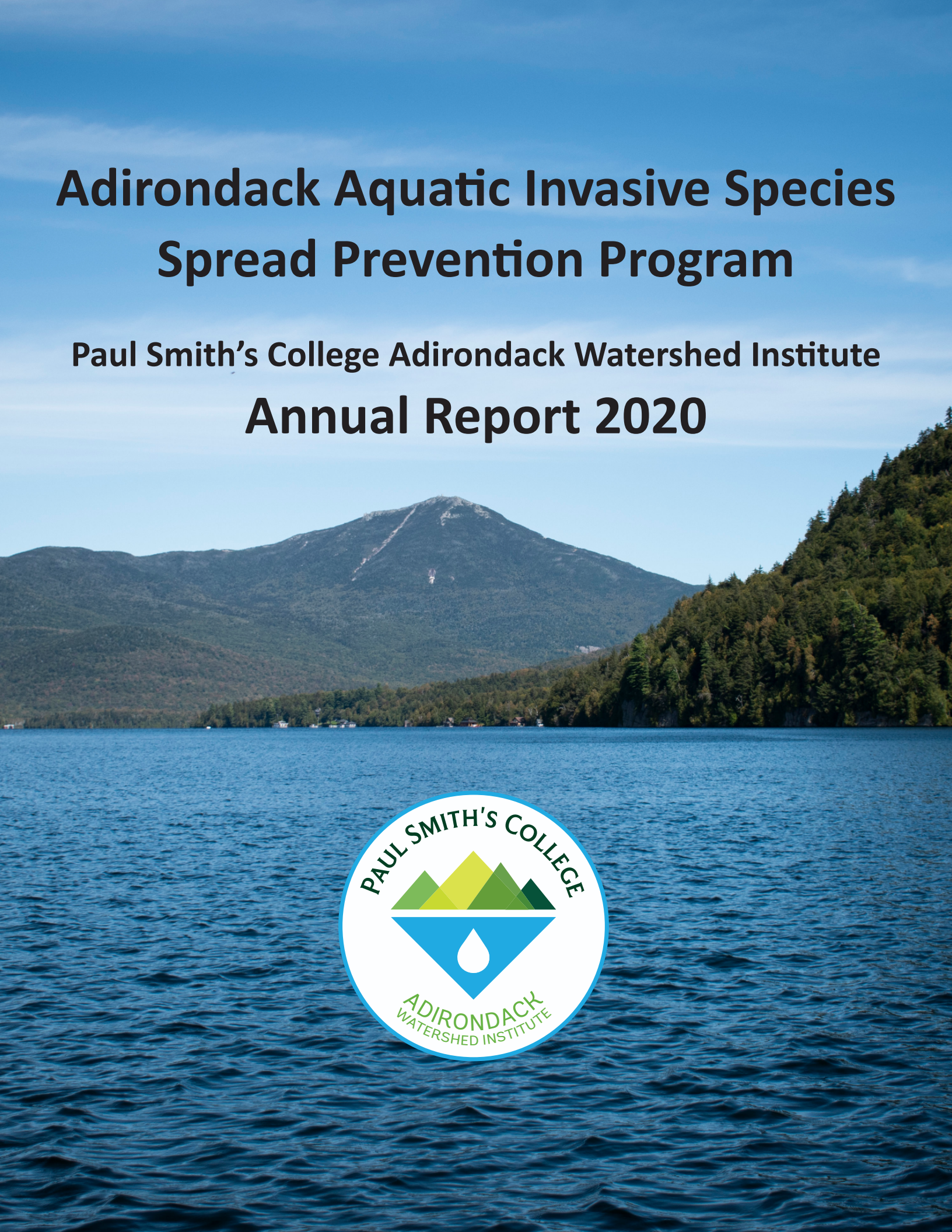
Adirondack Aquatic Invasive Species Spread Prevention Program

Paul Smith's College Adirondack Watershed Institute

Annual Report 2020



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PAUL SMITH'S COLLEGE
Adirondack Watershed Institute

The mission of the Adirondack Watershed Institute is to protect clean water, conserve habitat, and support the health and well-being of people in the Adirondacks through scientific inquiry, stewardship, and real-world experiences for students.

Acknowledgements

We thank our elected officials at the local, state, and federal levels for their support to protect our waters from aquatic invasive species (AIS) and for encouraging the public to participate in spread prevention measures. A special thanks to Congresswoman Elise Stefanik and Assemblyman Billy Jones for providing recorded statements at our annual staff training showing their support for the stewards and their important work. We would also like to thank Corey Laxson from Paul Smith's College and Meg Modley from the Lake Champlain Basin Program for their years of work on AIS management and prevention and for contributing training materials for remote instruction. Thanks to the New York State Department of Environmental Conservation (NYS DEC) Invasive Species Coordination Section staff, Cathy McGlynn and Josh Thiel, for their leadership and continued support, the NYS DEC Region 5 and 6 staff for their contributions to this effort. We also thank the Adirondack Park Agency staff for their commitment to protecting our waterways from AIS and the Adirondack Park Invasive Plant Program (APIPP) for their ongoing partnership in the fight against invasive species. We are grateful to our partner lake associations, watershed organizations, and local municipalities for their dedication to this work. And finally, thank you to our full-time, year-round professional staff and seasonal stewards who show great dedication to their important work every year, and without whom this program would not succeed. The stewardship program is cooperatively funded by New York State's Environmental Protection Fund, US Fish and Wildlife Service-Great Lakes Restoration Initiative, Lake Champlain Basin Program, numerous Lake Associations, private foundations and individuals, and municipalities.

AWI looks forward to continuing its effort to protect the waterways of the Adirondacks from aquatic invasive species through spread prevention measures and public education. We strive each year to make the program as efficient, courteous, and cooperative as possible. Thank you again to our partners and supporters.



Executive Summary

The year 2020 marked the fourth year of Paul Smith's College Adirondack Watershed Institute (AWI) operating its landscape-scale network of 56 boat inspection and 29 decontamination stations across the Adirondack Park. The goal of this network is to prevent the introduction and spread of aquatic invasive species (AIS) to waterways across the region. To achieve this goal, a workforce of over 100 stewards and decontamination technicians are recruited, trained, and deployed each summer to interact with the boating public, conduct inspections of boats, trailers, and associated gear at boat launches, properly decontaminate watercraft, and inform the public about ways in which they can help prevent the spread of AIS including practicing "Clean, Drain, Dry" principles. Stewards also record data from boater interactions using the Watercraft Inspection Steward Program Application (WISPA), which is used to assess risk and inform state-wide AIS management. A key element of the Adirondack Aquatic Invasive Species Spread Prevention Program is that it relies on voluntary compliance of the boating public to meet the Clean, Drain, Dry (CDD) standard required by New York State's regulation to stop the spread of aquatic invasive species. Stewards model appropriate AIS prevention steps and provide education, thus encouraging behavioral change and boater self-adoption of CDD.

Consistent with the general observation of more visitors to the Adirondacks in 2020 seeking respite from COVID-19, our stewards counted 125,192 boats and 251,744 boaters in 2020, which represented a 25% increase in boats and boaters compared to the prior three years. Despite the large increase in boats, our stewards found fewer AIS on boats in 2020 and, in fact, the percentage of boats found to be carrying AIS has declined significantly over the last three years. This encouraging trend suggests increasing self-adoption of Clean, Drain, Dry practices by boaters.

Ninety-six percent of motorized boats and 98% of nonmotorized boats encountered were inspected, and only 0.3% and 0.1% of boaters with motorized and nonmotorized boats, respectively, actually declined to have their boats inspected. Over half the boaters who declined inspections did so either because it was their first launch of the season, or their boats were only used in that same waterbody. These results demonstrate that boaters are more than willing to comply with voluntary boat inspection and that they are knowledgeable about the risk factors associated with transporting AIS.

Over half of boaters surveyed had not taken any spread prevention measures prior to launching, but this appears to be largely a conscious decision based on their own assessment of risk. For example, 56% of motorboaters did not take spread prevention measures because they were launching for the first time, always in that waterbody, or rarely used their boat. Only



Steward Jason Messenger studies a plant removed from a watercraft at Second Pond.

2% of motor boaters had no reason for not taking spread prevention measures. These findings suggest that most boaters are making informed decisions on their own risk profile related to transporting AIS, likely benefitting from and responding to educational messaging delivered by stewards, social media and other communication.

Only 304 of the 51,007 launching motorized boats inspected had AIS, which was a 0.6% infection rate. Of this total, 207 of these boats were either only used in that same waterbody or had been out of the water for at least two weeks. Removing these lower risk boats leaves a total of 97 higher-risk AIS transports for a 0.2% infection rate. At 7.1% of boats with AIS present (2,475 boats), retrieving boats represent a much greater threat of transporting AIS than launching boats. This is likely because of AIS infestations and concentrated fragments near the launch site. Further, fewer retrieving boats are inspected as more retrieving boaters tend to ignore the steward, perhaps because these boaters are in a hurry to leave. Based on these findings, we are putting greater emphasis on inspecting retrieving boats.

Six species of AIS were found on boats and gear in 2020. Eurasian watermilfoil was the most common AIS found, with curly leaf pondweed and zebra mussel rounding

out the top three most common AIS. In decreasing order of occurrence, the final three AIS found were water chestnut, spiny waterflea, and variable leaf milfoil. All six of these AIS are already established in Adirondack waters, so there were no detections of new AIS (e.g., hydrilla) by our stewards in 2020. The majority of AIS finds were at Lake Champlain launches followed by Chateaugay Lake and Second Pond.

The number of boats decontaminated each summer has increased by 62% over four years, with 4,354 boats decontaminated in 2020. Most boats were decontaminated as courtesy washes that we use as an educational opportunity to familiarize and get boaters comfortable with the idea of having their boats washed. The second most common reason for decontamination was suspected AIS based on the last waterbody visited, with all boats coming from waters known to harbor AIS being referred to decontamination. The busiest decontamination station was the Adirondack Welcome Center which washed 538 boats in 2020. A larger percentage of boats arriving at this station come from waterbodies known to harbor AIS, have visible AIS on the boat or trailer, or have standing water. As such, maintaining a boat decontamination station at the Adirondack Welcome Center and encouraging its use is an important part of protecting the region from new AIS introductions.

By several measures, most of the boating public encountered appear to have some knowledge about AIS spread prevention. Boaters either arrive at launch sites with clean boats or they have self-assessed their own risk based on their knowledge of where AIS are and their role in AIS transport. AWI has been stewarding at boat launches in the Adirondacks for 20 years, so many boaters have encountered stewards, heard their messages, and watched stewards inspect and clean their boats. The decreasing percentage of boats with AIS coupled with the increased knowledge level of the boating public strongly suggest that stewards have a beneficial impact on boater behavior. To continue to improve the impact of our stewards we are enhancing their training and providing better educational signage at launches.

Operating a program at this scale presents many challenges and opportunities. Working across more than 60 sites with 100+ staff allows us to maintain consistent messaging and a level of customer service. We can leverage our large number of seasonal staff to ensure coverage and we have created a large network of lake association and municipal partners with whom we work closely and support each other's efforts in spread prevention. The massive database accumulating via WISPA allows us to work with the NYS DEC to develop landscape scale recommendations for deploying resources to further reduce the risk of AIS spread. For example, we know that the Lake Champlain launches have the highest incidence of AIS found on retrieving boats and thus pose the greatest risk of transporting AIS to interior lakes. Within the Adirondack interior, Chateaugay Lake and Second Pond, both heavily infested and utilized waterways, pose a greater threat to AIS spread within the interior compared to other waterways in the network. Based on this knowledge we ensure consistent inspection and decontamination coverage at these boat launches and focus heavily on inspecting and educating retrieving boaters.

In closing we acknowledge the strong commitment of the New York State Department of Environmental Conservation (DEC) to protect New York waters from AIS and we are particularly grateful for their support of this program and our stewards. With DEC's support we have instituted several improvements to the program such as greater presence of local law enforcement, enhanced communications, and improved training that have increased steward comfort, safety, and effectiveness.



Steward Katherine Peck rakes milfoil fragments from the boat ramp at Second Pond.

Program Description

The year 2020 marked the end of the second decade of Paul Smith's College Adirondack Watershed Institute (AWI) operating its Adirondack Aquatic Invasive Species Spread Prevention Program (AAISSPP).

It was the foresight of private shoreowners who in the late 1990's became concerned about impacts to their



Steward Jason Messenger provides boater education at Second Pond while maintaining safe distance.

waterways from aquatic invasive species, that led to the establishment of spread prevention efforts in the Adirondacks. The St Regis Lake Association enlisted Paul Smith's College in 2000 to begin inspecting boats and educating the boating public at a remote launch in the northern reaches of the Adirondack Park. Over time, other lake associations, foundations, and municipalities began partnering with the college to protect their lakes with watershed stewards. Eventually, federal funding from the Lake Champlain Basin Program and the Great Lakes Restoration Initiative started supporting a larger network of spread prevention across northern New York. In 2017 the New York State DEC awarded AWI with a five-year contract to develop a landscape-scale network of boat inspection and decontamination stations. Today AWI operates the largest program in the state whose mission is to prevent the introduction and spread of AIS across a region containing over 11,000 lakes and ponds and larger than the State of Vermont.

The PSC AWI Stewardship Program staffed 56 boat inspection stations at launches and 29 boat decontamination stations in 2020 (Figure 1). Nine boat decontamination stations were standalone roadside facilities and the remaining 20 were co-located with boat inspection stations at state launches. Locations were staffed from 8 to 12 hours per day and from 4 to 7 days per week, with traditionally busier locations receiving longer coverage. The program ran from Memorial Day through Labor Day with extended coverage through Columbus Day at several DEC boat launch locations. Stewards and decontamination technicians received 5 days of training prior to deployment. Training was fully remote in 2020 due to mandated restrictions under COVID-19 and used a combination of interactive live Zoom sessions and self-paced training modules offered through Paul Smith College's learning management system, Canvas, to prepare the stewards and technicians for the season. Overall, many of our stewards told us they preferred this style of training over traditional face-to-face classroom style lectures done in prior years as it was more focused and organized and allowed for more time with the materials for deeper learning. Hands-on, in-person training was conducted on location in small groups, again to comply with restrictions under COVID-19.

To prevent the introduction and spread of AIS, stewards were trained to interact with the boating public, conduct inspections of boats, trailers, and associated gear at boat launches, remove and dispose of any clinging materials thereon, identify AIS, and inform the public about ways in which they can help prevent the spread of AIS including practicing "Clean, Drain, Dry" principles. Within the social distancing and mask wearing mandates followed under COVID-19 in 2020, our stewards also collected data from boaters using the Watercraft Inspection Steward Program Application (WISPA)[1]. Stewards also referred boaters to the nearest decontamination station when warranted based on predetermined risk factors. Decontamination technicians used high pressure hot water spray to remove AIS from the trailer, hull, interior surfaces, live wells, and engines, collected data using WISPA, and provided education to boaters who voluntarily pulled into their decontamination station for an inspection. All employees were required to wear masks, maintain social distance, and follow strict hygiene and daily health screening protocols for the entire 2020 season to protect themselves and the public from COVID-19.

This annual report provides a high-level summary of the seasonal data collected in WISPA since 2017 and a detailed examination of the 2020 program data. Individual reports for each location can be found at https://www.adkwatershed.org/publications/annual-stewardship.

1 WISPA is a standardized tablet-based survey used by stewards across New York State to record key data from every boater interaction to understand boating patterns, assess risk, and inform AIS management decisions across the state (for more information visit nyimapinvasives.org/wispa).

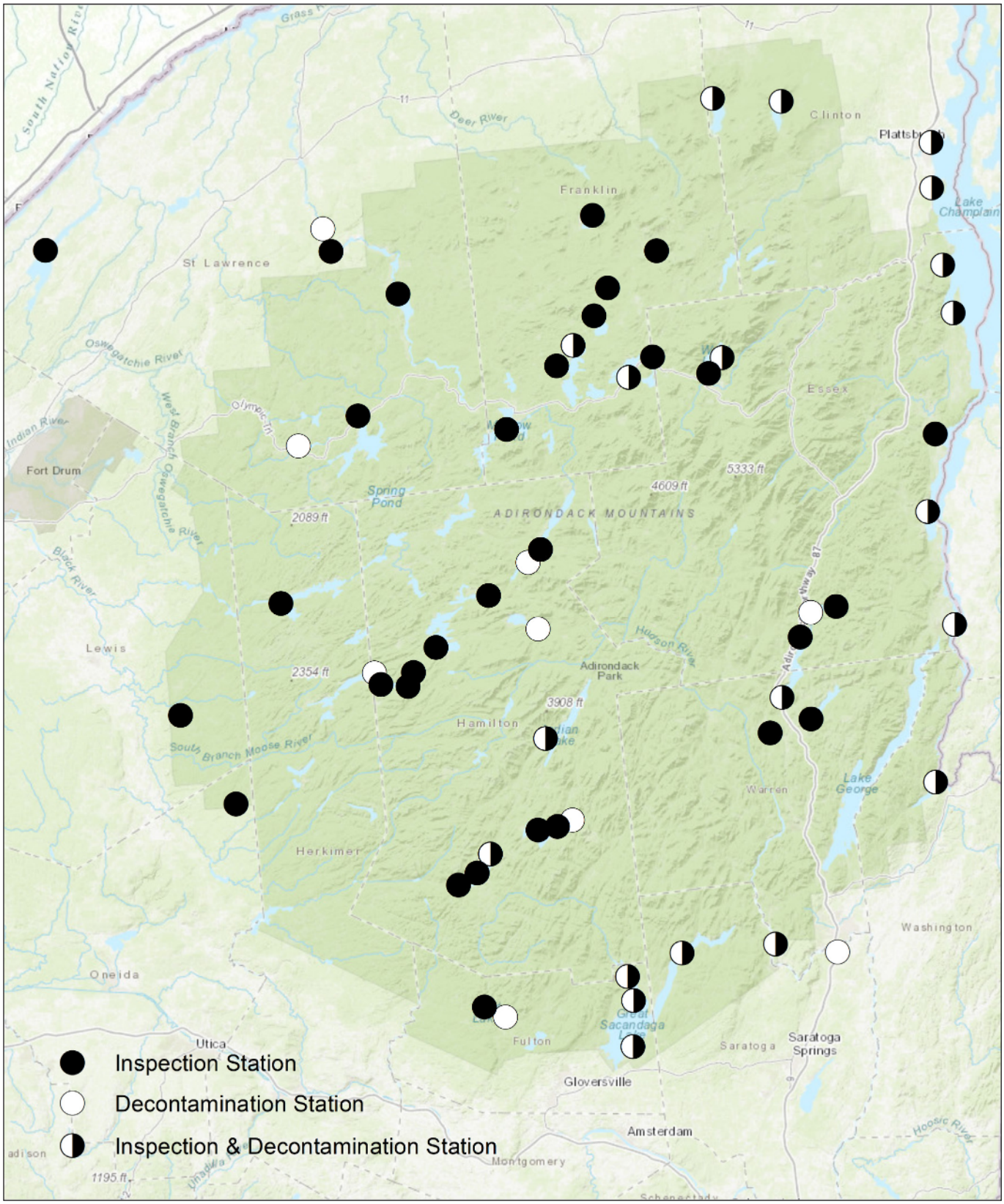


Figure 1. Locations of the 2020 Adirondack Park AIS Spread Prevention Program boat inspection stations (solid black circles), decontamination stations (solid white circles), and co-located boat inspection and decontamination stations (half black & half white circles).

2017 to 2020 Program Summary

The total number of boats and boaters observed by stewards were both steady at about 100,000 boats and 200,000 boaters per year from 2017 to 2019 (Figure 2). Both total boats and boaters increased by 25% in 2020 with nearly 50,000 more visitors and over 22,000 more boats observed at launch and roadside decontamination sites compared to the previous three years of full implementation of the Adirondack Park AIS Spread Prevention Program. This finding is consistent with the general observation of more visitors to the Adirondacks in 2020 in response to COVID-19. Despite the large increase in boats, stewards found fewer AIS on boats in 2020 and, in fact, the percentage of AIS found per boat decreased from a 4.6% infection rate (% of boats inspected found to be carrying AIS) in 2018 to 2.3% in 2020. Though only three years of data, this significant downward trend in AIS infection rate is suggestive of behavioral change among boaters and increased self-adoption of Clean, Drain, Dry practices.

The number of boats decontaminated increased with each year of the program (Figure 3). In 2017, 2,691 boats were decontaminated, compared to 4,354 boats in 2020, representing a 62% increase in the number of boats decontaminated over four years. The busiest boat decontamination station based on the 2020 season numbers was the Adirondack Welcome Center, followed by the Rocky Mountain station near Fourth Lake and the Horicon station near Schroon Lake. The Second Pond and Upper Saranac Lake decontamination stations located in the interior of the Park where 5th and 7th busiest locations.

2020 Boat Inspection Summary

Boat Inspection Rates

A total of 125,192 boats were counted across the entire program in 2020. Of this total, 89,870 (72%) were motorized boats and the remaining 35,322 (28%) were nonmotorized boats. For both types of boats, the most were counted while launching (58% of all boats) followed by retrieving (39% of all boats). Roadside decontamination locations accounted for 2,936 (3% of all boats) with 2,415 (82%) of these being motorized boats.

The Second Pond and Lake Placid (State Launch) boat launches were the busiest inspection locations in the network, followed by the Northville and Broadalbin boat launches at Great Sacandaga Lake and the Horicon launch at Schroon Lake (Figure 4 and data table in Appendix A). Other boat launches located at interior lakes such as Canada Lake, Fourth Lake, Brant Lake and Long Lake rounded out the top ten. Interestingly, boat launches along Lake Champlain were less busy than

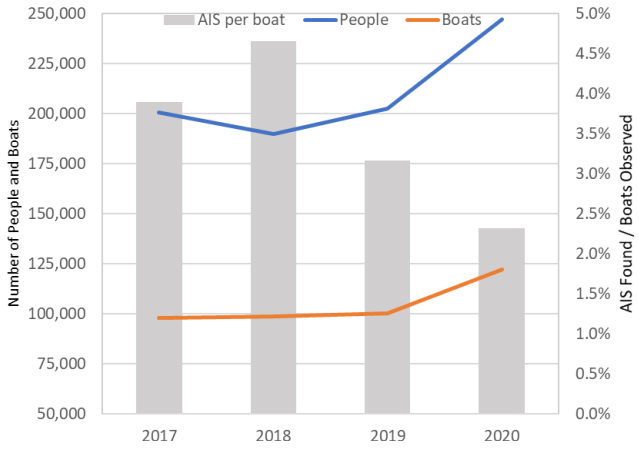


Figure 2. Number of people (blue line) and boats (orange line) observed and the percentage of AIS found per number of boats observed (gray bars) in the first four seasons of the Adirondack Park AIS Spread Prevention Program.

many interior launches, with only three Lake Champlain boat launches at Ticonderoga, Peru, and Port Henry included in the top twenty. The higher boat traffic at interior boat launches supports the need to have stewards at these locations to prevent the introduction of new AIS to interior lakes where these organisms can be more easily be spread from lake to lake.

Not all boats that were counted were inspected (Table 1). Of the 89,870 motorized boats counted 86,217 (95.9%) of these boats were inspected, and within the motorized boat type category, roadside locations had the highest percentage of boats inspected followed by launching boats at 97.2% and lastly by retrieving boats at 93.7 percent. A greater percentage of nonmotorized boats were inspected compared to motorized boats (98.1% versus 95.9%). The same trend in inspection rates was apparent for nonmotorized boats, with roadside having the highest percentage at 99.8% followed by launching at 98.3% and lastly by retrieving at 97.7 percent.

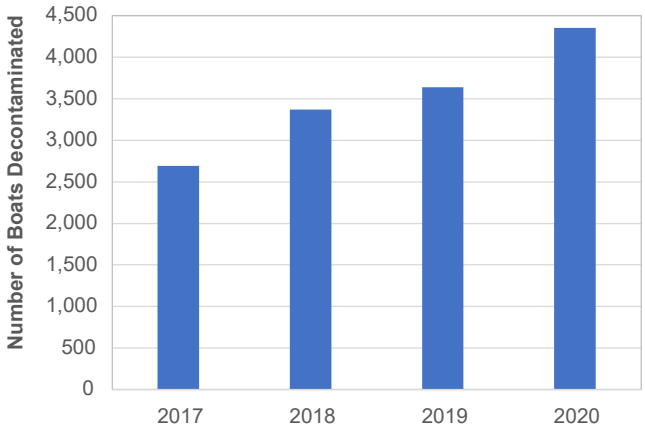


Figure 3. Total numbers of boats decontaminated in the first four seasons of the Adirondack Park AIS Spread Prevention Program.

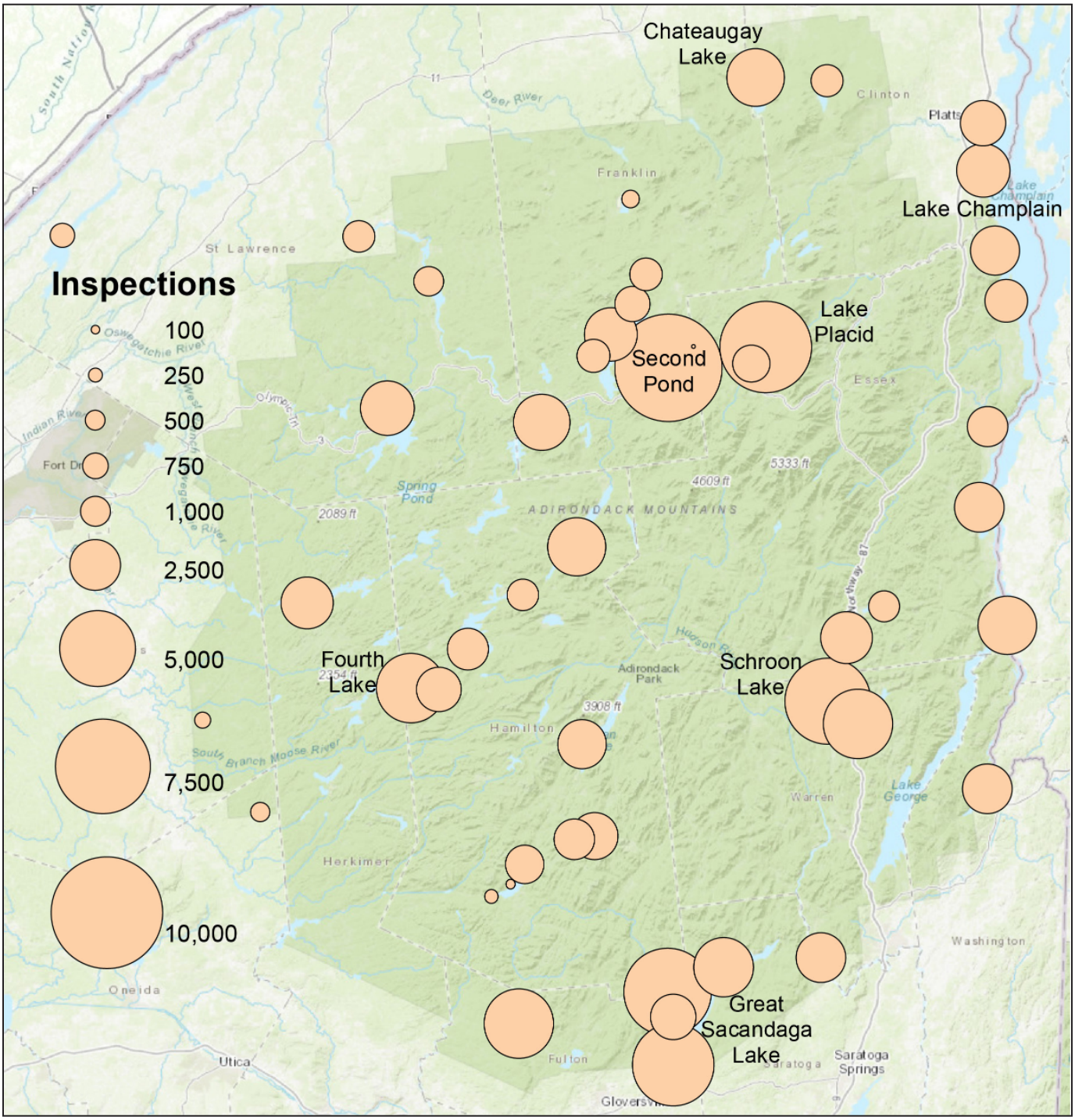


Figure 4. Bubble map of total boats inspected at each station in 2020.

Table 1. Number of boats inspected and not inspected categorized by direction (launching, retrieving and roadside) and boat type (motorized and nonmotorized) in 2020. Percentages in parentheses are based on the total number of boats in each direction and boat type category.

Direction	Motorized Boats			Nonmotorized Boats		
	Total Boats	Total Not Inspected	Total Inspected	Total Boats	Total Not Inspected	Total Inspected
Launching	52,463	1,456 (2.8%)	51,007 (97.2%)	20,382	340 (1.7%)	20,042 (98.3%)
Retrieving	34,992	2,194 (6.3%)	32,798 (93.7%)	14,419	328 (2.3%)	14,091 (97.7%)
Roadside	2,415	3 (0.1%)	2,412 (99.9%)	521	1 (0.2%)	520 (99.8%)
Total	89,870	3,653 (4.1%)	86,217 (95.9%)	35,322	669 (1.9%)	34,653 (98.1%)

The major reason why boats were not inspected was avoidance of the steward by boaters (Table 2). This was the case for both motorized and nonmotorized boats, with avoidance being greater on retrieval particularly for motorized boats. Though markedly lower than avoidance, the second most common reason for motorized boats not being inspected was that the boater declined inspection, which represent 0.3% of all motorized boats launched or retrieved. For nonmotorized boats the second most common reason for no inspection was that the steward was just too busy to inspect all boats. The steward being too busy was the third most common reason for lack of inspection of motorized boats. Of note, only a few boats were not inspected because of COVID risk, indicating that the overwhelming number of boaters respected social distancing guidelines while interacting with stewards.

Looking deeper into the reasons why boats were not inspected, 275 motorized boats were not inspected either because it was the first launch of the season or because the boats were only used in that same waterbody. For motor boaters who declined inspection, 52 declined for one of the above same reasons. These were the same explanations for 26 of the nonmotorized boats not being inspected, 9 of whom declined inspection for these same reasons.



Regional Supervisor Katie Burnham performs a watercraft inspection at Lake Placid.

These results show that boaters are willing to comply with voluntary boat inspection, but they also indicate that there is an opportunity to improve the inspection rate if ways can be found to engage with boaters who avoid stewards, particularly on retrieval.

Of the launching boats that were inspected, 58% of motorized boaters and 53% of nonmotorized boaters reported that they had not taken any spread prevention measures with their watercraft. Among the reasons boaters cited for not taking spread prevention measures, 40% of motorized boaters and 17% of nonmotorized boaters reported always using the same waterbody, 15% of motorized boaters and 28% of nonmotorized boaters were launching for the first time for the season, and 1% of motorized boaters and 3% of nonmotorized boaters reported that their boats were used infrequently. Only 2% and 5% of motorized and nonmotorized boaters, respectively, had no reason for not taking spread prevention measures. Though small on a percentage basis, this still left 1,020 motorized and 1,002 nonmotorized boats coming from different waterbodies that had no spread prevention measures taken by their owners.

Organisms and AIS Found

The presence of organisms or AIS on boats varied greatly depending on direction (launching or retrieving) and boat type (Table 3). Of the 5,102 motorized boats with organisms present, 4,256 were found on retrieving motorboats, with AIS presence showing the same pattern. Organisms were found on 570 (1.1%) launching motorboats versus 4,256 (12.2%) on retrieving

Table 2. Reasons for boats not being inspected categorized by boat type (motorized and nonmotorized) and direction (launching or retrieving) in 2020. Percentages in parentheses are based on the total number of boats in each boat type and direction category.

Reason for no inspection	Motorized		Nonmotorized	
	Launching	Retrieving	Launching	Retrieving
Avoided steward	1,128 (2.2%)	1,898 (5.4%)	231 (1.1%)	271 (1.9%)
Declined inspection	136 (0.3%)	99 (0.3%)	36 (0.2%)	11 (0.1%)
Steward too busy	122 (0.2%)	89 (0.3%)	49 (0.2%)	26 (0.2%)
Other/unknown	63 (0.1%)	97 (0.3%)	22 (0.1%)	14 (0.1%)
COVID risk	7 (0.01%)	11 (0.03%)	2 (0.01%)	6 (0.04%)
Total	1,456 (2.8%)	2,194 (6.3%)	340 (1.7%)	328 (2.3%)

motorboats and 276 (11.4%) on roadside motorboats. AIS were found on 304 (0.6%) launching motorboats versus 2,475 (7.1%) on retrieving motorboats and 176 (7.3%) of roadside motorboats. The numbers and percentages of nonmotorized boats with organisms or AIS present were much smaller than for motorized boats. Retrieving and roadside nonmotorized boats had the highest percentages of organisms and AIS present. For launching nonmotorized boats only 54 (0.26%) of these boats had organisms present and only 6 (0.03%) had AIS present. As was found with motorized boats, retrieving nonmotorized boats had higher infection rates than launching boats. Despite the low infection rate of nonmotorized compared to motorized boats, these results do show that nonmotorized boats do transport AIS, albeit at much smaller percentages.

Kayaks were the most common nonmotorized watercraft observed followed by canoes (Table 4); taken together these two boat types constituted 92% of all nonmotorized watercraft observed. In decreasing order of observation, standup paddleboards (SUPs), rowboats, sailboats, windsurfers, and barges made up the remainder of nonmotorized boat types. Rowboats and sailboats had the highest organism and AIS infection percentages of nonmotorized watercraft inspected, though it should be noted that these two boat types constituted only 2.9% of nonmotorized watercraft. Owing to sheer numbers of kayaks and canoes, these two boat types had the highest levels of infection in absolute terms among nonmotorized craft.

Of the 304 launching motorized boats with AIS present 149 (49%) of these boats were last in this same waterbody and 58 (19%) of these boats had not been in the water in the two weeks prior to launching (Figure 5). Boats returning to the same waterbody pose no threat of introducing new AIS into that waterbody. Boats that have been out of the water for at least two weeks between uses pose a reduced threat to introducing new AIS as organisms on and in these boats lose viability over time. Taken together these two

Table 3. Number of boats with organisms and AIS present categorized by direction (launching, retrieving and roadside) and boat type (motorized and nonmotorized) in 2020. Percentages in parentheses are based on the total number of boats in each direction and boat type category.

Direction / Location	Motorized Boats			Nonmotorized Boats		
	Total Boats	Organisms Present	AIS Present	Total Boats	Organisms Present	AIS Present
Launching	52,463	570 (1.1%)	304 (0.6%)	20,382	54 (0.26%)	6 (0.03%)
Retrieving	34,992	4,256 (12.2%)	2,475 (7.1%)	14,419	212 (1.47%)	51 (0.35%)
Roadside	2,415	276 (11.4%)	176 (7.3%)	521	10 (1.96%)	6 (1.15%)
Total	89,870	5,102 (5.7%)	2,955 (3.3%)	35,322	276 (0.78%)	63 (0.18%)

Table 4. Total number of nonmotorized boats by type and the percentages of these boats with organisms and AIS launching, retrieving, and roadside in 2020.

Boat Type	Total	Launching		Retrieving		Roadside	
		Organisms Present	AIS Present	Organisms Present	AIS Present	Organisms Present	AIS Present
Kayaks	25,073	0.29%	0.01%	1.24%	0.29%	1.57%	0.79%
Canoes	7,448	0.19%	0.02%	1.63%	0.19%	2.08%	1.04%
SUPs	1,726	0.00%	0.00%	0.97%	0.14%	0.00%	0.00%
Rowboat	577	0.68%	0.34%	4.80%	2.58%	9.09%	9.09%
Sailboat	434	0.75%	0.75%	9.35%	5.04%	3.70%	3.70%
Windsurfers	34	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Barge	30	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
total	35,322	0.26%	0.03%	1.47%	0.35%	1.92%	1.15%

categories of no to low-risk boats represent 207 (68%) of launching motorized boats with AIS present. The remaining 97 (32%) of these motorized boats represent the greater risk boats for spreading AIS as they are coming from different waterbodies and are more frequently used. So, the actual percentage of launching motorized boats that presented a risk of introducing new AIS was 0.18%, not 0.58%. Of the 7 nonmotorized boats with AIS present 2 (28%) were last in the same waterbody and 3 (43%) of these boats had not been in the water in the prior two weeks before launching. Taken together these represent 5 (71%) of launching nonmotorized boats with AIS present, the remaining 2 (29%) of these nonmotorized boats represent the greater risk boats for spreading AIS as they are coming from different waterbodies. So, the actual percentage of launching nonmotorized boats that presented a risk of introducing new AIS was 0.009%, not 0.03%, still a source of new AIS infections but at much lower probability when considering where boats have been.

In addition to motorized watercraft picking up AIS on lower units while out on the water, the boat launch itself is a common source of AIS on retrieving boats. Through the course of the day, AIS fragments in infested lakes accumulate in the vicinity of launch ramp and are readily picked up when the trailer backs up into the water and the boat is retrieved. Likewise launch sites themselves are often infested with AIS, providing a ready source of fragments to be picked up on retrieval.

AIS were found on boats retrieved at 31 of the 56 sites with steward coverage in 2020 (Table 5). The

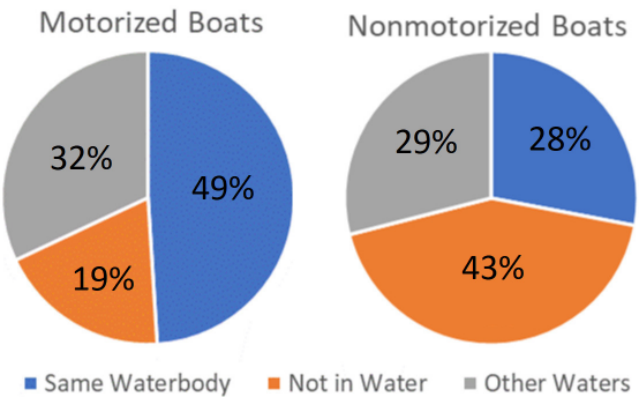


Figure 5. Origins of boats launching



Eurasian watermilfoil at Lake Flower.

Table 5. Ranked cumulative percentage of AIS removed by stewards from retrieving boats in 2020.

Launch Site Name	Percent of Total AIS Retrieved
Lake Champlain - Ticonderoga	25.1%
Lake Champlain - Westport	43.1%
Chateaugay Lake	57.9%
Lake Champlain - South Bay	70.8%
Lake Champlain - Port Henry	78.2%
Lake Champlain - Port Douglas	84.8%
Second Pond	89.9%
Lake Champlain - Plattsburgh	93.3%
Lake Champlain - Willsboro	95.2%
Lake Champlain - Peru	96.0%
Black Lake	96.9%
Fourth Lake - Inlet	97.3%
Cranberry Lake	97.6%
Brant Lake	97.9%
Seventh Lake	98.1%
Fish Creek Ponds Campground	98.4%
Raquette Lake	98.6%
Long Lake	98.8%
Great Sacandaga Lake - Broadalbin	99.0%
Chazy Lake	99.1%
Hudson River - Luzerne	99.2%
Tupper Lake	99.4%
Great Sacandaga Lake - Day	99.5%
Schroon Lake - Town Launch	99.6%
Great Sacandaga Lake - Northville	99.6%
East Caroga Lake Campgrounds	99.7%
Meacham Lake Campground	99.7%
Canada Lake - West Lake Launch	99.8%
Sacandaga Lake - Moffitt Beach	99.9%
Lake Placid - State Launch	100.0%

Ticonderoga and Westport launches on Lake Champlain accounted for 43% of the total AIS removed by stewards from retrieving boats in 2020. In fact, Lake Champlain launches constituted 8 of the top 10 for AIS removed on retrieval with the Chateaugay Lake and Second Pond launches rounding out the top ten. These top 10 accounted for 96% of all AIS removed from retrieving boats in 2020.

Unlike stewards asking boaters who are launching where they have been in the past, stewards cannot reliably ask boaters who are retrieving where they may go in the future. So, unlike with launching boats, it is difficult to assess the risk of AIS found on retrieving boats. But if we consider boater responses to the "where has your boat been…." question when launching as an indicator of a pattern for a given launch, this gives us some insight into potential risk. For the top 10 boat launches with AIS found on retrieval, when asked "where has your boat been in the past 2 weeks," 61% of boaters launching answered "this same waterbody." In absolute terms, these 10 launches accounted for 2,377 of the 2,475 boats with AIS removed from retrieving boats. Assuming 61% of these boats will only be used in this same waterbody, this leaves an estimated 927 retrieving boats with AIS going to other waterbodies if these organisms were not removed by the steward or the boater. This high number, combined with the facts that more retrieving boats go uninspected than launching boats and a greater percentage of retrieving boaters avoid the steward, suggest that greater emphasis should be put on inspecting retrieving boats, particularly at the Lake Champlain, Chateaugay Lake, and Second Pond launch sites.

Six species of AIS were found on boats and gear in 2020 (Table 6). Eurasian watermilfoil was the most common AIS found across boat types and direction, with curly leaf pondweed and zebra mussel rounding out the top three most common AIS. In decreasing order of occurrence, the final three AIS found were water chestnut, spiny waterflea, and variable leaf milfoil. All six of these AIS are already established in Adirondack waters, so there were no detections of new AIS (e.g., hydrilla) by our stewards in 2020.

Lake Champlain boat launches accounted for 62% of Eurasian watermilfoil, 87% of curly leaf pondweed, 82% of zebra mussel, 81% of water chestnut, and 97% of spiny waterflea finds in 2020. Chateaugay Lake and Second Pond launches were the second and third most common locations to find Eurasian watermilfoil. Second Pond was also the most common location to find variable leaf milfoil with most of the remaining locations where this AIS was found being in lakes in the Fulton Chain and Raquette River watersheds where this species is well established. Of note is that only three incidents of spiny waterflea were counted away from Lake Champlain boat launches, one at the roadside decontamination station in Speculator and two at the Adirondacks Welcome Center in Glens Falls.



Spiny waterflea on fishing line at Lake Champlain.

Table 6. Count of aquatic invasive species found and removed categorized by boat type (motorized and nonmotorized) and direction (launching, retrieving, and roadside) in 2020.

Aquatic Invasive Species	Motorized				Nonmotorized			
	Total	Launching	Retrieving	Roadside	Total	Launching	Retrieving	Roadside
Eurasian watermilfoil	1,946	159	1,696	91	44	4	36	4
Curly leaf pondweed	619	63	530	26	9	1	8	0
Zebra mussel	533	69	399	65	7	3	4	0
Water chestnut	162	27	123	12	3	1	2	0
Spiny waterflea	89	6	80	3	0	0	0	0
Variable leaf milfoil	86	22	53	11	3	1	2	0



Technician Jonathan Farah performs a decontamination at Lake Placid.

2020 Boat Decontamination Summary

Of the 86,217 motorized boats inspected, 11,293 or 13.1% were referred to decontamination (Table 7). A courtesy wash accounted for 61% of motorized boat referrals, noting that stewards are instructed to refer boats for decontamination that might not otherwise need it to increase boater familiarity and comfort with the decontamination process. Suspected AIS by virtue of the previous waterbody visited known to harbor AIS was the second most common reason for referral at 26.8% of boats. Visible AIS and standing water accounted for the remainder of referrals at 9.3 and 2.9%, respectively. Of the 34,653 nonmotorized boats inspected, 5,226 or 15.1% were referred to decontamination. As in the case of motorized boats, the majority of nonmotorized boats (88%) were courtesy washes. Suspected AIS and standing water at 7.1 and 4.0%, respectively, were the second and third most common reasons for referring nonmotorized boats to decontamination. So, for both motorized and nonmotorized boats, decontamination for AIS prevention reasons represented the minority of boats washed and for these boats the most common reason to decontaminate was based on AIS presence in the previous waterbody.

Of the 11,293 motorized boats referred to decontamination only 3,250 or 28.8% were decontaminated, and of the 5,226 nonmotorized boats referred to decontamination only 539 or 10.3% of these boats were decontaminated (Table 7). An additional 415 motorized and 150 nonmotorized boats were decontaminated, for totals of 3,665 motorized and 689 nonmotorized boats decontaminated, which represented 4.3 and 2.0%, respectively, of all boats inspected by type.

We surmise that the high percentage of boaters opting out of decontamination despite referral reflects the low risk associated with their boats by virtue of where their boats have been and/or their own self adoption of spread prevention measures. For both motorized and nonmotorized boats, boats referred to decontamination but not decontaminated were evenly split between launching and retrieving boats. For launching motorized boats in this group, 89% were either used in that same waterbody or had been out of the water for at least two weeks prior, and 75% of boaters coming from other waterbodies reported taking their own spread prevention measures. For launching nonmotorized boats in this group, 54% were either used in that same waterbody or had been out of the water for at least two weeks prior, and 62% of boaters coming from other waterbodies reported taking their own spread prevention measures. We do not have similar data available for retrievals, but 74% of retrieving boats referred to decontamination but not decontaminated were from Lake Champlain and Great Sacandaga launches and anecdotally we know that these boaters generally return to the same waterbody.

Table 7. Summary of boat referrals to decontamination, reasons for referral, and boats decontaminated by boat type (motorized and nonmotorized) in 2020.

Summary Variable	Motorized		Nonmotorized	
Boats referred (percentages are of all boats)	11,293	13.1%	5,226	15.1%
Reasons for referral (percentages are of boats referred)				
• Courtesy wash	6,894	61.0%	4,599	88.0%
• Suspected AIS (previous waterbody)	3,021	26.8%	373	7.1%
• Visible AIS	1,046	9.3%	39	0.7%
• Standing water	331	2.9%	211	4.0%
• Bait treatment	1	0.0%	3	0.1%
Boats decontaminated				
• Referred boats (percentages are of boats referred)	3,250	28.8%	539	10.3%
• Other boats (percentages are of all boats)	415	0.5%	150	0.4%
• All boats (percentages are of all boats)	3,665	4.1%	689	2.0%
All boats	89,870		35,322	

Spotlight on Adirondacks Welcome Center

The boat decontamination station located at the Adirondacks Welcome Center at the Glens Falls Rest Area on the Northway (I-87) northbound has been the busiest station since its opening in 2019. Boat decontaminations increased by 33% from 2019 to 2020 at this station, which represented 12.7% of all boats decontaminated in 2020. Of the 538 boats decontaminated at this station in 2020, 147 (or 29.3%) were courtesy washes, 159 (or 31.7%) were washed because of the risk posed by the previous waterbody visited, and 132 (26.3%) were washed because there were AIS visible on the boat or trailer, with the remaining boats being washed because of standing water. The 159 boats that were washed because of the previous waterbody came from 43 different waterbodies from across the state, with most of these being single encounters. The most common previously visited waterbody was Saratoga Lake at 29 boats, with this lake known to harbor Eurasian watermilfoil, Curly leaf pondweed, Water chestnut, and zebra mussels. Given that this location is a gateway for boaters entering the Adirondack Park and that most boats decontaminated either had AIS present or had come from a waterbody with AIS, maintaining a boat decontamination station at the Adirondacks Welcome Center and encouraging its use is an important part of protecting the region from new AIS introductions.





Technician Derrikk Raymond decontaminates a boat at the Welcome Center station.

Appendix A. Numbers of boats observed launching and retrieving in 2020.

Location	Launching	Retrieving	Total
Second Pond	5,265	4,072	9,337
Lake Placid - State Launch	3,989	3,048	7,037
Great Sacandaga Lake - Northville Launch	3,943	2,503	6,446
Schroon Lake - Horicon Launch	4,109	1,911	6,020
Great Sacandaga Lake - Broadalbin Launch	4,680	1,177	5,857
Canada Lake - West Lake Launch	2,570	1,775	4,345
Fourth Lake - Inlet Launch	2,615	1,668	4,283
Brant Lake	2,326	1,926	4,252
Great Sacandaga Lake - Day Launch	2,041	1,245	3,286
Long Lake	2,072	1,183	3,255
Lake Champlain - Ticonderoga Launch	1,141	2,024	3,165
Chateaugay Lake	1,948	1,197	3,145
Tupper Lake	1,681	1,344	3,025
Cranberry Lake	1,491	1,303	2,794
Lake Champlain - Peru Launch	1,767	944	2,711
Upper Saranac Lake	1,821	853	2,674
Schroon Lake - Town Launch	1,696	918	2,614
Stillwater Reservoir	1,350	1,261	2,611
Hudson River - Luzerne Launch	1,579	902	2,481
Lake Champlain - Port Henry Launch	1,103	1,366	2,469
Lake Champlain - South Bay Launch	1,202	1,232	2,434
Indian Lake	1,615	777	2,392
Lake Champlain - Port Douglas Launch	1,316	1,041	2,357
Lake Pleasant - Pavilion Launch	1,376	830	2,206
Great Sacandaga Lake - Northampton Launch	1,255	831	2,086
Lake Champlain - Plattsburgh Launch	1,131	914	2,045
Seventh Lake	1,141	871	2,012
Lake Champlain - Willsboro Launch	1,085	768	1,853
Raquette Lake - Village Launch	896	885	1,781
Lake Champlain - Westport Launch	831	855	1,686
Sacandaga Lake - Moffitt Beach	940	703	1,643
Piseco Lake - Poplar Point Launch	968	525	1,493
Lake Placid - Village Launch	874	577	1,451
Upper St.Regis Lake	886	392	1,278
Fish Creek Ponds Campground	605	589	1,194
Osgood Pond	640	549	1,189
Buck Pond/Lake Kushaqua/Rainbow Lake	680	454	1,134
Chazy Lake	672	462	1,134
Forked Lake	515	571	1,086
Paradox Lake	782	268	1,050
Carry Falls Reservoir	556	408	964
Higley Flow Falls Reservoir	463	287	750
Black Lake	370	326	696
Fourth Lake - Alger Island	340	353	693
Lake Colby	265	211	476
White Lake	308	162	470
Meacham Lake	249	160	409
East Caroga Lake Campgrounds	245	143	388
Higley Flow Falls Reservoir - Pine Rd launch	280	86	366
Schroon Lake - Horicon Launch	277	42	319
Brantingham Lake	231	80	311
Raquette River - Crusher Launch	150	142	292
Piseco Lake - Point Comfort Launch	152	99	251
Little Clear Pond	123	109	232
Piseco Lake - Little Sand Point Launch	73	70	143
Lake Pleasant - Camp of the Woods	116	1	117
Lake Flower	23	13	36
Oxbow Lake	18		18
Floodwood Pond	9	5	14

Appendix B. Individual Lake Summaries

https://www.adkwatershed.org/publications/annual-stewardship