

AQUATIC INVASIVE SPECIES PREVENTION

Chisago and Northern
Washington Counties

January 14, 2016

2015
Annual
Report

2015 Aquatic Invasive Species Prevention Chisago and Northern Washington County

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Background

Chisago and northern Washington Counties have some of the premier recreational lakes in the northeast metro area. The lakes in the area vary in many ways, but they all have one thing in common; they are all susceptible to aquatic invasive species (AIS). Curly-leaf pondweed, which was first found in Minnesota in 1910, is found in all the lakes in the watershed. This plant has been a part of the aquatic landscape for so long that it often isn't recognized as an invasive species. The aquatic invasive plant Eurasian Water Milfoil is found in many area lakes. In 2015, new infestations of Eurasian Water Milfoil was found in Comfort and Little Horseshoe Lakes. Both of these invasive plants substantially impair navigation and crowd out desirable, native plants. Additionally, Curly-leaf Pondweed has a negative effect on water quality.

The Chisago Lakes Lake Improvement District partnered with area lake associations (Center Lakes, Chisago, Lindstrom, Kroon, and Green Lake) and the Minnesota DNR to control Eurasian Water Milfoil and Curly-Leaf Pondweed. The density and abundance of these two plants was lower in 2015 than it was in previous years resulting in improved navigation. Lakes included in the program include Chisago, Green, Kroon, Little Green, North Center, South Center and South Lindstrom.

In 2015, Zebra Mussels were found in Forest Lake. Forest Lake was designated as a zebra mussel infested water to limit further spread. The number and distribution of Zebra Mussels indicate a population is likely established and that natural reproduction is occurring and they will spread.

Eurasian Watermilfoil was also discovered in Forest Lake in 2015. An attempt at eradication was performed in July with a double treatment of herbicide. A follow up survey was performed a month later. No Eurasian Watermilfoil was found in the treated areas, but was located at 2 other sites, suggesting that eradication was unsuccessful.

Forest Lake has recently become infested with Flowering Rush, sometimes mistakenly called onion grass. Dense stands of Flowering Rush may interfere with swimming and other recreational uses of the lake and also will choke out native vegetation. In early 2015 Flowering Rush was known to be in 2nd and 3rd lakes, but not in 1st lake. However, a survey in September 2015 found Flowering Rush growing in 1st lake as well. The Forest Lake Lake Association and Comfort Lake Forest Lake Watershed District began a substantial effort to begin the process of removing Flowering Rush from Forest Lake before it reaches an uncontrollable presence and to prevent Flowering Rush from spreading to other lakes.

Movement of aquatic invasive species by boats is the number one way these harmful species spread from lake to lake. Fortunately other aquatic invasive species that are threatening other waters of the state, specifically Spiny Water Flea, and Faucet Snails, are not known to be found in Chisago and northern Washington Counties. The watercraft inspection program is essential in our efforts to slow the spread of these invaders in the area.

Program Implementation

To implement the watercraft inspection program in 2015, Chisago County entered into a Joint Powers Agreement with the Minnesota Department of Natural Resources for authority to conduct boat launch inspections. Additionally, a partnership was formed between Chisago County and the Comfort Lake Forest Lake Watershed District to inspect boats at public accesses in the District.

Substantial funding for the program was provided by the State of Minnesota through the Aquatic Invasive Species Prevention Aid Program along with funding from the Comfort Lake Forest Lake Watershed District and the Chisago Lakes Lake Improvement District. The Program helped fund prevention efforts including increased watercraft inspections, enforcement and education. Chisago County purchased an AIS decontamination unit that was rotated among the 10 most heavily used public water accesses in Chisago and northern Washington Counties. These accesses include East Rush, Taylors Falls Lions Club, Osceola, North Center, South Center, Chisago/South Lindstrom, Green, Forest East, and Forest West.

Watercraft Inspections

A total of thirteen Level 1 inspectors were hired by Chisago County to perform inspections. Once trained and authorized, Level 1 inspectors inspect water-related equipment and prohibit the launching of equipment in waters of the state if the individual refuses to allow an inspection of their equipment or refuses to comply with aquatic invasive species laws.

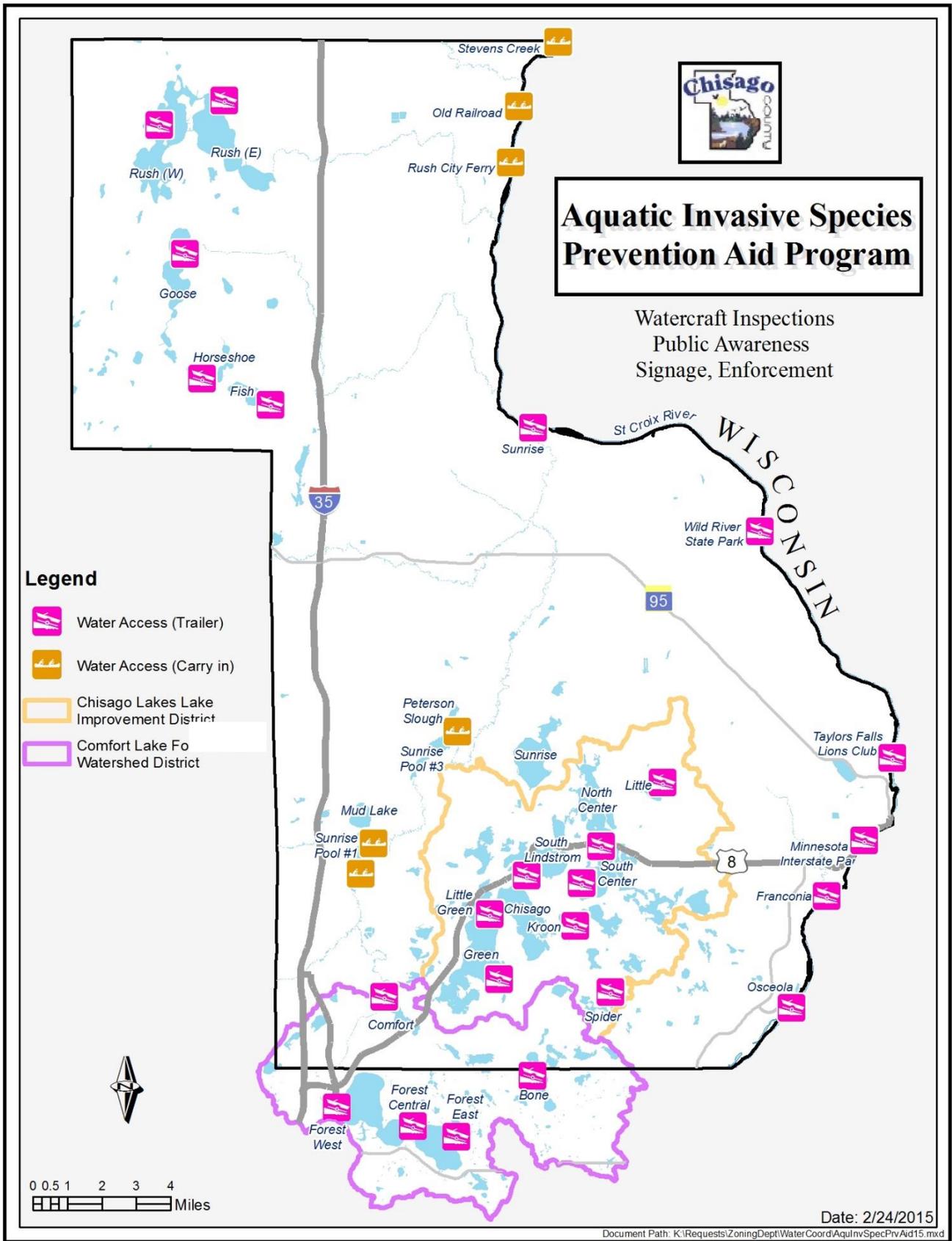


One inspector provided coverage at northern Chisago County lakes, two inspectors were stationed in the Chisago Lakes area, five inspectors were in the Comfort Lake Forest Lake Watershed District and five inspectors shared responsibilities between Chisago County Parks and watercraft Inspections. Two Level 2 inspectors were hired to inspect and decontaminate watercraft. Watercraft enforcement training was provided to officers of the Chisago County Sherriff's Department. Officers provided support to watercraft inspectors and took shifts at public water accesses in Chisago County. An aquatic invasive species education specialist was hired by Chisago County to develop and implement a county wide aquatic invasive species communication and education plan.

The primary objective of the watercraft inspection program is to inform and educate the public on the threats of ecologically harmful aquatic invasive species to the lakes in Chisago and northern Washington County. The watercraft inspector works at boat launches educating the public by providing information to watercraft users and conducting a brief survey while inspecting watercraft for aquatic invasive species.

Inspections took place at the following public water accesses:

- Bone
- Chisago/South Lindstrom
- Comfort
- Fish
- Forest East
- Forest Central
- Forest West
- Franconia
- Goose
- Green
- Horseshoe
- Kroon
- Little
- Little Green
- Minnesota Interstate Park
- North Center
- Osceola
- Rush East
- Rush West
- South Center
- Spider
- Sunrise
- Taylors Falls Lions Club
- Wild River State Park



Watercraft Inspection Surveys

North and South Center Lakes each have separate boat launching areas and the lakes are connected by a channel. Chisago, South Lindstrom and North Lindstrom Lakes share a mutual boat launch and are connected by channels (in this report they are grouped together). Green and Little Green Lakes have separate boat launches but are also connected by a channel. Forest East, Central and West have separate boat launches, but are three large bays of one lake. East and West Rush Lakes are connected by a channel. Sunrise, Wild River State Park, Taylors Falls Lions Club, Minnesota Interstate Park, Franconia and Osceola are on the St. Croix River.

Watercraft inspections were conducted between May 1 and October 23, 2015. Inspections were rotated among the lakes with public accesses with priority given to accesses with higher boat traffic.

Summary

- Watercraft Inspectors worked over 7,000 hours inspecting boats at accesses in Chisago and northern Washington Counties.
- Over 10,000 watercraft inspections were conducted in 2015. June and July had the largest number of inspections.
- Inspections took place at 24 public water accesses.
- The majority of inspections took place at busier accesses including Chisago/Lindstrom, Green, Forest East, Forest West, Forest Central and South Center.
- 75% of inspections took place on fishing boats, 11% on roundabout or ski boats with no ballast and 7% on pontoons. The remaining inspections took place on personal watercraft, canoes/kayak, duck boats, sailboats and boat lift/docks.
- Approximately 60% of inspections were entrance inspections and 40% were exit inspections.
- At entrance inspections, 155 watercraft had AIS or non AIS vegetation and 309 watercraft had drain plugs in.
- 45% of watercraft entering a lake previously came from the same lake, 15% came from a different lake within Chisago County/CLFLWD, 27% came from a lake outside Chisago County/CLFLWD and 1% came from out of state.
- Watercraft came from 267 lakes that contain AIS. The majority of these lakes have Eurasian Water Milfoil or Zebra Mussels.
- During exit inspections nearly 1,000 watercraft had AIS/Non-AIS vegetation present. Inspectors required the vegetation be removed before exiting the launch.
- After leaving a lake, nearly 50% of watercraft return to the same lake, 9% go to a different lake within Chisago County/CLFLWD, 13% go to a lake outside Chisago/CLFLWD and 1% go out of state.
- Chisago County Sherriff's Department officers worked 160.5 hours at public water accesses. They inspected 437 boats and issued 43 verbal or written warnings and 9 citations. No arrests were made.

- The primary reason for the warnings and citations was boats with drain plugs in upon arrival at the boat launch.
- Chisago County participated under the leadership of the St. Croix River Association to develop a Strategic Work Plan addressing aquatic invasive species threats in the St. Croix River watershed. Participants plan to begin implementation in 2016.

Landa EOS Decontamination Unit

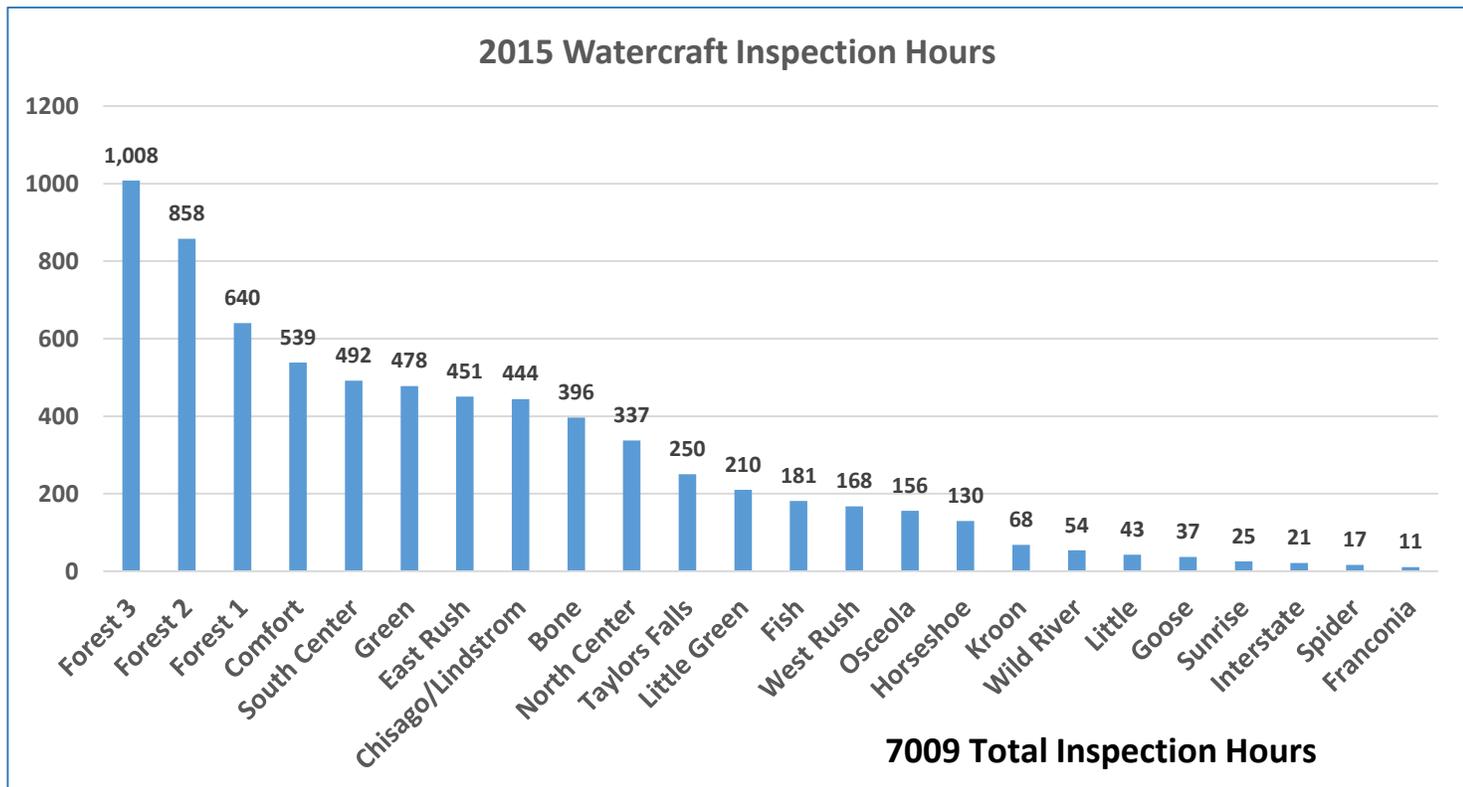


2015 Watercraft Inspection Survey Results



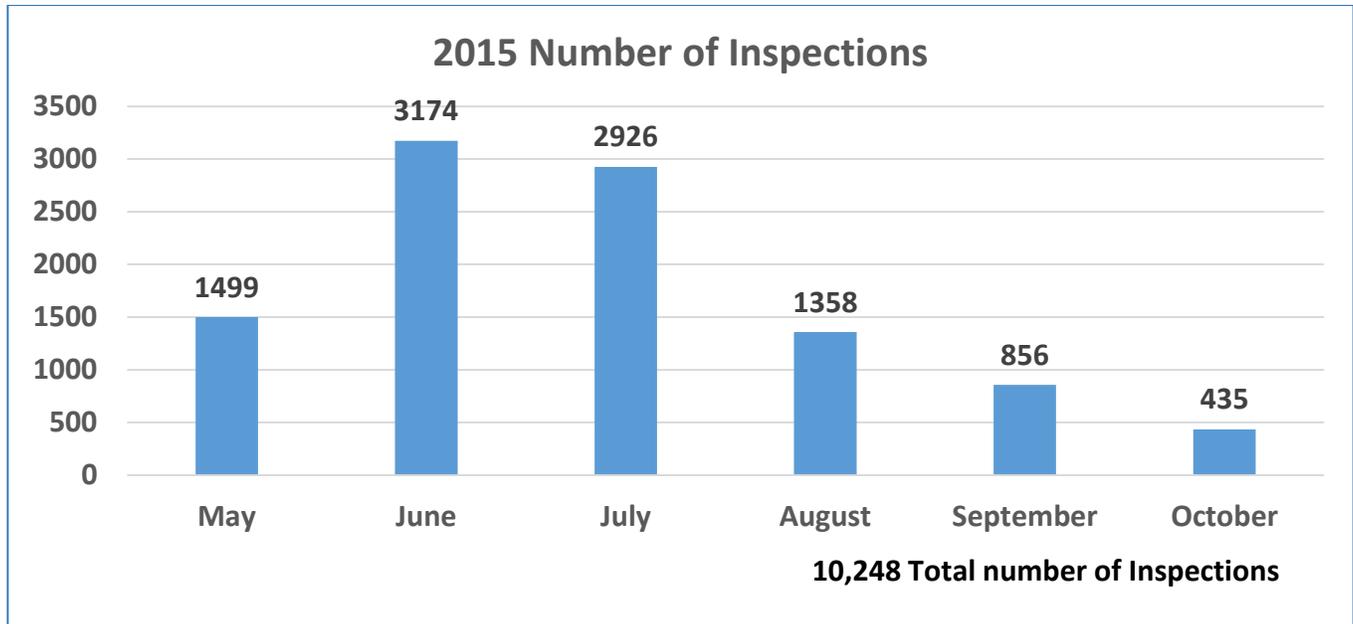
Watercraft Inspectors worked over 7,000 hours inspecting boats at accesses in Chisago and northern Washington Counties.

Chart 1: 2015 Watercraft Inspection Hours



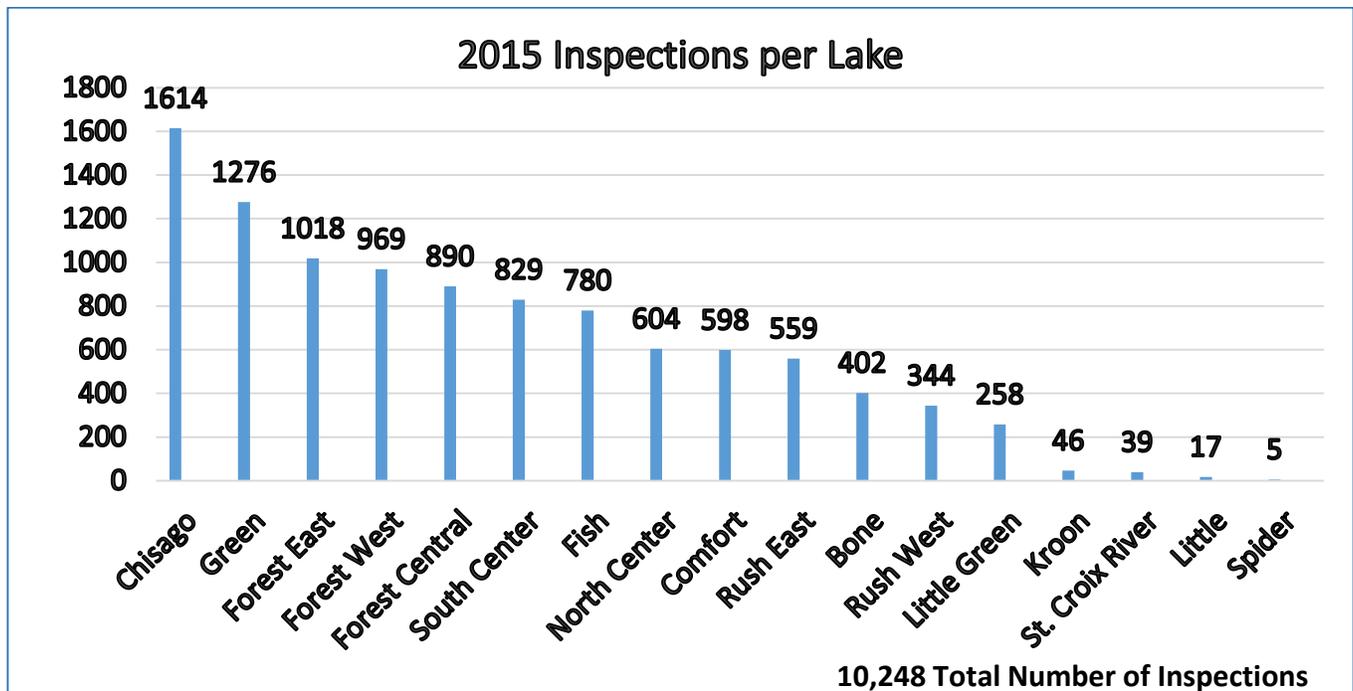
Watercraft inspectors stationed at a public access inspect all incoming and exiting watercraft. At the time of the inspection they also ask the boaters a series of questions relating to their boating activities. Over 10,000 watercraft inspections were conducted in 2015. June and July had the most inspections.

Chart 2: 2015 Number of Inspections



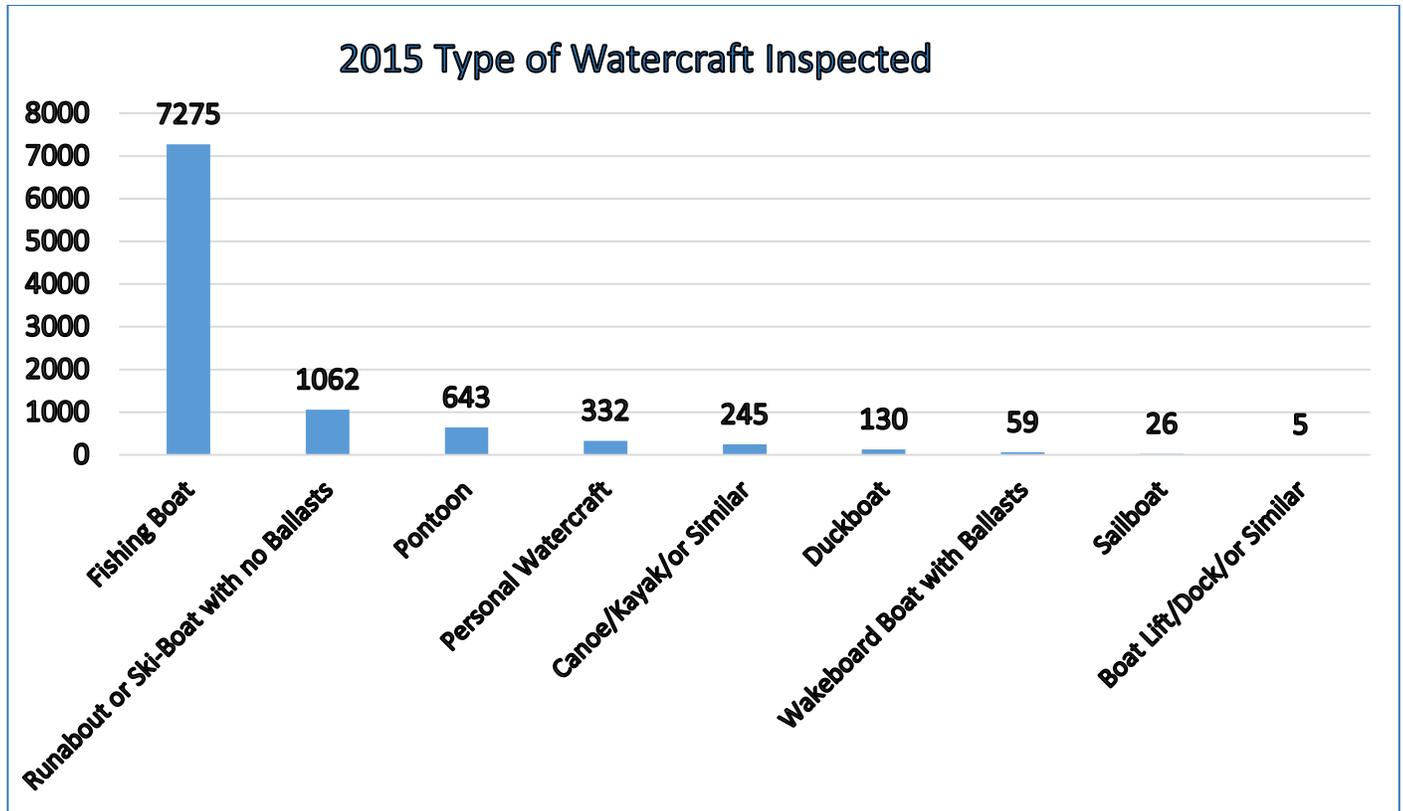
Inspections took place at 24 public water accesses. The majority of inspections took place at busier accesses including Chisago/Lindstrom, Green, Forest East, Forest West, Forest Central and South Center.

Chart 3: 2015 Inspections per Lake



75% of inspections took place on fishing boats, 11% on roundabout or ski boats with no ballast and 7% on pontoons. The remaining inspections took place on personal watercraft, canoes/kayak, duck boats, sailboats and boat lift/docks.

Chart 4: 2015 Type of Watercraft Inspected



During entrance inspections, watercraft inspectors help boaters check for aquatic plants and animals that may be attached to the watercraft. They also check to see if the drain plug is in or out of the boat. If the plug is in during the time of the inspection the inspector sends the watercraft away to remove the plug to drain the boat of any water at a location away from the lake.

While leaving a body of water, an exit inspection is performed by the watercraft inspector. During this inspection the inspector may be having an encounter with a person(s) who went through an entrance exam earlier in the day. The inspector will help look for aquatic plants or animals that may be attached to the boat or trailer from the lake that they just left. If any material is found it is promptly removed from the watercraft and properly disposed.

Table 1: 2015 Entrance or Exit Inspections

2015 Entrance or Exit Inspections					
	Courtesy	Entering	Exiting	(blank)	Grand Total
CHISAGO/SOUTH LINDSTROM	2	850	696	64	1612
GREEN	7	679	541	49	1276
FOREST, EAST		665	311	42	1018
FOREST, WEST		651	294	24	969
FOREST, CENTRAL	1	558	271	60	890
SOUTH CENTER	1	418	328	82	829
FISH	1	415	324	40	780
COMFORT	1	353	234	10	598
NORTH CENTER	1	314	255	34	604
RUSH, EAST		258	269	32	559
BONE LAKE		227	168	7	402
RUSH, WEST	1	200	128	15	344
LITTLE GREEN		143	106	9	258
ST CROIX RIVER		29	10		39
KROON	1	26	15	4	46
LITTLE	1	9	7		17
SOUTH LINDSTROM		1	1		2
SPIDER			5		5
Grand Total	17	5796	3963	472	10248

Entrance Inspections

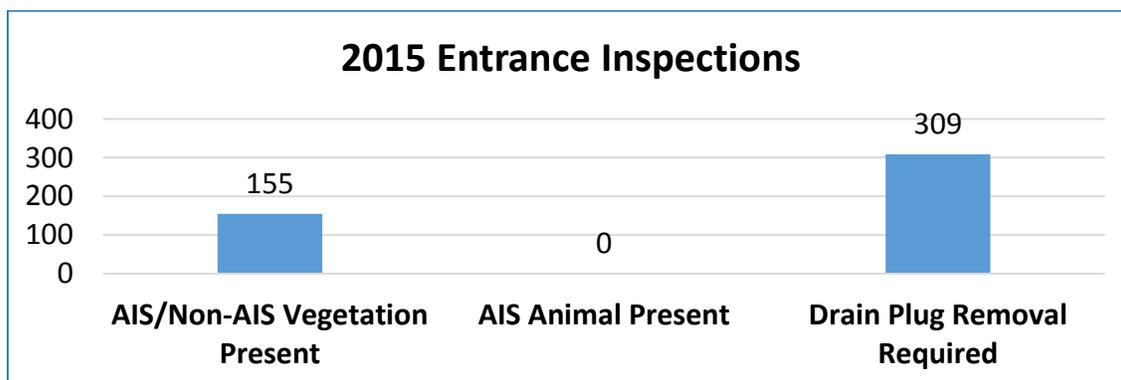
During the entrance inspection, watercraft inspectors help each boater check for aquatic plants and animals that may be attached to the watercraft. They also check to see if the drain plug is in or out of the boat. If the drain plug is in during the time of the inspection, the inspector sends the watercraft away to remove the plug to drain the boat of any water at a location away from the lake.

The table and chart below shows the number of boaters with AIS/Non-AOS Vegetation Present, AIS Animal Present, or Drain Plug Removal Required during the entrance inspection at lake accesses in Chisago County and the Comfort Lake/Forest Lake Watershed District (CLFLWD).

Table 2: 2015 Entrance Inspections Aquatic Plants and Animals, Drain Plug

2015 Lake Access Name	AIS/Non-AIS Vegetation Present	AIS Animal Present	Drain Plug Removal Required
CHISAGO/SOUTH LINDSTROM	27		40
GREEN	25		38
SOUTH CENTER	20		20
FISH	18		40
FOREST, CENTRAL	15		49
NORTH CENTER	11		28
FOREST, EAST	10		27
RUSH, WEST	7		2
FOREST, WEST	6		27
LITTLE GREEN	4		11
BONE LAKE,	4		8
COMFORT LAKE	3		13
RUSH, EAST	3		6
KROON LAKE	1		
Total	155	0	309

Chart 5: 2015 Entrance Inspections Aquatic Plants and Animals, Drain Plug



Previous Lake

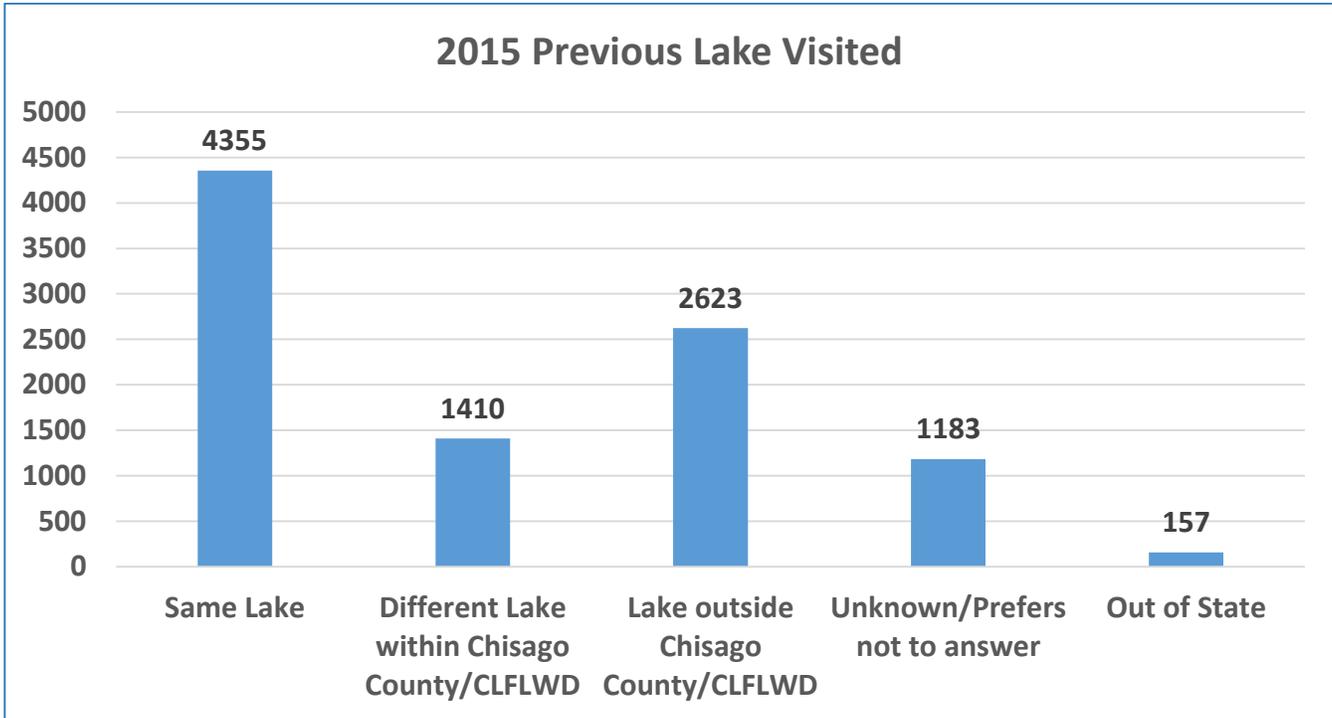
During the entrance and exit inspections, the inspector collects information in the form of a survey. The inspector is interested in knowing what body of water the boater had previously visited.

The table and chart below show the total number of water bodies and their location that each individual survey respondent had visited previously, as reported during the entrance and exit inspections at lake accesses in Chisago County and the Comfort Lake/Forest Lake Watershed District.

Table 3: 2015 Previous Lake Visited

2015 Lake Access Name	Same Lake	Different Lake within Chisago County/CLFLWD	Lake outside Chisago County/CLFLWD	Unknown/ Prefers not to answer	Out of State
CHISAGO/SOUTH LINDSTROM	738	226	361	196	23
FOREST, EAST	487	85	273	104	24
GREEN	466	189	317	229	13
FOREST, WEST	466	65	308	95	9
FOREST, CENTRAL	434	69	237	78	10
SOUTH CENTER	315	141	176	99	14
FISH	293	149	207	74	15
RUSH, EAST	252	90	133	44	6
COMFORT LAKE	243	117	146	66	11
NORTH CENTER	224	106	130	97	11
RUSH, WEST	143	51	114	9	8
LITTLE GREEN	121	36	56	28	6
BONE LAKE	121	74	142	53	4
KROON LAKE	21	8	9	2	1
ST CROIX RIVER	27	2	8	1	1
LITTLE LAKE	3	2	5	5	1
SPIDER	1	0	1	3	0
Total	4355	1410	2623	1183	157
	45%	15%	27%	12%	1%

Chart 6: 2015 Previous Lake Visited



AIS in Previous Lake Visited

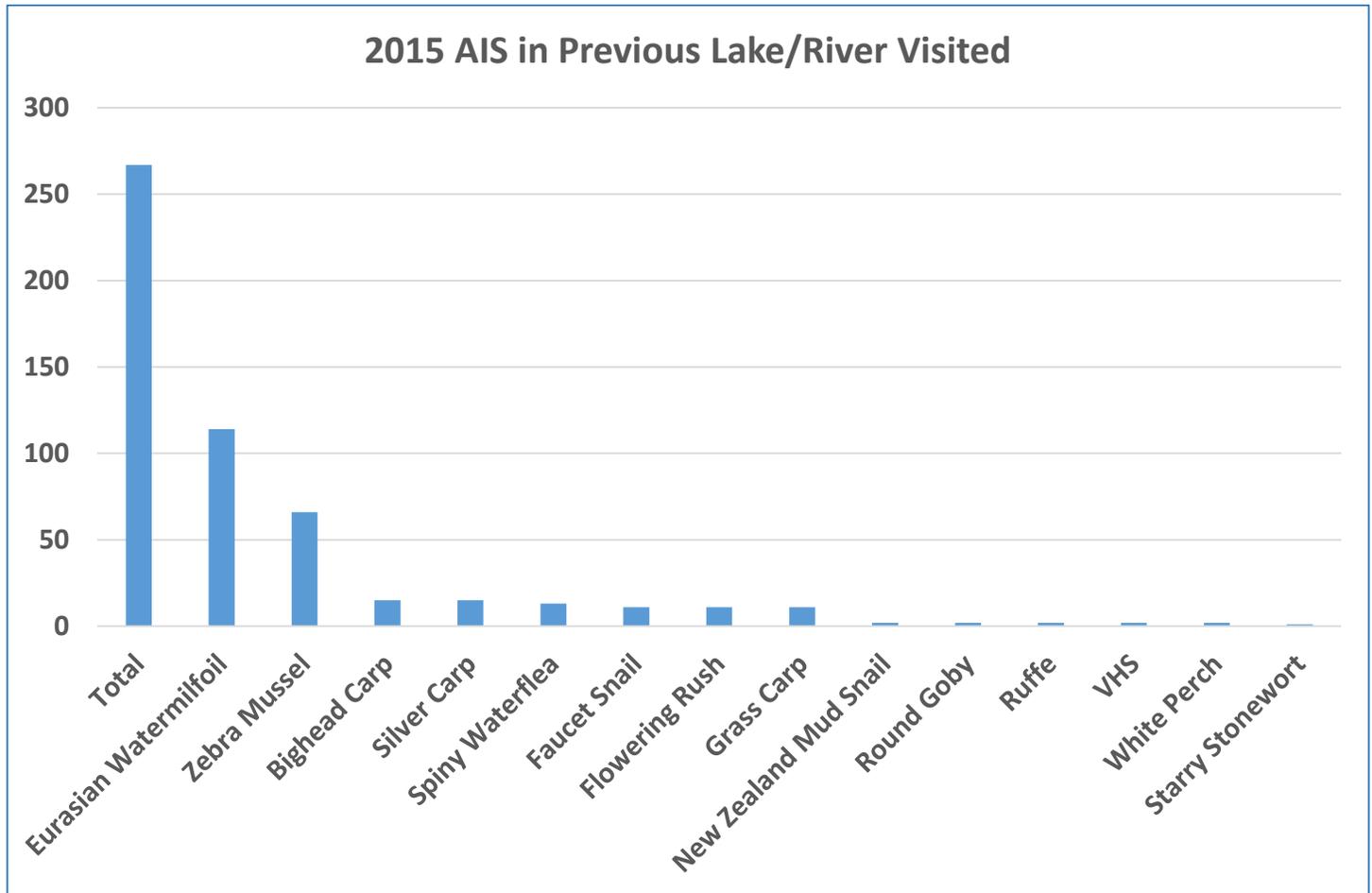
Knowing the body of water a boat had previously visited provides a strong indication of what aquatic invasive species are the biggest threat and how effective watercraft inspections are in preventing the spread.

The table and chart below show the total number of water bodies, rather than each individual visit, that contain an aquatic invasive species that survey respondents reported visiting previously during the entrance and exit inspection at lake accesses in Chisago County and the Comfort Lake/Forest Lake Watershed District.

Table 4: 2015 AIS in Previous Lake Visited

2015 Species	Total
Eurasian Watermilfoil	114
Zebra Mussel	66
Bighead Carp	15
Silver Carp	15
Spiny Waterflea	13
Faucet Snail	11
Flowering Rush	11
Grass Carp	11
New Zealand Mud Snail	2
Round Goby	2
Ruffe	2
VHS	2
White Perch	2
Starry Stonewort	1
Total	267

Chart 7: 2015 AIS in Previous Lake Visited



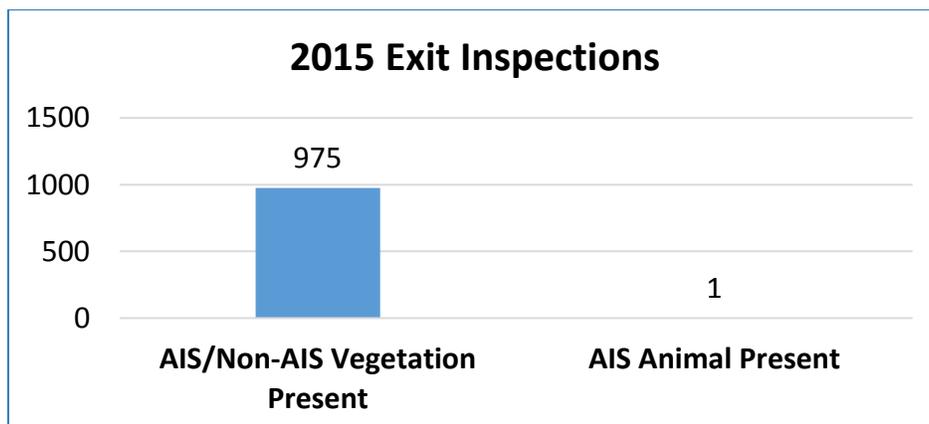
Exit Inspections

While leaving a body of water, an exit inspection is performed by the watercraft inspector. During this inspection, the inspector may be having an encounter with a person(s) who went through an entrance exam earlier in the day. The inspector will help look for aquatic plants or animals that may be attached to the boat or trailer from the lake that they just left. If any material is found it is promptly removed from the watercraft and properly disposed of.

Table 5: 2015 Exit Inspections Aquatic Plants and Animals

2015 Lake Access Name	AIS/Non-AIS Vegetation Present	AIS Animal Present
SOUTH CENTER	161	0
GREEN	117	0
CHISAGO/SOUTH LINDSTROM	112	0
FOREST, CENTRAL	105	0
FOREST, EAST	93	0
FISH	89	0
FOREST, WEST	68	1
RUSH, EAST	67	0
NORTH CENTER	56	0
COMFORT LAKE	39	0
LITTLE GREEN	28	0
RUSH, WEST	26	0
BONE LAKE	24	0
KROON LAKE	6	0
LITTLE LAKE	3	0
ST CROIX RIVER	1	0
Total	975	1

Chart 8: 2015 Exit Inspections Aquatic Plants and Animals



Next Lake

Upon the exit inspection, the inspector performs another survey with a question asking where the boater plans to travel to next.

The table and chart below shows the number of boaters who plan to travel to the Same Lake, a Different Lake or Lake Outside Chisago County/CLFLWD, Out of State or is Unknown as answered during the exit inspection at lake accesses in Chisago County and the Comfort Lake/Forest Lake Watershed District.

Table 6: 2015 Next Lake Planned to Visit

2015 Lake Access Name	Same Lake	Different Lake within Chisago County/CLFLWD	Lake outside Chisago County/CLFLWD	Unknown/ Prefers not to answer	Out of State
CHISAGO/SOUTH LINDSTROM	877	121	175	356	16
KROON LAKE	19	7	3	11	1
SPIDER	0	0	0	1	0
SOUTH CENTER	372	92	85	188	7
NORTH CENTER	233	83	48	197	7
LITTLE LAKE	3	1	1	10	1
LITTLE GREEN	129	20	27	68	3
GREEN	517	123	154	403	17
COMFORT LAKE	212	69	81	209	12
FISH	290	105	144	190	9
RUSH, EAST	243	109	98	99	8
RUSH, WEST	156	45	86	32	6
ST CROIX RIVER	26	5	6	1	1
BONE LAKE	110	48	63	168	5
FOREST, WEST	451	30	149	299	13
FOREST, CENTRAL	463	29	87	247	2
FOREST, EAST	530	38	70	324	11
Total	4631	925	1277	2803	119
	48%	9%	13%	29%	1%

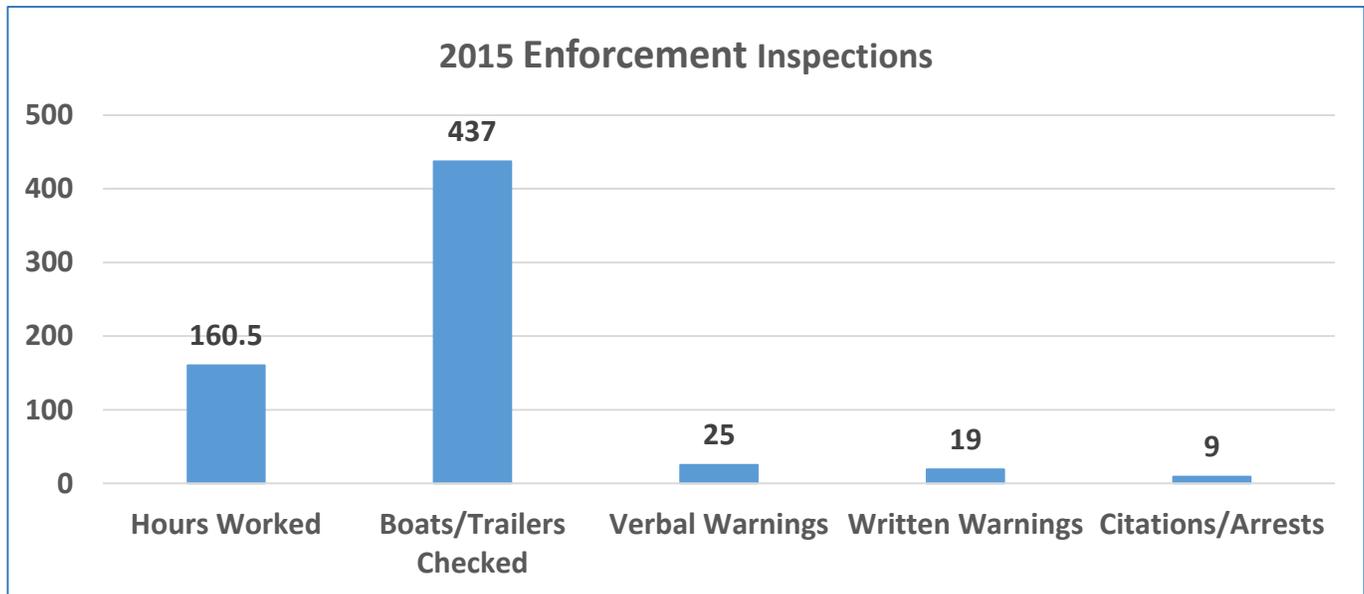
Chart 9: 2015 Next Lake Planned to Visit



2015 Enforcement

Watercraft enforcement training was provided to officers of the Chisago County Sherriff's Department. Officers provided support to watercraft inspectors and took shifts at public water accesses in Chisago County. Officers worked 160.5 hours at public water accesses. They inspected 437 boats, issuing 43 verbal or written warnings and 9 citations. No arrests were made. The primary reason for the warnings and citations was boats with drain plugs in upon arrival at the boat launch.

Table 7: 2015 Enforcement Inspections



2015 Information and Education

Chisago County participated under the leadership of the St. Croix River Association to develop a Strategic Work Plan addressing aquatic invasive species threats in the St. Croix River watershed. One of the outcomes of the partnership was to develop Stop Aquatic Hitchhiker display banners for use at various events, shows and festivals. The displays emphasize the “Clean, Drain Dry” and “Prevent Aquatic Invasive Species” messages. The displays are designed so that individual organizations can use their names on the displays but provide the same message at different venues.

