



# Project Summary to St. Louis County

## Aquatic Invasive Species Prevention Program

### 2022 Watercraft Inspection Season

#### A. Successes

The North St. Louis Soil and Water Conservation District received St. Louis County Aquatic Invasive Species (AIS) Prevention funds to operate an AIS watercraft inspection and decontamination program at 12 lakes: Bear Island, Birch, Burntside, Crane, Ely, Gilbert Pit, Johnson, Kabetogama<sup>1</sup>, One Pine, Pelican, Shagawa and Vermilion Lakes. Measurable results from the 2022 program include:

- Between May 12<sup>th</sup> and October 23<sup>rd</sup>, a total of **26,349** inspections plus **102** decontaminations occurred on 23 public accesses and 13 private accesses.
  - Public Access Inspections<sup>2</sup>: completed 25,563 watercraft inspections out of the goal of 25,520 or 100%
  - Private Access Inspections: completed 786 watercraft inspections out of the goal of 2,350 or 33%
  - Decontaminations: completed 102 decontaminations out of the goal of 810 or 13%
  - Two interns worked as Inspector Supervisors. Interns worked with inspectors, were first to address any issues that arose with equipment, decontamination units, or inspector performance. They also monitored lakes for new AIS infestations and contributed to new public access signage installation. One intern concluded their employment on August 15<sup>th</sup>, while the other worked until November 3<sup>rd</sup>, installing "This water drains to the BWCAW" signage at the end of season.
  - 30 Level 1 Inspectors worked 7,840.50 hours out of the goal of 8,730 or 90%
  - 10 Level 2 Inspectors (decontamination trained) worked 3,593.25 hours out of the goal of 4,500 or 80%
  - Inspector staffing averaged **2.2** inspections per hour, just shy of the **>2.4** inspections per hour season goal
- COVID-19 Restrictions- As national infection rates subsided, previous COVID restrictions and recommended restriction loosened up throughout the year. Even with more relaxed prevention recommendations, inspectors continue to be outfitted with COVID-19 related personal protective equipment including hand sanitizer, face masks, disposable gloves and 6ft of social distance were highly recommended when interacting with the public. There were zero (0) COVID-19 positive cases reported in our watercraft inspection program.
  - Trainings and meetings- A hybrid training process by the Minnesota Department of Natural Resources (MNDNR) in an effort to train level 1 inspectors effectively following the COVID-19 pandemic continued. This hybrid system allowed returning inspectors with multiple years of experience to complete only online trainings. Both online and in-person training was required for inspectors who had been authorized in 2021 and not 2020, have skipped year(s), or were new to the watercraft inspection program.

The District utilized 27 new and returning inspectors and scheduled them at public water accesses starting May 7<sup>th</sup>, the Friday before Fishing Opener weekend. Three other inspectors were hired following the first weekend to make 30 available inspectors for most of the 2022 inspection season. New inspectors were stationed with returning inspectors during their first shift to allow them to observe experienced inspectors, ask questions, and receive feedback on their performance before working a shift on their own.

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<sup>1</sup> The District has an Agreement for Service with Koochiching County Environmental Services to complete inspections on Lake Kabetogama via Koochiching SWCD. International Falls, where their office is based, is much closer to the lake than Virginia, where the District's office is based. This makes recruiting inspectors much easier. Inspections completed on Kabetogama are included in this report.

<sup>2</sup> This included four private accesses (Muskego Pt. Resort, Pehrson's Lodge, Vermilion Dam Lodge, White Eagle Lodge) on Lake Vermilion that were staffed by NSL SWCD watercraft inspectors.

Level 2 training for decontamination operators was also a hybrid training process by the MNDNR. Similar to the Level 1 training requirements, the extent of online and in-person training depended on previous authorization status, if any. The District was able to utilize ten (10) level 2 inspectors for most of the inspection season.

AIS training continued with an online, program-specific, training which included a recorded video introduction to the District's specific protocols, chain of command, as well as gear and tablet information. This online training helped streamline communication, and clarified how to respond to boater violations.

The District utilized an online work chat and email to communicate with all inspectors to ensure they knew about decontamination unit schedules, upcoming tournaments, weekly updates, and answers to common boater questions. The inspector supervisors also checked-in with the inspectors throughout the season to answer any questions, up-channel any concerns, provide resources, and ensure the inspectors had properly functioning equipment and sufficient supplies for them to complete their duties.

In addition, inspectors from 3 counties were offered in-person "Enhanced Inspector Training" that focused on customer service and featured speakers from the MN DNR and MN SeaGrant, among others. The highlight was a conversation with a conservation officer. This training was held at Minnesota North College's Vermilion campus in Ely on May 24.

On September 26<sup>th</sup>, the District hosted an in-person inspector meeting to discuss the success of the 2022 inspection season and to gain valuable insight from the inspectors. The inspectors lauded the public's perspective of the AIS program and had very few issues throughout the season. This meeting was a great way to get the inspectors' perspectives of what is working well and how to improve the program. An emphasis was placed on thanking the inspectors for their contributions to the AIS prevention program. We wanted them to know their work is appreciated and invite them to return.

- Tracking Hours Worked at Accesses- The AIS Program Coordinator has continued to monitor inspector time to close the gap between Target Hours Scheduled and Hours Worked by tracking hours weekly. In 2022, there were very few adjustments made to the inspector schedules. The inspectors were reliable and continually showed up for their scheduled work hours.

Scheduling flexibility and adjustments throughout the inspection season is an important part of the success of the watercraft inspection program. Having a reliable inspector group is also critical to the program. Occasional check-ins by the seasonal interns and reviewing the difference between hours worked vs hours scheduled ensured inspectors were working their scheduled shifts. The largest difference in hours worked vs hours scheduled were seen in the Lake Vermilion and Voyager's National Park (VNP) sections. Most of the unaccounted hours in 2022 were due to unconfirmed shifts, and cancelations from unforeseen illness and personal issues. In general, lost hours in all the regions were lower in 2022 compared to previous years. The only exception is Kabetogama/Crane section where values were well above previous years. With the expansion of the inspection program in Kabetogama in 2022 it is likely that there were some issues with scheduling hours. There will be a more concerted effort to accurately track the scheduled/worked hours in 2023. Even without the ability to hire a full watercraft inspection team, the difference of hours worked vs the season target hours were historically lower compared to previous years.

The shifting of decontamination units provided an unbalance in level 1 and level 2 inspector hours in most regions. It is important to ensure that decontamination units are operational whenever possible, and it is ok to see a slight overage of level 2 hours worked. This also highlights the struggle of staffing level 2 inspectors in many regions and the impact it can have on decontamination opportunities. As the historical difference in

worked hours vs scheduled continues to draw closer to zero it shows that we get better in targeting hours at the beginning of the season and allocating resources throughout the season. For reference, in 2019 these values were -1,569.35hrs, in 2020 it dropped to -1,041.75hrs, a slight rise was observed in 2021 with a difference of -1,637hrs. In 2022, the difference was -944,25hrs. The lack of in-season training opportunities for new(?) inspectors and not enough inspectors for the Lake County and Sturgeon Lake Chain areas increased the overall seasonal difference to -1,956.25hrs. See the Table 1 below.

As the program continues to grow, we hope to hire more inspectors to help minimize the gap between seasonal goals and actual hours worked. We will continue to monitor the hours logged by the inspectors to ensure scheduled staff are working the shifts assigned. We also plan on incorporating additional decontamination units to the region which will likely shift the targets and expectations of the inspection program.

**TABLE 1**

Region	Sum of Hours Worked	Sum of Hours Scheduled	Target Hours	Difference Hours Worked- Hours Scheduled	Difference Hours Scheduled- Target Hours	Difference Hours Worked- Target Hours
Ely Level 1	1,025	1,062	828	-36.50	233.50	197.00
Ely Level 2	1,056	1,086	1,304	-30.25	-218.00	-248.25
Burntside/Shagawa Total	2,081	2,148	2,132	-66.75	15.50	-51.25
Fayal Township Level 1	442	464	352	-22.50	112.00	89.50
Fayal Township Level 2	301	300	368	1.25	-68.00	-66.75
Fayal Township Total	743	764	720	-21.25	44.00	22.75
Pelican Level 1	407	424	128	-17.00	296.00	279.00
Pelican Level 2	97	96	100	0.50	-4.00	-3.50
Pelican Total	504	520	228	-16.50	292.00	275.50
Vermilion Level 1	4,206	4,337	4,960	-131.00	-623.00	-754.00
Vermilion Level 2	1,403	1,453	1,260	-50.25	193.00	142.75
Vermilion Total	5,609	5,790	6,220	-181.25	-430.00	-611.25
VNP Level 1	1,297	1,521	1,700	-223.50	-179.50	-403.00
VNP Level 2	737	1,017	900	-279.50	116.50	-163.00
Kabetogama/ Crane Total	2,034	2,537	2,600	-503.00	-63.00	-566.00
WICOLA Level 1	464	478	478	-14.00	0.00	-14.00
WICOLA Level 2	-	-	-	-	-	-
WICOLA Total	464	478	478	-14.00	0.00	-14.00
<b>Total:</b>	<b>11,433.75</b>	<b>12,237</b>	<b>12,378</b>	<b>-802.75</b>	<b>-141.50</b>	<b>-944.25</b>
Trainings/ Extra Meetings	279	177	820	101.50	-643.00	-541.50
Lake County Total	749	760	1,000	-11.25	-240.00	-251.25
Sturgeon Lake Total	473	476	692	-3.25	-216.00	-219.25
<b>Total NSL Hours:</b>	<b>12,933.75</b>	<b>13,649.50</b>	<b>14,890.00</b>	<b>-715.75</b>	<b>-1,240.50</b>	<b>-1,956.25</b>

Table 1: The differences between hours that were targeted at the beginning of 2022 (Target Hours) vs. the hours that were scheduled throughout 2022 (Hours Scheduled) vs. the hours that were actually worked throughout 2022 (Hours Worked) at each location. Red indicates a negative difference. Green indicates a positive difference. NSL SWCD was contracted by Lake County SWCD and Sturgeon Lake Chain Association to conduct inspections within their regions. VNP hours were contracted out by the District to Koochiching SWCD.

- Increased Inspections per Hour Rate-** The efficiency of the watercraft inspectors continues to be a priority of the District’s watercraft inspection program. The Vermilion Lake Association’s access analysis in 2021 was a great help to identify the busiest access and continues to pay dividends with the number of inspections and efficiency rate’s exceeding the 2022 goals. It is clear that when total inspections conducted meet or exceed the targeted goals, the actual efficiencies also meet or exceed the targeted efficiency goals – see Table 2. This knowledge will continue to guide the actions of the watercraft inspection program to meet its annual targets and goals. Table 3 is a list of all the lakes and accesses staffed by inspectors in 2022, listed in descending order based on Inspection per Hour rates.

**TABLE 2**

Lake	2022 Target		2022 Actual	
	Inspection Target	Efficiency Target per Hour	Inspection Actual	Efficiency Actual per Hour
Bear Island	40	>1	9	0.75
Birch	920	>2.3	<i>1,568</i>	3.63
Burntside	1,700	>2	1,576	*1.23
Crane	960	>2	<i>1,194</i>	*2.55
Ely Lake	520	>1.5	922	*1.93
Gilbert Pit	280	>1	149	*0.56
Johnson	20	>1	0	0.00
Kabetogama	4,200	>3	2,449	1.58
One Pine	20	>1	11	0.79
Pelican	900	>1.7	<i>1,289</i>	*2.67
Shagawa	1,460	>1.9	1,393	*1.73
Vermilion	14,500	>2.5	<i>15,003</i>	*3.57
<b>TOTAL</b>	<b>25,520</b>	<b>&gt;2.4</b>	<b>25,563</b>	<b>2.23</b>

Table 2: The number of inspections and efficiency completed at each access (2022 Actual), compared to the number of inspections and efficiency targeted (2022 Target). \*Accesses with both Level 1 and Level 2 Inspectors, and often just a Level 2 Inspector, complete Level 1 surveys, therefore it is necessary to consider Level 2 Hours when looking at efficiency. Italicized actual inspection numbers are sites that exceeded their 2022 target inspections, and highlighted actual efficiency rates fell below their target 2022 values.

**TABLE 3**

Region	Lake/Landing	Hours Worked	Total Inspections	Inspections/Hour
WICOLA	Birch (South)	426	1557	3.65
Vermilion	Hoodoo Pt. N.	*1740.75	6046	3.47
Lake Co.	Fall Lake (campground)	427.5	1435	3.36
Vermilion	Moccasin Pt.	951.25	2972	3.12
Pelican	Orr Bay	*470.25	1256	2.67
VNP	Crane (Waters Edge)	*385	982	2.55
Vermilion	Timbuktu	771.5	1850	2.40
Vermilion	Black Duck	456	1047	2.30
Vermilion	Everett	562	1269	2.26

Region	Lake/Landing	Hours Worked	Total Inspections	Inspections/Hour
VNP	Crane (East)	97	212	2.19
Lake Co.	Moose Lake	175.5	376	2.14
Fayal Township	Ely Lake	*477	922	1.93
Vermilion	Frazer Bay	397	755	1.90
Vermilion	Head of Lakes	306	568	1.86
WICOLA	Birch (West)	6	11	1.83
Lake Co.	Farm Lake	41.25	73	1.77
Ely	Shagawa (Sandy Pt.)	*803	1393	1.73
VNP	Kabetogama	*1552	2449	1.58
Vermilion (private)	Vermilion Dam Lodge	95	147	1.55
Lake Co.	Snowbank Lake	48.5	65	1.34
Sturgeon Lake Assoc.	Little Sturgeon	120.5	158	1.31
Sturgeon Lake Assoc.	Sturgeon (Sixberry's)	122	156	1.28
Ely	Burntside (Van Vac)	*1277.75	1576	1.23
Lake Co.	White Iron (North)	8	9	1.13
Vermilion	Petersons/Wakemup Bay	305.25	322	1.05
Pelican	Saunders Bay	33.25	33	0.99
Lake Co.	Tofte Lake	48	45	0.94
Vermilion (private)	Pehrson Lodge	12	11	0.92
WICOLA	One Pine	14	11	0.79
WICOLA	Bear Island (South)	12	9	0.75
Sturgeon Lake Assoc.	Perch Lake	32.25	20	0.62
Fayal Township	Gilbert Pit (Ore-Be-Gone)	*265.75	149	0.56
Vermilion (private)	Muskego Pt Resort	12	5	0.42
Sturgeon Lake Assoc.	Sturgeon Lake (McCarthy Park)	166	39	0.23
Sturgeon Lake Assoc.	Beatrice Lake	32	7	0.22
WICOLA	Johnson Lake	6	0	0.00

Table 3: The rate of inspections per inspector hour worked at each of the lakes and accesses, in descending order. Accesses with both Level 1 and Level 2 Inspectors, and often just a Level 2 Inspector, complete Level 1 surveys, therefore hours are combined for that site and annotated with a star next to the hours worked. Watercraft inspections were a result of an agreement by Lake Co. and the Sturgeon Lake Association. The District contracted out Kabetogama inspection services to the Koochiching SWCD.

- Decontamination Units- Five (5) decontamination units were placed at public accesses beginning in late May and June. Two units were permanently stationed around the Ely area, one at Shagawa Lake and the other on Burntside Lake. Another unit rotated between Crane Lake and Pelican Lake. A fourth unit rotated between Ely Lake and the Gilbert Pit (Lake Ore-Be-Gone). These four units were operated on the weekends, while a fifth unit at Hoodoo Pt. North on Lake Vermilion was operated seven days a week.

Voyagers National Park purchased two units that were operational in 2022. One unit was stationed at the Kabetogama visitors center and was operated on the weekends, and the other was at the Kettle Falls portage and was operated continuously throughout the summer. The Kettle Falls unit is operated by the National Park staff and is used to clean every watercraft traveling through the portage. This was an important tool in the Park's plan to prevent the spread of AIS after zebra mussel veligers were found in Black Bay of Rainy Lake. The Kettle Falls station is funded and staffed by the National Park Service (NPS) and is not included in the following decontamination data.

**TABLE 4**

Lake	Landing	Decons	Sum of Hours Worked	Decons/ Level 2 Hours	Entering Totals	Exiting Totals	Courtesy Totals
Shagawa	Sandy Point	26	521	0.05	3	1	22
Burntside	Van Vac	42	534.75	0.08	3	39	0
Ely	Ely	2	212.75	0.01	0	1	1
Gilbert Pit	Ore-Be-Gone	1	88.5	0.01	0	0	1
Pelican	Orr Bay	1	96.5	0.01	1	0	0
Vermilion	Hoodoo Pt. N.	22	1,402.75	0.02	3	15	4
Crane	Water's Edge	8	385	0.02	3	4	1
*Kabetogama	Visitors Center	0	352	0.00	0	0	0
	<b>Total:</b>	<b>102</b>	<b>3,593.25</b>	<b>0.028</b>	<b>13</b>	<b>60</b>	<b>29</b>
	<b>2021 reference</b>	<b>195</b>	<b>2,873.75</b>	<b>0.068</b>			
	<b>2020 reference</b>	<b>130</b>	<b>1,749.50</b>	<b>0.074</b>			
	<b>2019 reference</b>	<b>241</b>	<b>3,720.50</b>	<b>0.065</b>			

Table 4: The number of decontaminations completed at each lake and access, and decon/ hour efficiency. Compare to 2021, 2020 and 2019 accomplishments. No decontaminations were recorded at Kabetogama but it is likely that multiple decontaminations were completed as Koochiching SWCD had to service the unit several time during the season.

For most of the 2022 season, the District was able to employ ten (10) level 2 inspectors to conduct decontaminations at the five (5) units around North St. Louis County. A few inspectors left before the end of the season, but we were able to record near 2019 inspection hours. Even with high inspector hours, the program saw historically low decontaminations.

There are a few reasons for low decontamination levels throughout 2022: 1) One unit awaited parts and did not get deployed until mid-June. 2) The unexpected departure of the AIS Program Coordinator at the beginning of the season meant that the SWCD had to cover only urgent tasks until I came aboard in late June. I immediately immersed myself in all things AIS. Thus, no time was available to work with inspectors on using language to sell decontaminations. While the “Reach Our Goal! 150 Decontaminations” signs continued to be displayed at each decontamination station, a less concerted effort was placed on maintaining and promoting the sign as mentioned. 3) Another potential cause is the amount of clean watercraft and prideful ownership of the watercraft users. Inspectors noted that nearly all watercraft were very clean and owners took action upon themselves to maintain their equipment. This is especially evident given the amount of exiting and courtesy decontaminations. 4) Finally, it is also suspected that not all decontaminations were being reported into the MNDNR system. Each inspector was trained on inputting the data into their tablets, but the number of inspections did not correlate with maintenance service (water and gas fills) needed throughout the summer.

The interns were trained on basic decontamination unit maintenance. Their help replacing worn and broken parts, cleaning the units, and reporting needed repairs was integral in the efficiency of the units’ operational ability and preventative maintenance. The new AIS Program Coordinator became more familiar with replacing worn motors and was able to streamline repairing the decontamination units so they were in working order throughout the season. Ultimately all minor repairs were able to be handled internally which kept all the units operational throughout the 2022 season.

- Private Access Partnerships- In 2022, 9 resorts, campgrounds and marinas engaged in watercraft inspections at their private accesses. Seven (7) partners at Lake Vermilion, one (1) partner at Pelican Lake, and one (1) at Birch Lake completed 786 inspections (Table 5) at their private accesses.



**TABLE 5**

Lake	Resort Name	Number of Inspections
Vermilion	Fortune Bay Resort Casino	257
Vermilion	Glenmore Resort	27
Vermilion	Head-O-Lake Resort	184
Vermilion	Spring Bay Resort	7
Vermilion	Retreat Lodge	159
Vermilion	Vermilion Houseboats	35
Vermilion	Whispering Winds Resort	64
Pelican	Birch Forest Lodge	52
Birch	Birch Lake Campground	1
	<b>Total</b>	<b>786</b>

Table 5: Number of inspections completed at private accesses by resorts, campgrounds, and marinas.

In order to inspect, each person must complete an online training that directly resembled the inspector training District inspectors go through. Once certified, resorts receive inspection equipment and a tablet to collect survey data. In previous years, it was expressed the tablets were too bulky to carry around while completing resort obligations, then to stop and inspect a boat. This prompted the District to set up personal smart phones with the online survey. This accessibility was well received. The Resort Inspection Survey is a copy of the DNR Inspection Survey, with its own separate database managed by the District. Private access partners have varying abilities to provide staff for inspections. Resorts utilizing a survey to record inspections have an option to be paid \$7 per inspection uploaded. Most partners take this incentive in order to cover the cost of having a staff person conduct inspections.

Additionally, the District has partnered with 4 resorts with higher traffic to place a District inspector at their accesses. Vermilion Dam Lodge, Muskego Pt Resort, White Eagle Resort, and Pehrson Lodge all hosted inspectors throughout the boating season. Vermilion Dam Lodge hosts fishing tournaments and league days out of their access, therefore are of particular priority for hosting an inspector.

Fortune Bay Marina has offered unofficial decontaminations at their locations with a heated power washer unit. Decontamination protocols and training have been provided by 1854 Treaty Authority. This unit can provide a hot water cleaning on the spot rather than asking their guests to turn around and find a decontamination unit. This would not constitute an official decontamination, since those can only be conducted by Level 2 inspectors.

Early in the season AIS resources were delivered to participating resorts. However, most tablets did not get distributed in time for the Memorial Day weekend. With the transition of new AIS Program Coordinator's within the District an effort was made to visit with the resorts during the season for introductions and discussions on the AIS prevention program goals. Even so, resort participation and private-launch inspections were down.

- Partnership with Fishing Tournament Directors- The District collaborated with the VLA to work with fishing tournament directors to strive for a 100% inspection rate of all tournament boats prior to their launch in Lake Vermilion. For each tournament, we provided a list of planned inspection and decontamination hours and locations for pre-fishing days and tournament day.

This season, we continued to utilize the DNR-permitted AIS Rules and Compliance Certification Form that was enacted in 2021. The tournament directors were cooperative. We get the sense that participants are onboard with AIS prevention. More work is to be done with tournament coordinators and attendees on Pelican, Shagawa, Ely, and Birch Lakes.

- Early Detection for new AIS infestations- Interns completed early detection on 18 lakes, looking for new AIS infestations (lakes detailed in Table 6). Each location was visited at least once, and at most four times throughout the early detection season. Interns threw a double-headed rake, attached to a rope, into the lake in three different directions while standing on a dock, pier, or by shore. The rake is pulled back to shore after each throw. All vegetation attached to the rake was identified. Any vegetation that looked like an invasive species or could not be identified was collected and brought back to the AIS Program Coordinator for further investigation. No new infestations were detected in 2022 from the early detection sampling initiative. Early detection efforts will continue to play a big role in the AIS prevention program. The ultimate goal is to visit all lakes with public accesses in the District to identify any previously unidentified AIS infestations. This information is valuable for informing the public and tailoring future program initiatives.

**Table 6**

Water Body Name	Access/ Location Name	Water Body Name	Access/ Location Name
Kabetogama	Visitors Center	Vermilion	Public Access (various)
Ely	Public Access	One Pine	Public Access
Ore-Be-Gone	Public Access	Johnson	Public Access
Birch	Kramer Bay	Bear Island	Public Access (NE)
Birch	South Access	Little Sturgeon	Public Access
Sturgeon	Sixberries	Beatrice	Public Access
Pelican	Orr Bay	Virginia	Public Pier
Crane	Water’s Edge	Silver	Public Pier
Silver	Public Access	Tofte	Public Access

Table 6: Lakes and access locations sampled during the 2022 early detection surveys.

- Boundary Waters Canoe Area Wilderness (BWCAW) AIS Sign Enhancement - The District collaborated with BWCAW Coalition, Lake SWCD, Cook SWCD, Wildlife Forever, MNDNR, and the US Forest Service to place signs at lake accesses around the BWCAW watershed. The signs remind water users to clean, drain, dispose, and dry to prevent the spread of invasive species to the Boundary Waters watershed. Locations for these signs were identified after a sign inventory project in 2021. In 2022, 75% of the 41 signs allocated for the St. Louis County were installed on boat and canoe accesses. For many locations this was the first sign at the access. The remainder will be installed in 2023.
- Outreach and Education- The District continued to promote AIS initiatives in 2022 by partnering with White Iron Chain of Lakes Association to co-host an AIS outreach booth at both the Blueberry Festival and Harvest Moon Festival. Additionally, the District has continued with social media posts on AIS related topics, as well as writing and co-writing articles for local newsletters.

**B. Limitations & Future Goals**

- New District AIS Program Coordinator- In mid-May 2022, the busiest month, the AIS Program Coordinator unexpectedly and suddenly left the position for medical reasons. This delayed and limited some activities within the program. Fortunately, Natalya Walker, previous AIS staff, was able to fill in some gaps with assistance by Anita Provinzino until a permanent replacement could begin. Jon Utecht was hired as the new AIS Program Coordinator and was able to begin on June 30. Even with the staff changes within the District the program was



able to run smoothly throughout the year. With new staff, learning the program and formulating relationships with area professionals and lake users took precedence over expanding an already effective program.

In 2023, the new AIS Program Coordinator will have a full year of experience within the position and will be able to continue the great AIS work already being done and expand the program to bolster the District's AIS prevention capabilities.

- Decontamination Numbers- The number of decontaminations recorded in 2022 were historically low. We were able to staff ten (10) Level 2 inspectors for most of the season to perform decontaminations with the five (5) units directly managed by the District. Most units operated primarily during the busy weekends except for one (1) unit on Lake Vermilion (Hoodoo Pt. N.) which operated seven (7) days a week. Koochiching SWCD was able to recruit a couple of inspectors to operate the Kabetogama decontamination unit, and Voyagers National Park staffed the unit at the Kettle Falls portage (numbers are not included). The Kettle Falls portage unit was also operated seven (7) days a week. This provided users with multiple decontamination opportunities during the weekends and a few options throughout the week.

Less of an effort was placed on the managing the "Help Us Reach Our Goal" signs and verbiage used by the inspectors to increase decontaminations. These tactics helped the success of increased decontamination usage in 2021. The low number of decontaminations recorded in 2022 is suspect as some stations recorded very low or even no decontaminations, but the units were serviced with fresh gas and water several times throughout the season. Even with lower decontamination recorded, the inspectors did observe a large amount of boat ownership pride that translated into very clean boats.

Voyagers National Park currently owns two decontamination units. One unit is stationed on the Rainy Lake portage at Kettle Falls to Namakan Lake, and completed decontaminations on all crossing boats is conducted by the park staff. Rainy Lake was found to have zebra mussel veligers in 2021. The land portage, though going upstream, allows motorized boats to move from Rainy Lake to Namakan Lake. The other unit is managed by the District and contracted out to Koochiching SWCD to staff and operate the unit on Kabetogama Lake. The park is currently in the process of obtaining two more units to be utilized in the northwest corner of the county. The District plans on continuing its partnership with Voyageurs National Park and Koochiching SWCD as part of its AIS prevention plan.

Reduced promotion/verbiage efforts along with and tracking issues in 2022 resulted in lower-than-expected decontaminations recorded in 2022. The tactics used in 2021 showed greater results in decontamination numbers and will be emphasized again in 2023. A greater emphasis on decontaminating "clean" boats will be highlighted in the 2023 level 2 trainings as AIS may be hard to observed with the naked eye and decontaminations provide a higher level of security in preventing the spread of AIS. Finally, the number of decontaminations being recorded will be checked throughout the inspection season to make sure inspectors are recording their decontaminations performed. Decontamination units are a great tool to prevent the spread of AIS, and with proper education and tracking we hope to see increased numbers for 2023.

- Private Access Recruitment- There is a desire for more private access businesses to conduct inspections at their access as the boat traffic at those accesses pose a significant risk of spreading AIS. Visitors from around Minnesota and other states utilize these locations as a "one-stop shop" to enjoy the high-quality lakes of St. Louis County. Without proper watercraft inspections, the risk of spreading AIS found in other locations to our lakes is increased.

Many businesses and private resorts understand the importance of AIS prevention but run into several roadblocks when it comes to performing and documenting watercraft inspections. Even with a \$7/inspection incentive many resorts do not have the staff to keep up with the necessary inspections. The staffing shortage

also plays a factor in recording inspections, as some resorts conduct inspections but do not record them. Although it is most important that the watercraft are being inspected, recording the inspections is important to track the number of inspections being conducted to help target and optimize future AIS prevention activities.

Recruitment of new private access partners was difficult in 2022 because of the turnover of the Districts AIS Program Coordinator position. The plan at the beginning of the season was to expand the private access inspection program, but this quickly changed to maintaining the program and expanding the knowledge of the new coordinator. There was a priority on meeting with current resort owners who participate in the program to understand how the program works for them and identifying any limitations they run into.

The District and its partners will continue to reach out and coordinate with resorts, campgrounds, and marinas to ensure private accesses see AIS prevention efforts. We also plan on expanding the resort watercraft inspection program by providing interested parties with the tools and resources to conduct and track essential watercraft inspections.

- Education- Ongoing education is needed to reach watercraft users/lakeshore owners/tournament directors/resort owners/lake service providers/bait dealers, and classrooms. While there is increased awareness of AIS, there are still many gaps, misperceptions and opinions to overcome.

The District would like to continue the education and outreach component of AIS by working with local partners, businesses, resorts, and area professionals to provide the public with information vital to preventing the spread of AIS. A focus on providing the public with necessary tools and information to conduct self-inspections will be a priority for the 2023 season. We will also continue to work on providing our watercraft inspectors with information beyond the MNDNR requirements to ensure they are knowledgeable about AIS related topics.

- AIS Early Detection & Research- Identifying the locations of new AIS infestations can help develop plans to educate and allocate resources in efforts to prevent AIS from spreading. A newly confirmed zebra mussel infestation in the Embarrass Mine Pit highlights the importance of early detection tools. Detecting early infestations in lakes allows us to get the word out to the public and could possibly contain the AIS to that lake. This information is also valuable to research and could help provide information to identify lakes that are at most risk from new AIS infestations.

Starting in 2023 the District plans on expanding its early detection efforts to all lakes with public water accesses around northern St. Louis County. While continuing to conduct early detections on the highest risk lakes, we will expand the reach to ensure all lakes are investigated over the next few years. We will continue with this cycle to identify and new infestations as early as possible. The District also plans to deploy zebra mussel settling plates at high risk locations. Finally, we will look to expand and recruit new observers for the lake sentry program. This will get lake property owners involved in early detection efforts and will provide us with more eyes on each lakes early AIS detection.

- Inspector recruitment and retention- Fully staffing the watercraft inspection program continues to be a struggle. Of the 45 positions available, only 30 were able to be filled. About half were returning inspectors from the previous year. As a social marketing experiment, incentive gifts were given to the inspectors at the end of the 2022 season in hopes of retaining more experienced inspectors. These cash gifts were tiered based on the number of years of inspecting. The goal is to get previous, experienced, inspectors to return year after year while adding to team with new recruits. The District and staffing service will continue to explore advertising avenues in 2023 to hire a full team of watercraft inspectors.

**C. Analysis**

- Inspections, Hours and Efficiency- Comparing accomplishments of 2022 to the previous three (3) years begins to paint a picture of trends over the years (Table 8). Since 2019, the number of inspections completed by the District has continued to rise. This is due to both the expansion to new lakes, and staffing efficiently by placing inspectors where traffic is shown to be the highest. The number of inspector hours continues to fluctuate based on the number of inspectors available throughout the season. It is important to note that the actual 2022 inspector hours for 2022 in Table 8 are for Level 1 inspectors only, while the inspections and efficiency is from both Level 1&2 combined. This is similar to estimate and actual values from previous years. Because of the increasing number of inspections being conducted throughout the years the overall efficiency of the inspectors continues to surpass the beginning season goals. The larger, more popular, lakes continue to show high inspection and efficiency values which show the popularity of these lakes and the success of watercraft inspector schedules.

**TABLE 8**

Watercraft Inspections at Public Accesses															
Location	2022 Target			2022 Actual			2021 Actual			2020 Actual			2019 Reference		
	Inspector Hours	Inspection Target	Efficiency Target per Hour	Inspector Hours	Inspection Actual	Efficiency Actual per Hour	Inspector Hours	Inspection Actual	Efficiency Actual per Hour	Inspector Hours	Inspection Actual	Efficiency Actual per Hour	Inspector Hours	Inspection Actual	Efficiency Actual per Hour
Bear Island	40	40	>1	12	9	0.75	6	2	0.33	183.75	100	0.54			
Birch	400	920	>2.3	432	1568	3.36	125	897	2.40	343.75	726	2.11			
Burntside	772	1,700	>2	743	1576	*1.23	216	401	1.86	764.75	1,703	2.23	1,013.25	1,714	1.7
Crane	480	960	>2	482	1194	*2.55	149.75	369	1.94	130.00	301	2.32			
Ely Lake	192	520	>1.5	264	922	*1.93	232	516	1.42	256.50	563	2.19	415.5	750	1.8
Gilbert Pit	160	280	>1	177	149	*0.56	237.5	272	0.74	322.50	244	0.76	118	223	1.9
Johnson	20	20	>1	6	0	0				40.50	24	0.59			
Kabetogama	1,120	4,200	>3	1,200	2449	*1.58	392	1,035	2.64	792.00	2,633	3.32			
One Pine	20	20	>1	14	11	0.79				32.25	19	0.59			
Pelican	128	900	>1.7	407	1289	*2.67	306	1,198	1.83	756.50	1,277	1.69	781.5	1,136	1.5
Shagawa	120	1,460	>1.9	282	1,393	*1.73	100	997	1.37	377.00	1,088	2.89	80	1,405	1.7*
Sturgeon	692	-	-	473	380	0.8									
Vermilion	4,960	14,500	>2.5	4,206	14,992	*3.47	4,667	14,275	2.51	5,169.25	14,983	2.90	5,418.65	13,248	2.4
<b>TOTAL</b>	<b>9,104</b>	<b>25,520</b>	<b>&gt;2.2</b>	<b>8,698</b>	<b>25,932</b>	<b>*2.23</b>	<b>6,431.50</b>	<b>19,962</b>	<b>3.10</b>	<b>9,169</b>	<b>23,661</b>	<b>2.58</b>	<b>7,826.90</b>	<b>18,574</b>	<b>2.2</b>

Table 8: The inspector hours worked, number of inspections, and inspection per hour worked that were targeted in 2022, compared to what was accomplished in 2019-2022. The 2022 efficiencies/hour with a star are efficiencies based on all level 1&2 inspector hours, not hours simply from the “inspector hours” column which annotates level 1 hours only.

- Decontaminations- If we do not include the decontamination unit at the Kettle Falls portage at Rainy Lake, the number of decontaminations in 2022 was at a historic low (102) and was nowhere near the target of 810 decontaminations (Table 9). The Rainy Lake unit is managed and operated by the Voyageurs National Park and requires all boats that utilize the passage to be decontaminated. This station alone accounted for over 64% of all the decontaminations in the region. If we look at the remainder of the locations there are several locations were well below 2021 decontamination totals. Vermilion Lake, Shagawa, and Pelican are all very busy lakes that fell way short of their targets. The only stations that increased in decontaminations were Burntside and Crane.

The unit shared between Pelican and Crane remained on Crane Lake after the 4<sup>th</sup> of July per the recommendation of the inspector who worked that station. Other years the unit was shared more frequently between the two sites. The Burntside Van Vac access was open all year after it went through upgrades in 2021. Decreases in Shagawa and Vermilion are a little more surprising as these are busy lakes, and Vermilion’s decontamination unit is operational seven (7) days a week.

In 2021, there were rewards offered for inspectors who conducted the most decontaminations along with trainings specifically tailored to verbiage used to increase decontaminations. These factors coupled with the decontamination goal signs likely helped increase decontaminations in 2021 and the lack of utilizing these practices likely lowered the total decontaminations in 2022. There is also evidence that suggests that not all decontaminations were being logged into the inspection system, especially since the units were serviced several times with low to no inspections being logged.

**TABLE 9**

Watercraft Decontaminations															
Location	2022 Target			2022 Actual			2021 Actual			2020 Actual			2019 Reference		
	Inspector Hours	Decon Target	Efficiency Target per Hour	Inspector Hours	Decon Actual	Efficiency Actual per Hour	Inspector Hours	Decon Actual	Efficiency Actual per Hour	Inspector Hours	Decon Actual	Efficiency Actual per Hour	Inspector Hours	Decon Actual	Efficiency Actual per Hour
Birch							248.25	8	0.03						
Burntside	652	80	0.12	535	42	0.08	156	3	0.02	303.00	48	0.16	766	41	0.05
Crane				385	8	0.02	40.75	1	0.02						
Ely Lake	240	50	0.21	213	2	0.01	131	6	0.05	62.00	8	0.13			
Gilbert Pit	128	20	0.16	89	1	0.01	128	2	0.02	208.50	1	0.00	373.5	7	0.20
Kabetogama	560	100	0.18	352	0	0.00									
Pelican	400	80	0.20	97	1	0.01	370.5	31	0.08	0.00	0	0.00			
Rainy	560	200	0.36	784	183	0.23									
Shagawa	650	80	0.12	521	26	0.05	625	44	0.07	194.00	24	0.12	739	93	0.13
Vermilion	1,260	200	0.16	1,403	22	0.02	1174.25	100	0.09	982.00	49	0.05	1,842	100	0.05
<b>TOTAL</b>	<b>4,450</b>	<b>810</b>	<b>0.18</b>	<b>4,379</b>	<b>285</b>	<b>0.07</b>	<b>2,873.75</b>	<b>195</b>	<b>0.07</b>	<b>1,749.50</b>	<b>130</b>	<b>0.07</b>	<b>3,720.5</b>	<b>241</b>	<b>0.06</b>

Table 9: The inspector hours worked, number of decontaminations, and decontaminations per hour worked that was targeted in 2022, compared to what was accomplished in 2019-2022.

The majority of decontaminations conducted in 2022 continue to be on exiting boats (Table 10). Similar to 2021 the next most frequent type of decontamination was the courtesy's. Although numbers were much lower in 2022, the trends of decontamination types remain the same. The fact that boats entering are not required to decontaminate echo the sentiment of the inspectors that the boats showing up to the landings are typically very clean. The higher numbers of exiting and courtesy decontaminations show that more boats are being cleaned before they even travel to the next lake. It is encouraging to see that boats are leaving the landings with the reduced risk of transporting AIS, but more efforts need to be conducted in 2023 to boost the decontamination usage especially for courtesy decontaminations.

**TABLE 10**

Lake	Landing	Total Number of Decontaminations	Entering Decons	Exiting Decons	Courtesy Decons
Shagawa	Sandy Pt	26	3	1	22
Burntside	Van Vac	42	3	39	0
Ely	Ely	2	0	1	1
Gilbert-Pit	Ore Be Gone	1	0	0	1
Pelican	Orr Bay	1	1	0	0
Vermilion	Hoodoo Pt. N.	22	3	15	4
Crane	Waters Edge	8	3	4	1
Kabetogama	Visitors Center	0	0	0	0
<b>Total:</b>		<b>102</b>	<b>13</b>	<b>60</b>	<b>29</b>
<b>Total 2021 Reference:</b>		<b>195</b>	<b>19</b>	<b>93</b>	<b>83</b>

Table 10: The number of entering, exiting, courtesy and total decontaminations at each lake and access in 2022. Compared to total completed in 2021.

- Private Access Inspections- 786 inspections were completed in 2022 at private accesses (Table 11). This is much lower than previous years. The District continues to offer watercraft inspection services to a few of the more busy and remote locations on Lake Vermilion. Other resorts on the lake along with other lakes rely on their employees to perform and record the inspections. The introduction of survey program capabilities available on personal cellular phones enhanced the success of the program starting in 2021. This continues to help boost the inspection numbers but not all resorts are utilizing the inspection surveys. The resort inspection program relies on resort employees performing the inspection and uploading the results. In 2022, there were several resorts that did not record any inspections as they did in previous years. The goals of the 2023 season are to reconnect with those resorts who had previously contributed to the program and to reach out to other potential resorts to participate in the program.

**TABLE 11**

Watercraft Inspections at Private Accesses										
Location	2022 Target		2022 Actual		2021 Actual		2020 Actual		2019 Reference	
	Participating Resorts	Inspection Target	Participating Resorts	Inspection Actual	Participating Resort	Inspection Actual	Participating Resort	Inspection Actual	Participating Resort	Inspection Actual
Birch	1	50	1	1						
Burntside	1	50	0	0						
Kabetogama	2	50	0	0						
Pelican	4	200	4	52	2	124	2	128	2	96
Vermilion	13	2,000	13	733	8	1,959	9	1,512	10	2,177
<b>TOTAL</b>	<b>21</b>	<b>2350</b>	<b>18</b>	<b>786</b>	<b>10</b>	<b>2,083</b>	<b>11</b>	<b>1,640</b>	<b>12</b>	<b>2,273</b>

Table 11: The number of participating resorts, and inspections that were targeted in 2022 compared to what was accomplished in 2019-2022.

- Risk Assessment- A risk assessment was conducted based on collected survey data at public accesses. It shows the risk of watercraft at various accesses (Table 12). A total of nine (9) survey results categorize the lakes and highlight the categories and lakes with the greatest AIS risk.

For the lower risk categories, the lakes with most watercraft users who had recent interactions with inspectors were found at Birch, Burntside, and Kabetogama. It is promising to see that only two lakes showed frequent interactions less than 75% of users surveyed. The highest percentage of same last lake and same next lake was shared with Birch, Shagawa, and Vermilion. It is likely that users are local users or they are visiting the area and visiting these lakes multiple times during their trip. The other lakes ranged from 29-51% of same lake use making them more of an infrequent or one day adventures. Birch Lake had high percentages in all three lower risk categories which is likely due to a significant amount of local use at this popular lake or visitors staying in the area are utilizing the lake multiple times.

The moderate risk category is in-between the lower and high-risk categories as they are out of the water past the five (5) day recommendation to adequately dry the watercraft and reduce AIS spread potential, but the watercraft are still traveling from other lakes which heightens the risk. All the surveys identify an average of 19.84% of watercraft users falling within this category. Two of the highest values are found on lakes near Gilbert and are very near each other. It may be likely that locals are jumping between Ely Lake and the Gilbert Pit with multiple between visits. The highest value for this category is found at Crane Lake which experiences a large number of visitors throughout the summer.

Every lake was on the top end of risk at least once in the highest “increases” risk section. The most species found occurred on popular lake in the northwest section of the District and a popular lake near Virginia. Luckily all these values were below 5% and no invasives were observed. There also continues to be a slight issue with drain plug law violations. Although it is a very small population of violators, it is surprising to

note that over 50% of the violators are Minnesota residents who should be aware of the drain plug laws. The larger, more popular, lakes have the highest number of “out of state” watercraft users with Crane, Kabetogama, Pelican, Shagawa, and Vermilion all recording over 10% of users not being from Minnesota. Finally, lakes near Ely, Babbit, and Virginia all had high percentages of watercraft entering from other lakes within 5 days of the last lake used. These are all popular lakes that people are likely lake hopping to. With all the lakes identified in Table 12 having at least one high risk in the highest “increase” risk section highlights the importance of continuing to conduct frequent watercraft inspections at all of these lakes.

Overall, the North St. Louis 2022 AIS Prevention Program was a success. Although the District underwent multiple staff changes throughout the year, the inspection program went on unhindered and decontamination units maintained operational throughout the season. The District looks forward to using the information detailed in this summary and applying it to 2023 planning as St. Louis County sees fit.

**TABLE 12**

2022 Public and Private Access Inspections		Lowers Risk			Moderate Risk	Increases Risk				
Lake	Number of Inspections	Spoke to Inspector <sup>3</sup>	Same Last Lake <sup>4</sup>	Same Next Lake <sup>5</sup>	Entering from other water after 5 days or more <sup>6</sup>	Species Found <sup>7</sup>	Drain Plug Violation <sup>8</sup>	License from Out of State <sup>9</sup>	Entering from other water within 24 hours <sup>10</sup>	Entering from other water from within 5 days <sup>11</sup>
Bear Island	9	Data set too small								
Birch	1,568	93.55%	70.22%	73.60%	11.42%	0.19%	0.26%	7.91%	4.72%	1.66%
Burntside	1,576	95.14%	42.39%	41.71%	21.76%	0.61%	0.24%	8.50%	6.36%	11.00%
Crane	1,194	67.17%	33.08%	35.18%	24.29%	3.02%	0.34%	10.97%	3.94%	3.69%
Ely	922	76.23%	38.97%	34.31%	24.63%	0.00%	0.00%	5.18%	6.99%	10.11%
Gilbert-Pit	149	76.87%	29.00%	36.17%	32.00%	1.00%	2.00%	4.76%	3.00%	10.00%
Johnson	0	Data set too small								
Kabetogama	2,449	86.85%	51.57%	49.57%	20.38%	0.98%	0.25%	18.33%	1.76%	5.19%
One Pine	11	Data set too small								
Pelican	1,289	43.60%	31.81%	33.36%	9.00%	3.77%	0.47%	13.11%	3.26%	3.88%
Shagawa	1,393	83.56%	58.65%	61.16%	15.00%	0.72%	1.87%	15.00%	2.87%	6.82%
Vermilion	15,003	83.61%	60.37%	78.21%	20.06%	0.16%	0.68%	10.13%	1.75%	5.35%

Table 12: The total number of inspection at each lake. The percentage of each risk factor was calculated based on entering and/or exiting boater’s answers to survey questions. Columns labels in green are factors that would result is the lowest AIS spread risk to a lake. The yellow column poses a moderate AIS risk to the lake. Column labels in orange are factors that would pose the greatest AIS risk to a lake. The top three (3) highest percentages for each column are highlighted.

<sup>3</sup>**Spoke to Inspector Within Last Month-** The percent of time a surveyed boater said they spoke with an inspector within the last month.

<sup>4</sup>**Same Last Lake-** The percent of time a surveyed boater said the last lake they were on is the same lake they are entering (ex. last lake they exited was Vermilion, they are getting ready to enter Vermilion)

<sup>5</sup>**Same Next Lake-** The percent of time a surveyed boater said the next lake they are going to enter in is the same lake they are exiting (ex. current lake they are exiting is Vermilion, the next lake they plan to enter in is Vermilion).

<sup>6</sup>**Entering from other water after 5 days or more-** The percent of time an entering boaters stated their watercraft had been in another waterbody than that they are currently entering, and the boat has been out of the water for the DNR recommended 5 days to dry (current lake they are entering in is Pelican, and they were in Vermilion 6 days before).

<sup>7</sup>**Species Found Entering-** The percent of time species were found during an entering inspection (plants, animals, water, mud etc.)

<sup>8</sup>**Drain Plug Violation-** The percent of time an entering watercraft arrived at the access with the drain plug in place.

<sup>9</sup>**License From Out of State-** The percent of time an inspector surveyed a boater with a towing vehicle license plate from out of state. In some cases, it may be the same vehicle but a different person.

<sup>10</sup>**Entering from other water within 24 hours-** The percent of time an entering boater stated their watercraft had been in another waterbody than that they are currently entering, within the last 24 hours (ex. current lake they are entering in is Pelican, and they were in Vermilion the day before).

<sup>11</sup>**Entering from other water within 5 days-** The percent of time an entering boater stated their watercraft had been in another waterbody than that they are currently entering, within the last 5 days or it’s unknown when the watercraft was in a waterbody last (ex. current lake they are entering in is Pelican, and they were in Vermilion 3 days ago).