



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.

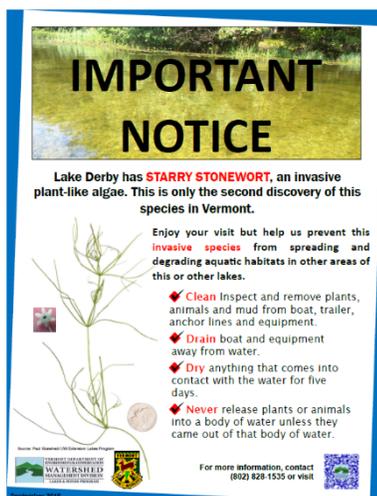
2016 Update

Vermont Department of Environmental Conservation, December 2016

The Program again participated in the UVM Rubenstein School of Environment and Natural Resources' Perennial Summer Internship Program and was fortunate to have **intern, Joe Taft** support a variety of Program activities during the summer months on a part-time basis. The opportunity allowed Joe to be involved in nearly all facets of Vermont aquatic invasive species management, and understand the environmental, financial, and social aspects considered when managing invasive species. In addition, the Program added a seasonal AIS technician to its team in 2016. **Takoda Edlund** was a valuable member of the team, and assisted with all work conducted by the Program. He also played a large role in the implementation of watercraft inspection and decontamination stations around the state.

Monitoring

- New sightings of three aquatic invasive plant species known to already exist in the state were confirmed this year. **Two new water chestnut (*Trapa natans*)** populations were confirmed in a wetland adjacent to Bullwaga Bay and St. Albans Bay, both in Lake Champlain. Both populations were managed. **One new population of Eurasian watermilfoil (*Myriophyllum spicatum*)** was identified and managed in North Springfield Reservoir in North Springfield. **One new location of starry stonewort (*Nitellopsis obtusa*)**, in Lake Derby in Derby, was identified.
- Efforts to manage the macro algae **starry stonewort (*Nitellopsis obtusa*)**, a new species to Vermont in 2015, continued. To slow spread, a 90-day closure to all uses was authorized in May for the initial infestation site, 24-acre Scotts Cove in Lake Memphremagog. Searches in Lake Memphremagog and other waters in



Orleans County were conducted, including 19 public access points, 14 in the Quebec portion of the lake. A 287-point survey of 470-acre South Bay of Lake Memphremagog was completed. 2016 search and survey results identified starry stonewort in two additional areas of Lake Memphremagog, adjacent to the mouth of Scotts Cove and in an estimated 46 acres of South Bay; and in 29 acres of 207-acre Derby Pond in Derby. Signs alerting the public to this species and promoting Clean, Drain, Dry were posted and maintained at public access points at both lakes and throughout the region. A staffed high pressure, hot water decontamination unit was deployed over multiple days at one Lake Memphremagog public boat access area. Staff engaged the public about starry stonewort, and offered courtesy boat inspections and decontaminations. Evaluation of available control methods, their costs and effectiveness is ongoing.

- No new **variable-leaved watermilfoil (*Myriophyllum heterophyllum*)**, **curly leaf pondweed (*Potamogeton***

crispus) **brittle naiad** (*Najas minor*) or **yellow-floating heart** (*Nymphoides peltata*) sites were identified.

- For the other five invasive aquatic and wetland plants known from the state – **Japanese knotweed** (*Fallopia japonica*), **flowering rush** (*Butomus umbellatus*), **yellow flag iris** (*Iris pseudacorus*), **purple loosestrife** (*Lythrum salicaria*), **common reed** (*Phragmites australis*) – no new distribution information was collected.
- Aquatic plant-related **surveys or searches** were conducted on 31 water bodies representing 46 survey days. These surveys map established species populations, search for new invasive plant introductions, or gather related data (e.g. rare, threatened or endangered species information). Many of these events involved control efforts as well, primarily removal of invasive plants by hand.
- One, day-long **Vermont Invasive Patrollers (VIP)** workshop conducted at the North Country Career Center in Newport was attended by 21 people. The workshop included a starry stonewort site visit to Scotts Cove, Lake Memphremagog.
- **34 volunteer VIPs contributed over 170 hours representing 75 survey days collectively in their survey efforts of 20 Vermont lakes.**
- Twenty-five inland lakes were sampled for the presence of invasive animals, and **no new infestations of zebra mussels or spiny waterflea were documented.**
- **A new aquatic invader to Vermont, Asian clams** (*Corbicula fluminea*), **was confirmed in Lake Bomoseen.** Staff found the native bivalve inhabiting roughly 14 acres in the southern end of the lake. Staff also surveyed the Castleton River below Lake Bomoseen, and no Asian clams were found. Further delineation of the population and Asian clam sampling in other Vermont lakes will occur in 2017. Management plans for this species and the potential of control efforts are also being considered for 2017 and beyond.

Control

- In the absence of an available local entity, Department staff continued to manage an incipient **Eurasian watermilfoil** population in Hinkum Pond (Sudbury).
- 2016 contracted, VTDEC staff-initiated and partner **water chestnut management** was hampered by low water levels. Despite this handicap, efforts were successful at preventing spread in Lake Champlain and at other waterbody sites. Water chestnut is known from 30 water bodies, including Lake Champlain. Control occurred in 23. Where control was not initiated, 3 water bodies are considered “inactive” as no water chestnut has been found in a number of years, 1 was dry due to a beaver dam breach, and 3 were not visited. Hand harvesting continued to be the main control method used at all sites. Mechanical harvesting was used on dense mats and only in Lake Champlain. 100% of mechanical harvesting spoils were composted at one location in Benson. Lake Champlain control efforts span over an estimated 81 miles along the Vermont shoreline and 48 miles in New York. Lake Champlain control efforts ended 1.5 miles south of the Narrows of Dresden, with roughly 11 miles of the Lake with water chestnut not managed.
- **Grant funds were provided to the Friends of Missisquoi Bay** for a fourth year to support a seasonal position to assist Missisquoi National Wildlife Refuge staff with water chestnut surveying and removal within the Refuge boundary. This effort actively manages eight previously known sites. A total of 150 person hours were spent pulling 844 water chestnut rosettes (118.5 pounds). The infestation levels remained consistent with areas previously identified by control operations over the last six years.
- Staff provided **technical assistance** on management of aquatic invasive species to over 40 groups (e.g., lake and river associations, government and non-government entities, municipalities), often working with multiple individuals per group.

- Control and search efforts continued in Vermont’s first **variable-leaved watermilfoil** population in Halls Lake in Newbury (confirmed in 2008). One survey was conducted in 2016 with no variable-leaved watermilfoil found. Variable-leaved watermilfoil has not been found in the lake since June 2011.
- **Educational invasive species management presentations** were provided for several organizations and events.

Spread Prevention

- Twenty-seven waterbodies were covered by **public access greeter programs** in 2016. VTDEC staff provided technical assistance, sample identification and general support to all active programs. Six formal trainings were offered in locations statewide in the spring and early summer, and were attended by 114 people. Data is still coming in from greeter programs and will be evaluated soon, but it is expected that 2016 will be a record year in terms of total inspections done throughout the state. Staff also provided **sample identification support** to the Lake Champlain Boat Launch Steward Program.
- **VTDEC watercraft decontamination stations** were in use for the first time in 2016. Four public accesses around the state had a VTDEC-staffed watercraft decontamination station available on a limited basis. As part of this program, courtesy inspections and watercraft decontaminations were offered to the boating public. This program will be expanded to cover more accesses in 2017.
- The Lake Champlain Basin **Rapid Response Task Force** is charged with implementing and overseeing rapid response actions in the Basin. The confirmation of Asian clam in Lake Bomoseen in 2016 required action by the Task Force. After conducting a risk assessment, the Task Force recommended the use of benthic barrier mats to contain and control the clams by smothering them. The Task Force also determined that education and outreach efforts should be increased and are needed to prevent further spread, within the lake and to other water bodies.
- **Aquatic invasive species signs** posted at public boat access points to remind users to practice “Clean, Drain, Dry” spread prevention measures were maintained; downed signs were re-installed; and brochure boxes were replaced if needed and filled. Signs were also put up that alerted boaters to two of Vermont’s most recent invaders: spiny waterflea and Asian clams.

Spiny Waterflea has invaded!

Confirmed in Lake Champlain in 2014

Spiny waterfleas are invasive zooplankton that have adverse effects on native species, and are easily transported by bait buckets, bilge water, and other fishing gear.

Many spiny waterfleas appear as a hazy glob of jolly with black eye spots on fishing lines and other gear.

Take these steps before launching AND before leaving any waterbody, including Lake Champlain, to prevent further spread of spiny waterflea and other invasive pests.

- Clean** off mud, plants, and animals from boats, trailers, and equipment. Rinse boats and trailers with hot water. Soak fishing lines, anchor lines, and all used gear in hot water for at least 5 minutes.
- Drain** your boat and equipment away from the water. This includes the motor, all live-wells, bait buckets, bilges, ballast tanks, and other reservoirs that could transport lake water.
- Dry** anything that comes into contact with the water for up to 5 days. This period of time is needed to completely kill resting eggs of spiny waterflea and other invasives.

For more information or to report an invasive species sighting, call 802-828-1555 or visit www.watershedmanagement.vt.gov/lakes.htm

INVASIVE SPECIES ALERT

Asian Clam
(*Corbicula fluminea*)

Confirmed in Lake Bomoseen in 2016

How can you identify them?

This invasive freshwater bivalve is slightly triangular in shape with distinct concentric rows of elevated ridges on its shell.

Why the concern?

Asian clams are filter feeding organisms that deplete resources needed by native species and reduce biodiversity.

They can form dense populations very quickly in sediment, clogging intake pipes to lakeside houses, industrial water systems, and irrigation canals.

What can you do?

- Take these steps before launching **AND** before leaving any waterbody.
- Clean** off any mud and sediment from boats, trailers, and anchors. Rinse with hot water.
- Drain** your boat and equipment, including motors, all live-wells, bait buckets, bilges, ballast tanks, and other reservoirs that could transport lake water.
- Dry** anything that comes into contact with the water.

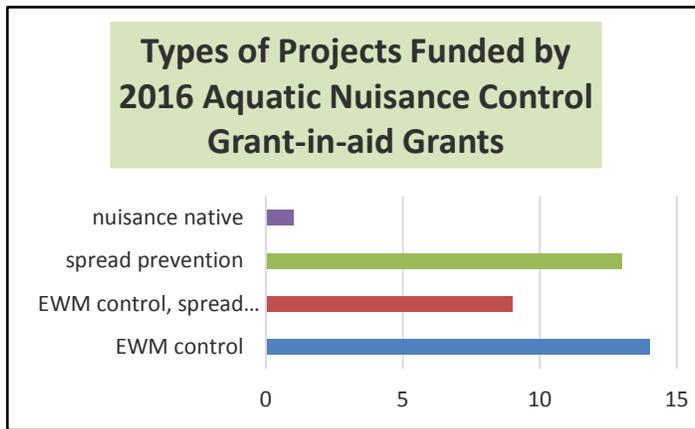
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- The VTDEC website underwent a complete overhaul in 2016, and Program staff used this as an opportunity to increase the information available concerning aquatic invasives. The Program’s new website can be viewed at (<http://dec.vermont.gov/watershed/lakes-ponds/aquatic-invasives>).

Funding and Grants

- The Program was successful in obtaining federal funds to support 2016 program and partner efforts, and grants to municipalities from the following funders: Lake Champlain Basin Program, U.S. Army Corps of Engineers Aquatic Plant Control Program, and the USFWS through the Lake Champlain Basin ANS Plan and the Partnership Program.

- Funds from the Vermont Motorboat Registration Fund and Army Corps of Engineers supported \$457,280 in **Aquatic Nuisance Control grant funds**. 38 municipalities applied for these funds, requesting a total of \$1.21 million. All 38 municipalities were awarded grants, however, one municipality declined. Most funded projects represented watermilfoil control, aquatic invasive species spread prevention efforts (e.g., public access greeter programs), or a combination of the two. Due to limited resources, both donated labor and services are critical components of most projects. The results of funded projects are currently under review.



Laws and Regulations

- A Vermont **emergency general permit**, authorized in February 2011, allows the commissioners of the departments of Environmental Conservation, and Fish and Wildlife to seek coverage for rapid response to a new invasive species invasion. No requests for coverage were required in 2015. To date, extended coverage has been granted to the Department of Environmental Conservation for diver operated suction harvesting of variable-leaved watermilfoil in Missisquoi Bay. Harvesting did not go forward due to spread because of tropical storm Irene.
- Staff provided technical review of submitted applications seeking coverage under the **Aquatic Nuisance Control Permit Program**. Proposed projects included the use of herbicides, benthic mats, mechanical harvesting and diver operated suction harvesting to manage Eurasian watermilfoil.
- Under **Section 4 of the Vermont Use of Public Waters Rules (VUPWR)**, the Department temporarily closed 24-acre Scotts Cove in Lake Memphremagog to all uses for 90 days beginning in May due to an infestation of starry stonewort. The closure was authorized to prevent spread. Scotts Cove is somewhat isolated from the main lake by a beaver dam. Where necessary, Subsection 4.1b of the VUPWR allows for the temporary closure of a designated area of a lake to prevent, control, or contain the spread of an aquatic nuisance infestation. This is second closure authorized since Section 4 of the VUPWR was established in 1998.
- The Department provided Vermont Fish and Wildlife Department (DFW) Game Wardens with **grant funds to support supplemental officer hours** at water body access points. Officers provide education and enforcement of Vermont's aquatic plant, zebra and quagga mussel transport law. Unfortunately, DFW was unable to use these funds in 2015 but will in 2016.
- After new developments in the status of didymo (*Didymosphenia geminata*, "Rock Snot") that resulted in it being reclassified as a native species, the Agency of Natural Resources reassessed Vermont's ban on felt-soled waders, which went into effect in 2011. Primarily citing safety concerns, the Agency recommended

that the ban be lifted. The recommendation was accepted by the Vermont Legislature, and as of July 1, 2016, felt-soled waders are again permissible in the state.

For more information, contact:



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