



Aquatic Invasive Species Program 2020 Update

VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION, JANUARY 2021

To reduce and prevent the environmental and socioeconomic impacts of aquatic invasive and nuisance species to protect and improve water quality, aquatic and terrestrial wildlife habitat, and lake ecosystem functions.

SPREAD PREVENTION

- Despite challenges from the onset of the COVID-19 Pandemic, Boat Launch Greeter Programs were able to run programs this season and abide by all state guidelines for preventing the spread of the novel virus. Altogether **Lake Associations, VTDEC, and VT Fish & Wildlife** worked quickly to develop safe practices and procedures to support **thirty Vermont Public Access Greeter Programs** throughout Vermont in 2020. Greeters and Coordinators participated in on-line trainings and employed new norms to ensure the safety of staff and visitors, while continuing to protect waterbodies from the spread of **aquatic invasive species**. VTDEC staff provided training materials, online resources, technical assistance, and general support to all active programs.
- With the remarkable increase of recreational boating, public access greeters performed 41,559* watercraft inspections in 2020, an increase of 11,825* inspections from 2019. In 666* instances, **aquatic invasive species (AIS)** were confirmed on a vessel. Considering this, in 2020 **VT Public Access Greeters saved 6 lakes** from the introduction of an aquatic invasive species! (*Revised)
- Of the 85 instances of an AIS interception upon launching a boat, approximately 87% were identified as Eurasian watermilfoil and the second invader of note was Curly-leaved pondweed, at 7%.
- 2020 was the fifth year utilizing **VTDEC watercraft decontamination units**. **Four public accesses** on Lake Champlain were stationed with a watercraft decontamination unit.
- AIS Program staff received suspect specimens at home offices and via e-mail to identify potential new threats and found no new species threats, and few Eurasian watermilfoil specimens.
- Vermont Public Access Greeters wore masks while interacting with the public, kept a 6-foot social distance, maintained hand-washing stations, and pitched in to clean boat access area grounds. Thanks to all their efforts and their essential work!



Greeter, Devin Hebert, at Joe's Pond



MONITORING

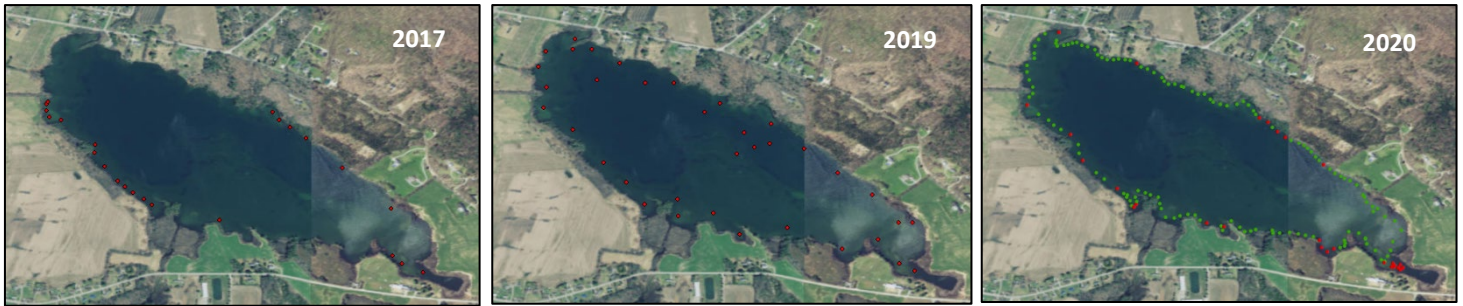
- The AIS Program and Lake Champlain Basin Program staff collected samples in the early spring to continue a partnership with ME, NH, and NY to support a study completed by the University of New Hampshire assessing the utility of **environmental DNA (eDNA)** detection as a survey technique for invasive animal species in lakes. Two main results from the 2019 samples and analysis revealed that to correctly identify eDNA of Zebra mussels (*Dreissena polymorpha*) and Asian clam (*Corbicula fluminea*) in the northeast, **unique markers are necessary to detect low infestations** found as compared to western locations that have much higher densities and infestations. In addition, the analysis found that **Zebra mussel were spawning while lake waters were well below 12°C**, the limiting temperature as noted in many publications.
- The AIS Team partnered with Arrowwood Environmental to conduct **Water Chestnut Aerial Surveys** in the Lake Champlain Basin using Unmanned Aircraft Systems (aka drones) launched from boats to survey mechanical harvesting locations that are difficult to access. Data was collected in 2020 at ten sites which will be used to support future management of Water chestnut (*Trapa natans*) populations.
- This fall, a new population of **Water chestnut** was found on the **Connecticut River near Rockingham** by two fishermen in October who contacted and teamed up with a CT River Invasive Plant Patroller to harvest and survey the extent of the population. Approximately 200 water chestnut rosettes were harvested amidst a larger population, therefore VTDEC will monitor and manage the population with partnering organizations in the future. **Many thanks to the local support which helped identify this new patch.**
- Lake Champlain Basin Program staff returned to a small pod of **Water chestnut** found on Lake Champlain near **Sand Bar State Park** (Milton, VT) in 2019 to survey and harvest any plants found. Fortunately, only eight water chestnut rosettes were located and removed compared to fifty in 2019. Based on some potential new sightings in the area, VTDEC will expand the survey area in 2021.
- Lakes and Pond staff surveyed twenty-one inland lakes and ponds for the presence of invasive plants. A new introduction of Eurasian watermilfoil was found in **Lake Pauline**, located downstream from Lake Rescue, a waterbody with a prolific population. The plants were immediately harvested by a quick-thinking team of divers from Lake Rescue and therefore, the waterbody will not be listed on the VT Infested Waterbodies List.
- To continue support for the eradication of **Eurasian watermilfoil** (*Myriophyllum spicatum*) on Salem Lake (Derby, VT) initially found in 2018, the Lakes and Ponds team conducted a formal point-intercept survey on Lake Salem to assess the extent of population and were unable to find specimens that were potential hybrid watermilfoils but did find a rare plant, *Utricularia resupinata*.



Sampling Dunmore eDNA



U. resupinata at Salem Lake



- In 2020 a survey for **Starry stonewort** (*Nitellopsis obtusa*) was repeated at Lake Derby. This survey found that the Starry stonewort population (marked with red circles in photos above) has potentially decreased since its introduction in 2017. The AIS Team will continue to survey and monitor the population and investigate the cause for the decrease.
- A fisherman reported to VTDEC that groups of **Zebra mussels** were observed at two bay locations on Dunmore. VTDEC AIS staff completed grid surveys at these locations and found no zebra mussels. However, a plethora of **Banded mystery snail** (*Vivaparus georgianus*), another non-native aquatic animal species was found that may have been mis-identified as Zebra mussels.



CONTROL AND MANAGEMENT

- In 2020 VTDEC staff, contractors, partners, and volunteers continued the operations for the **Water Chestnut Management Project** in Lake Champlain throughout approximately 120 miles of shoreline in New York and Vermont, and 30 waterbodies in the basin watershed. Mechanical harvesting operations continued in the southern lake region where dense mats remain pervasive though low waters decreased the overall harvest. Hand harvesting operations and surveying also continue throughout the main region of Lake Champlain and within the inland waterbodies. In 2020, harvesting **crews removed 610 tons of water chestnut** in total from Lake Champlain and Vermont. Plans are underway for similar efforts in 2021.
- Staff provided technical review of submitted applications seeking coverage under **the Aquatic Nuisance Control Permit Program**. Proposed projects included the use of benthic mats, diver operated suction harvesting, mechanical harvesting, and herbicides to manage Eurasian watermilfoil.
- **The Law Enforcement Division of the Vermont Fish & Wildlife Department** was active in 2020 enforcing Act 67 and educating boaters at State of Vermont fishing access areas. Twenty-six wardens inspected 766 trailers, issued 12 warnings, and 3 tickets at 51 lakes. They spent over 200 hours on AIS enforcement and education in 2020.



Water chestnut infestation in the Champlain Canal



FUNDING AND GRANTS

- The AIS Program was successful in obtaining federal funds to support the 2020 program and partner efforts, as well as grants to municipalities. Federal funds came from Lake Champlain Basin Program, U.S. Army Corps of Engineers Aquatic Plant Control Program, and the USFWS through the Lake Champlain Basin Aquatic Nuisance Species Plan and the Partnership Program.
- Funds from the Vermont Motorboat Registration Fund and Army Corps of Engineers supported **53 Aquatic Nuisance Control Grant in Aid funded projects with awards totaling \$450,194**. Project awards provided funds for education and outreach, surveys, spread prevention efforts (i.e. public access greeter programs) and aquatic nuisance control endeavors.

STAFF SUPPORT

- During the 2020 field season, the AIS Program was fortunate to secure one seasonal AIS technician, **Heather Murphy**, who worked with the Lakes & Ponds Program in the past. As a returning technician, Heather was an invaluable member of the Lakes & Ponds team and AIS Program. Heather primarily focused on water chestnut operations in the summer, then transitioned to updating a plethora of AIS Plant Survey Data and managing all the Greeter Program Data to analyze priority locations.
- The AIS Program was also fortunate to participate in the ECO AmeriCorps program in 2020 and was excited to bring **Kate Wettergreen** back on board. As a Perennial Summer Intern in 2019, Kate came to the program bringing a wealth of knowledge. Kate has since worked on digitizing water chestnut maps and compiling and analyzing Water chestnut data.



Heather and Kate find cash on the bottom of the lake while surveying for Zebra mussels

LOOKING AHEAD

- The AIS Team has developed a Survey 123 Boat Greeter Data app that will be utilized in the summer of 2021 so that information on boaters and potential threats can be uploaded to a central database. The information will be incorporated into a “Lakes at Risk of Infestation” Map to protect and prioritize efforts for lakes that are vulnerable to new aquatic invasive species threats. Plans are moving forward to develop training materials to demonstrate how to use the app and make available 10 loaner I-Pads for Greeter Programs for the 2021 Season.
- VTDEC hopes to partner with the Vermont Youth Conservation Corp to improve access areas for water chestnut harvesting operations so that more volunteers can help with the management efforts.