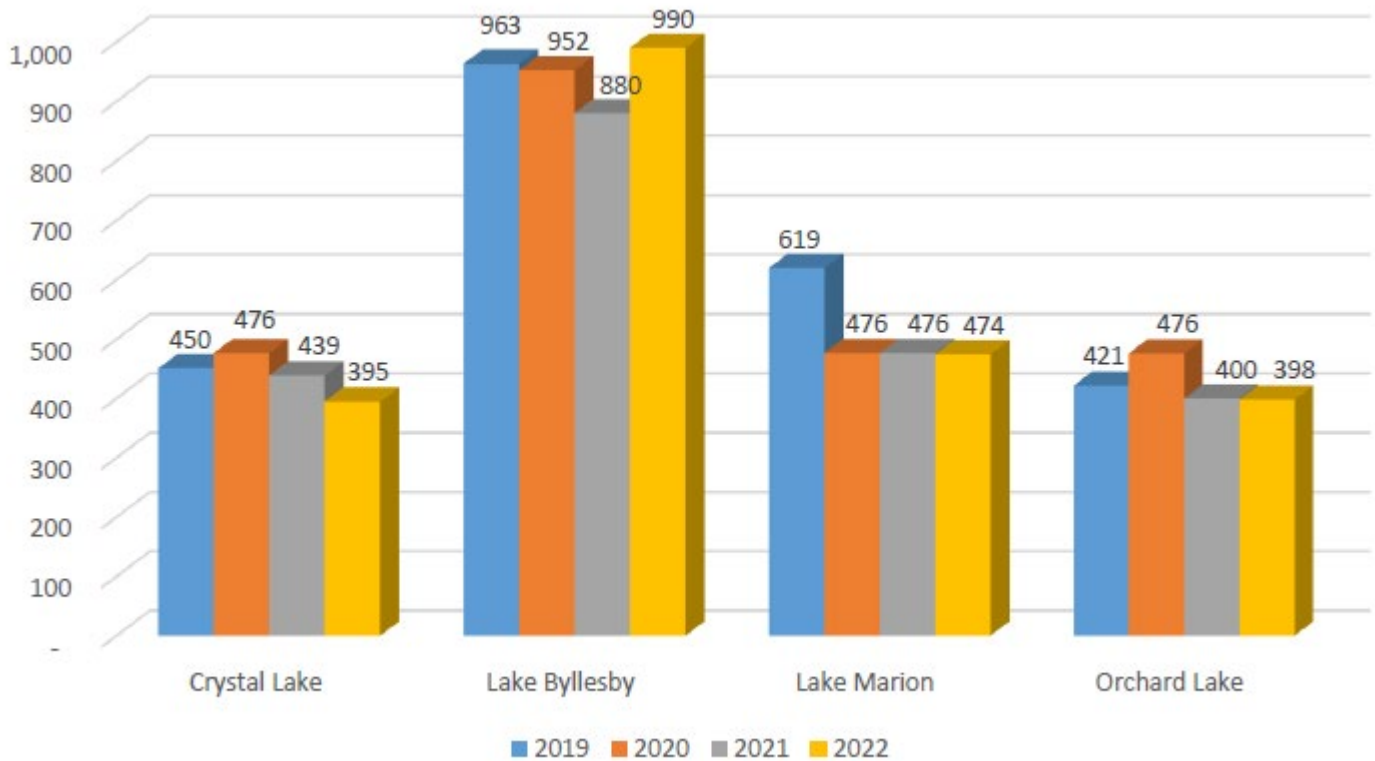
### Inspections Per Lake 2019 - 2022



**Figure 47:** Graph (above) shows the comparison of inspection surveys completed at each lake between the 2019, 2020, 2021 and 2022 seasons.

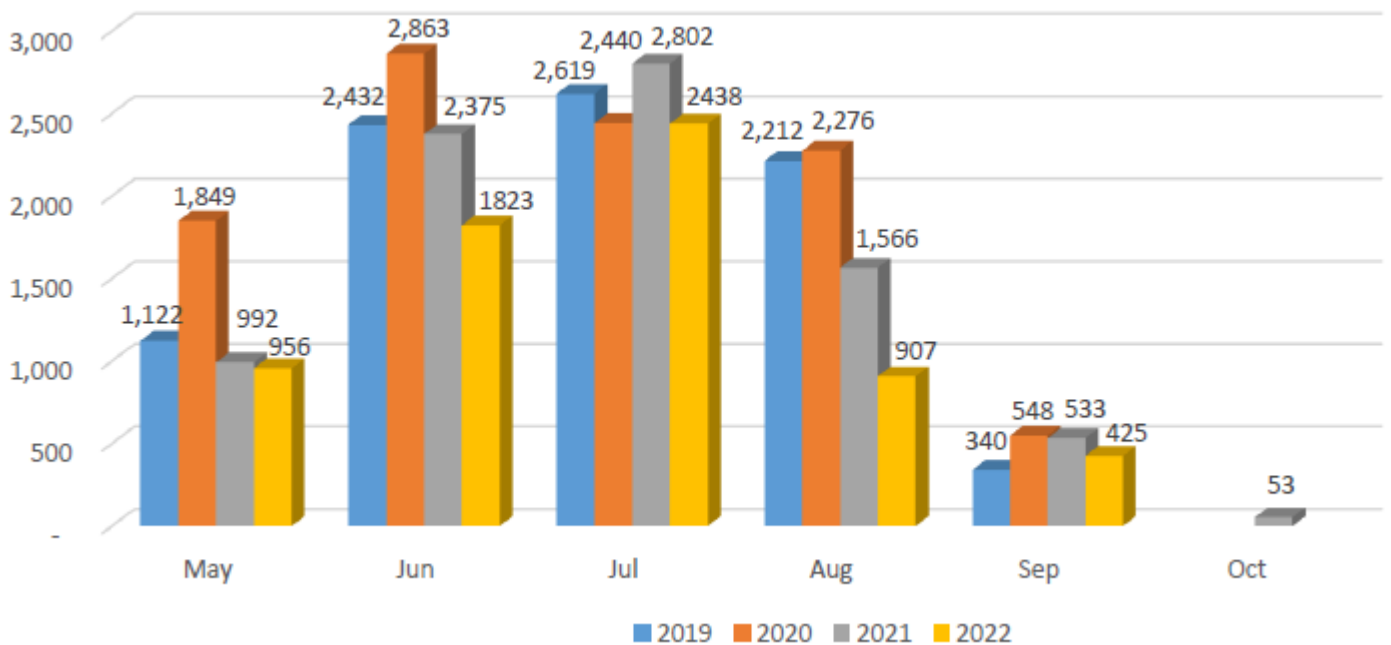


### Inspector Staffing Hours 2019 - 2022



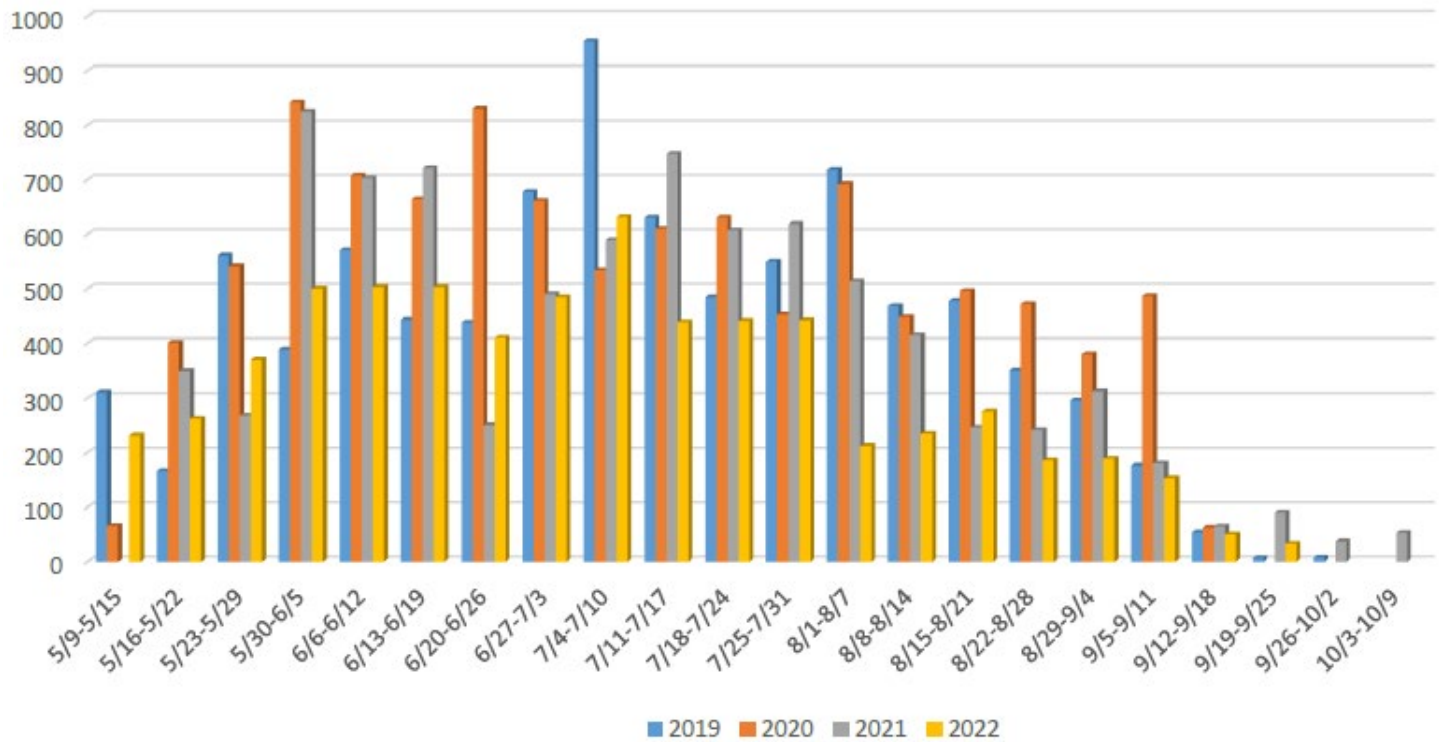
**Figure 48:** Graph (above) shows the comparison of inspection surveys counts and inspector staffing hours completed at each lake between 2019, 202, 2021, and 2022.

### Inspections by Month 2019 - 2022



**Figure 49:** Graph (above) shows the comparison of inspection surveys completed by month in 2019, 2020, 2021 and 2022. Note that survey counts for 2019 and 2021 excluded Mississippi River.

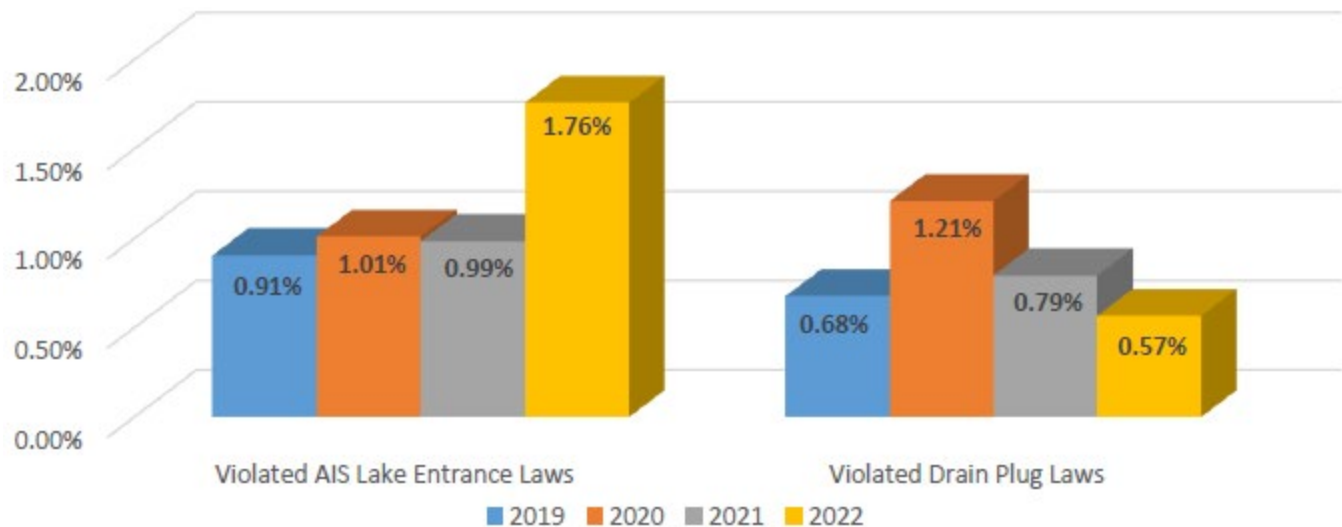
### Inspections by Week 2019 - 2022



**Figure 50:** Graph (above) shows the comparison of inspection surveys completed by week in 2019, 2020, 2021 and 2022. **Note that survey counts for 2019 and 2021 excluded Mississippi River.**

Entering watercraft that arrive at a lake access with their drain-plug in and/or arrive with aquatic plants, water, or mud in or on their watercraft are in violation of MN law. Figure 51 shows the number of these cases reported over the last four years. In 2022 MN AIS law violations saw a significant increased from 0.99% up to 1.76%. At the same time about half as many boaters violated the drain plug laws in 2022 and decreased the rate from .79% of boaters in 2021 to 0.57% in 2022.

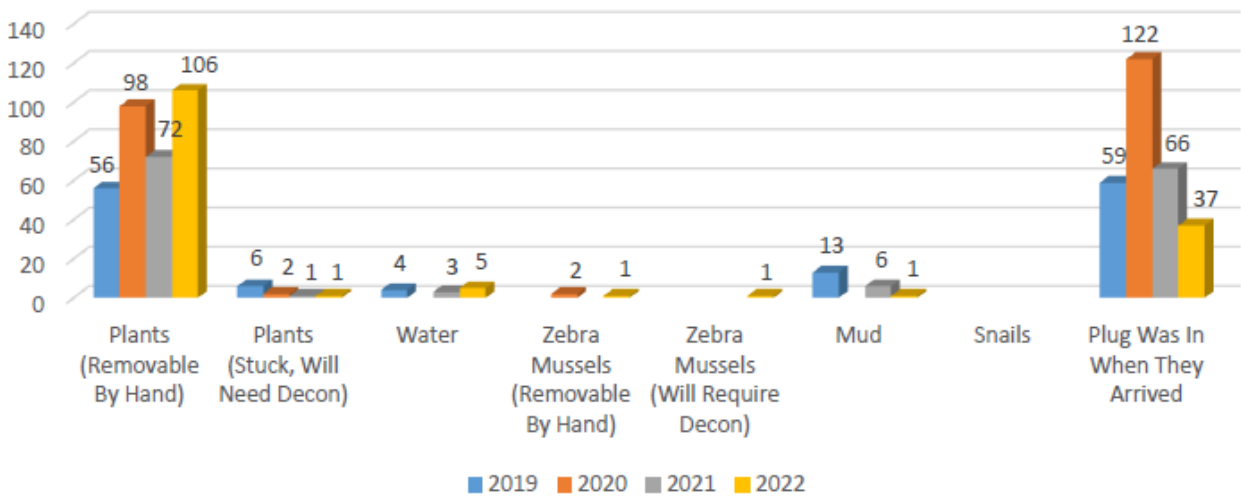
### Comparison of MN AIS Law Violation



**Figure 51:** Graph (above) shows the comparison of the percent of total boaters that violated Minnesota Aquatic Invasive Species (AIS) Laws between 2019 - 2022. **Note that violation and survey count for 2019 and 2021 excluded Mississippi River.**

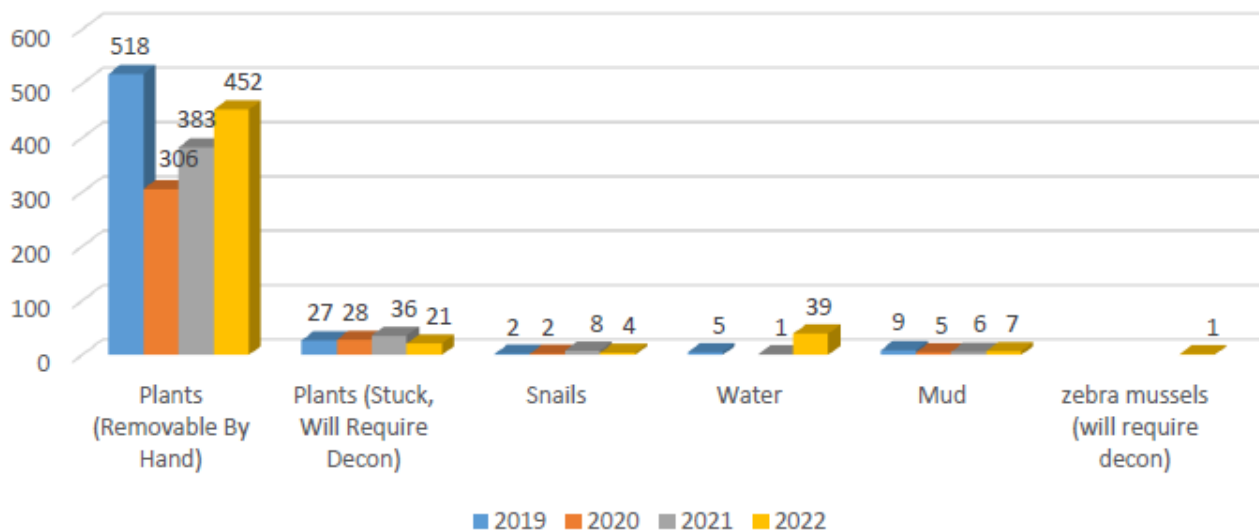
Over the past four years, the most common finding remains to be plants removable by hands (Figure 52). Data shows that in 2022 plants (removable by hand) increased significantly at entering as well as at exiting compared to 2021. There was also an increase in water found in the watercraft or water related equipment at both entering and exiting compared to the 2021 season. Water is important to look for during inspections as it is one of the most common ways for invasive species such as zebra mussels to be spread. This is especially relevant to Dakota County considering factors such as it is a more popular recreational boating destination for watercraft with ballast tanks. Dakota County boaters also report less dry time on average compared to other counties. Lastly, Dakota County has popular lakes such as Lake Marion already infested with zebra mussels that pose a much great risk to being spread to other non-infested waters. Inspectors are trained to use these findings as educational opportunities for boaters to be responsible for when self-inspecting because an inspector is not present to hold them accountable.

### Comparison of Findings at Entrance by Year



**Figure 52:** Graph (above) shows the comparison of findings during entering inspections between 2019 - 2022. **Note that violation count for 2019 and 2020 excluded Mississippi River.**

### Comparison of Findings at Exit by Year



**Figure 53:** Graph (above) shows the comparison of findings during exiting inspections between 2019 - 2022. **Note that violation count for 2019 and 2020 excluded Mississippi River.**

### Comparison of Decontaminations by Year

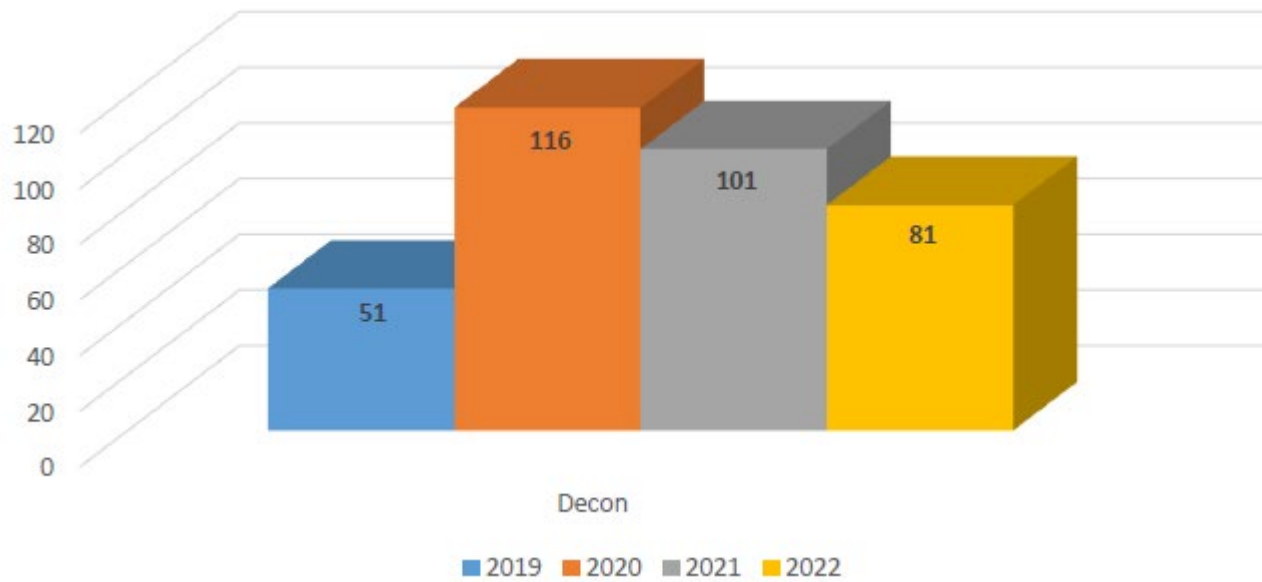


Figure 54: Graph (above) shows the comparison of findings during exiting inspections between 2019 – 2022.

### Comparison of Decontaminations by Type

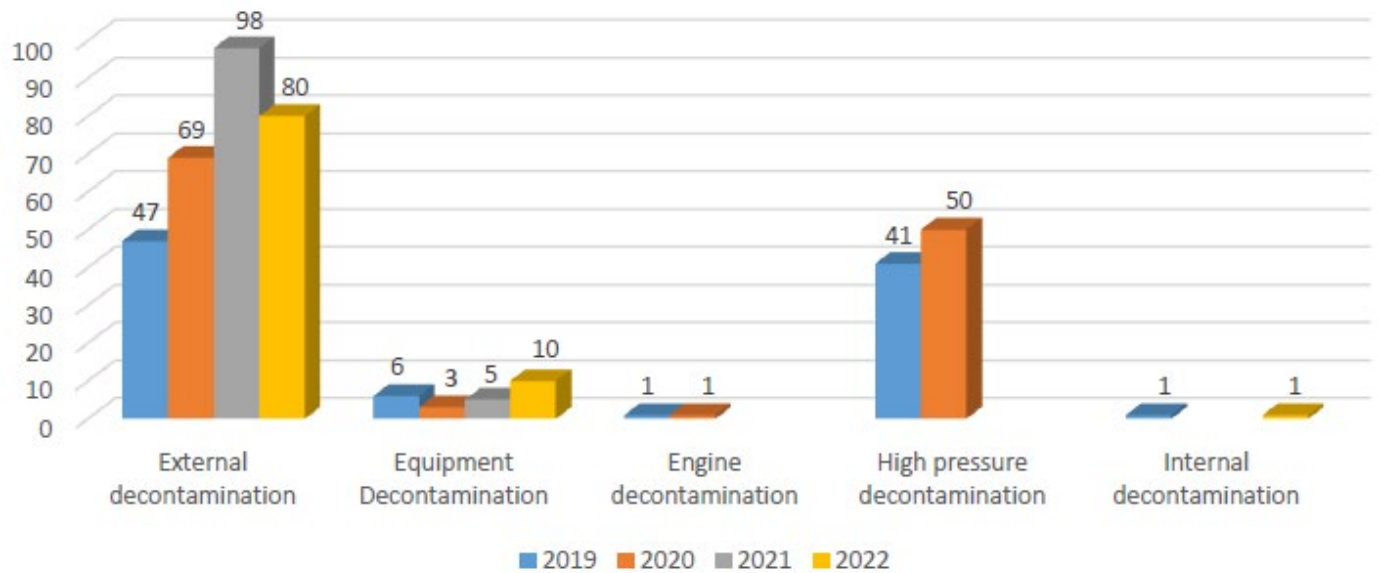


Figure 55: Graph (above) shows the comparison of findings during exiting inspections between 2019 – 2022.

## Summary and Comments

The 2022 watercraft inspection staffing began on May 14<sup>th</sup> and concluded on September 25<sup>th</sup>. All the 2,256 contracted inspector hours for the season hours were worked for a 100% contracted hours fulfillment rate during the 2022 season.

Key impacts from 2022 watercraft inspection season:

- In total, Inspectors conducted 2.9 inspections per hour. The breakdown by lake is as follows: Crystal 3.7 inspections/hour, Byllesby (Level 1 and 2) 2.2 inspections/hour, Marion 4.5 inspections/hour, and Orchard 2.2 inspections/hour.
- Inspectors denied launch to a boat owner attempting to enter Lake Byllesby with attached zebra and/or quagga mussels. This action by the inspectors potentially prevented an invasive mussel infestation in the lake.
- AIS law compliance decreased and drain plug violations were reduced compared to the 2021 season. Inspectors made efforts in these situations to educate boaters on the state AIS laws and why being responsible for clean, drain, and drying their water related equipment is vital to the preservation of our waters. The educational impact will hopefully be seen with more thorough self-inspections when an inspector is not present at the launches.
- Inspectors offered public assistance at the boat ramp, and most boaters were patient and eager to engage in the inspection process. No inspectors reported being in uncomfortable or unsafe situations while working at the launches.
- Represented the company and Dakota County in a polite and professional manner.

Recommendations for 2023 watercraft inspection season:

- Continue with at least the same level of coverage and consider more randomized weekday coverage throughout the season to help reach people accessing the lakes primarily during the week. Weekday evening shifts could be valuable to target the higher percentage of recreational boaters in Dakota County.
- Expand inspector weekend coverage to other Dakota County lakes.
- 4 of the counties 15 motorized boat launches were staffed with inspectors in 2022. Fund a “Roaming Inspector” that will travel between the other 11 motorized boat launches each weekend to educate and inspect the public on AIS law compliance.
- Continue to provide and refresh educational AIS material handouts that inspectors can give to boaters.

Overall, the watercraft inspection season was another success! Thank you for trusting Waterfront Restoration to recruit, staff, train, and manage a team of dedicated inspectors to help protect the Dakota County lakes. We look forward to continuing our services to the city, and the people who enjoy the lakes next season.

## Appendix

[Why do watercraft inspections?](#)

[Entering Inspection](#)

[How are your watercraft inspectors trained and what is your inspection protocol?](#)

[Little known facts about inspections](#)

[Should our county or lake consider expanding inspections to include more weekday shifts?](#)

[Watercraft Inspection Checklist](#)

[What are some of the AIS CURRENTLY on other lakes within Dakota County?](#)

[What are some of the AIS laws and Penalties?](#)

[Other questions](#)