



**Department of
Environmental
Conservation**

Education and Outreach: An Invaluable Tool for Addressing Hydrilla

**Northeast Aquatic Nuisance Species Panel Meeting
June 3, 2019**

Phases of a Hydrilla Control Project

- Verifying plant identification
- Delineating of infestations
- Building stakeholder support
- Developing management plan
- Implementing management plan
- Preventing spread
- Creating EDRR/Reporting Network



The Ellsworth American

Verifying Plant Identification

Press releases

Email blasts

- Provide initial education and outreach opportunity about aquatic invasive species



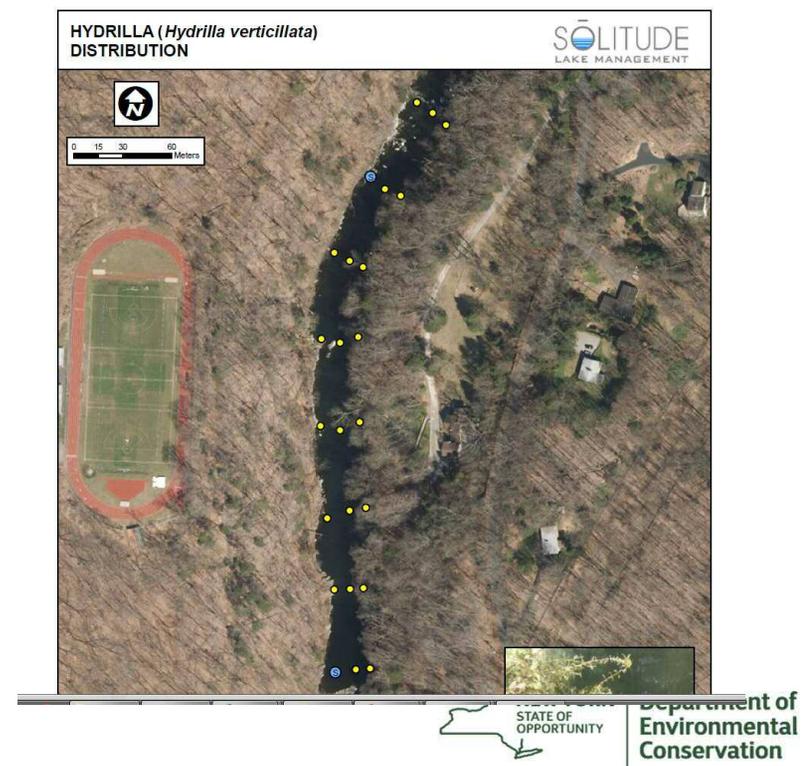
Delineations of infestations/aquatic plant surveys

- Keep the public and elected officials posted about what's happening
- Education about impacts of aquatic invasive plants on native plants and animals



Delineations of infestations/aquatic plant surveys

- Demonstration of how extensive an infestation is (making it more “real”)
- Provide a baseline for comparison



Building Stakeholder Support

- Identify target audiences and impacted groups
- Discuss potential impacts and management options with those groups
- Provide more one-on-one education for stakeholders who are against a project or who have questions



Developing of Management Plan

- Continued education and outreach about management option chosen
- Education about the outcome of doing nothing
- Review and discussion of management plan by key stakeholders



J. Clayton, NYSDEC

Implementing of management plan

Permitting

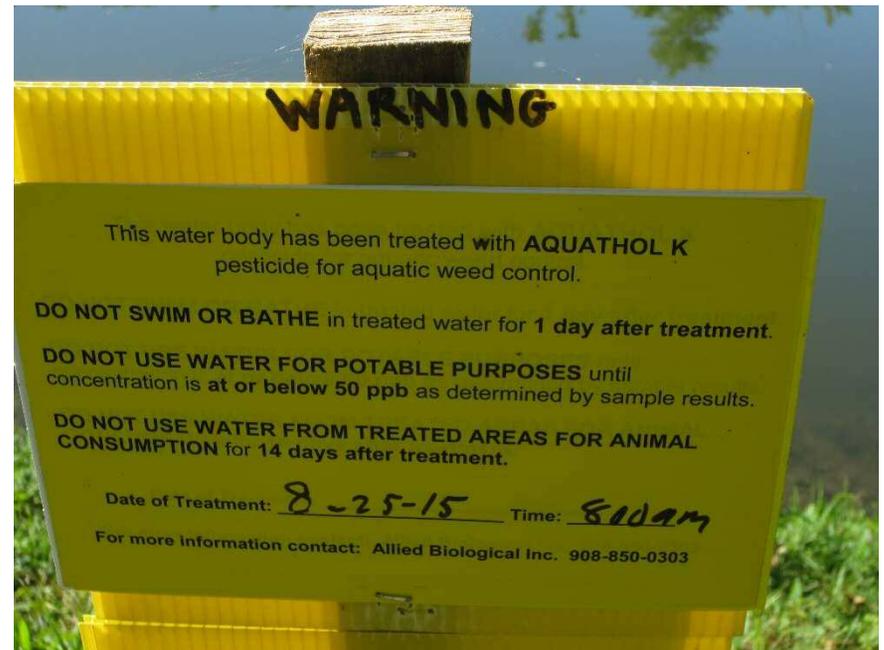
- Letting the public know you are doing your due diligence and are being careful to follow guidelines



Implementing of management plan

Signage

- Explanation of treatment option



Implementing of management plan

Signage

- Education and outreach about project

STOPPING AN INVADER IN YOUR WATERS	PARANDO A UN INVASOR EN SUS AGUAS
	
<p>This river is being treated to reduce the spread of hydrilla. Herbicide applications will occur during the summer and fall. Read all posted warnings on water use for this water body.</p> <p>Recreational water activities will be limited at herbicide release locations.</p> <p>Hydrilla is a weed that grows uncontrollably in the water. It crowds out other plants and ruins swimming, boating, and fishing opportunities. The Department of Environmental Conservation will be using a low dose of herbicide in the summer and early fall until 2021 to prevent hydrilla from reaching the Hudson River, where it will be impossible to control.</p>	<p>Este río está siendo tratado para reducir la propagación de hydrilla. Aplicaciones de herbicida ocurrirán durante el verano y el otoño. Lea todas las advertencias publicadas sobre el uso del agua en estas aguas.</p> <p>Las actividades acuáticas serán restringidas en las localidades donde se aplique herbicida.</p> <p>Hydrilla es una mala hierba que crece sin control en el agua. Desplaza a otras plantas y arruina la natación, navegación, y oportunidades para la pesca. El Departamento de Conservación Ambiental usará una dosis de herbicida baja durante el verano y comienzos del otoño hasta 2021 para prevenir que hydrilla llegue hasta el Río Hudson, donde sería imposible de controlar.</p>
 <p>STOP THE INVASION PROTECT NEW YORK FROM INVASIVE SPECIES</p>	<p>www.dec.ny.gov/animals/106386.html</p>

Implementing of management plan

Signage

- Information about “clean, drain, dry” protocol



Implementing of management plan

- Notifications to riparian landowners

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Lands and Forests, Bureau of Invasive Species and Ecosystem Health
625 Broadway, 5th Floor, Albany, New York 12233-4203
+1 (518) 472-9122 | FAX: (518) 472-9078 | landowners@dec.ny.gov
www.dec.ny.gov

Date of Notice: April 1, 2019

Dear Riparian Property Owner/User:

The New York State Department of Environmental Conservation (NYSDEC) proposes to conduct an application of the aquatic herbicide fluridone (Sonar Genesis) to control the growth and spread of the highly invasive aquatic plant species *Hydrilla verticillata* in the Croton River. Hydrilla is a federally listed noxious weed and a prohibited species in New York.

We have chosen a method of control that allows for use of a low concentration of herbicide (2-4 ppb). Protocol for treatment and many other project details can be found on the project webpage <http://www.dec.ny.gov/animals/106386.html>. NYSDEC will carefully monitor the concentration of herbicide throughout the Croton River during the treatment to determine that the effective concentration is being maintained. In addition, aquatic plants and macroinvertebrates will be monitored for impacts. We are also working closely with NYSDEC Region 3 Bureau of Fisheries to ensure that habitat impacts are minimal and temporary.

The treatment is being carried out by SOLitude Lake Management, licensed applicators registered with the New York State Department of Environmental Conservation (#16506). NYSDEC Aquatic Pesticide Permit applications have been submitted requesting approval for the application of the herbicide fluridone (Sonar Genesis). Treatments are anticipated to occur between May 28 and October 31, 2018 and will proceed only after the issuance of NYSDEC permits.

Prior notification of the exact dates of treatment will be provided to the Village of Croton and Town of Cortlandt and signs will be posted in public areas during application. Label water use restrictions at applied herbicide concentrations (2-4 ppb) are as follows:

Implementing of management plan

- Project public stakeholder meetings



The screenshot shows the website for the Village of Croton-on-Hudson, New York. The page features a dark blue header with the village logo and name. Below the header is a navigation menu with links for Departments, Boards & Committees, Minutes & Agendas, Train Station Parking, and Contacts Directory. A search bar and a "Find It Fast" button are also present. The main content area displays a "Home" section with the following information:

NYS DEC Public Stakeholder Meeting on Hydrilla
Location: Stanley H. Kellerhouse Municipal Building
Event Date: Tuesday, May 21, 2019 - 7:30pm
Information on the Hydrilla project can be found here: <https://www.crotononhudson-ny.gov/ongoing-projects-initiatives-proposed-...>

The footer contains contact information for the Village of Croton-on-Hudson, including the address (1 Van Wyck Street, Croton-on-Hudson, NY 10520), phone number (914-271-4781), fax number (914-271-2836), and hours of operation (Mon. - Fri., 8:30 am - 4:00 pm). It also includes a disclaimer and a login link.

Implementing of management plan

- Internships for high school students



Preventing spread

- Watercraft inspection stewards deployed at strategic locations



J. Clayton, NYSDEC

Preventing spread: Behavior Change



- Implement an AIS behavior change campaign and evaluate its effectiveness in reaching target audiences.
- Originally called “AIS awareness campaign”

Preventing spread - Behavioral Change

- Working with behavioral psychologist
- Tweaking our existing messaging
- Asking for a commitment at end of WISPA survey
- Stewards providing link to pre-behavioral change implementation survey



J. Clayton, NYSDEC

Preventing spread: Behavior Change

- Adding question at end of boater survey asking if “we can count on you to clean, drain, and dry when there are no stewards around.”
- Baseline survey to help assess impact



J. Clayton, NYSDEC

Preventing spread: AIS disposal stations



- Install and expand use of AIS disposal stations at waterway access sites

Preventing spread

- Classroom education for K-12



Nicole White

Preventing spread

- Local and regional events

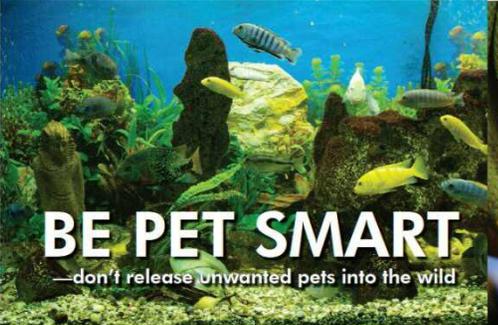


Preventing spread

And avoiding reintroduction



Preventing spread - Organisms in Trade



BE PET SMART
—don't release unwanted pets into the wild

By Catherine McGlynn

Many people love having an aquarium (or two) in their homes. It's fascinating to watch the wide variety of striking-looking exotic fish and other critters, such as discus and tetras from the Amazon River Basin, danios (tiger fish) from India and Thailand, green spotted puffer fish from Southeast Asia, freshwater crayfish from South America, and axolotl salamanders from Mexico. Aquarium owners take great pride in caring for their pets, but if they decide they can no longer care for them and release them into local waterbodies, these actions can lead to serious problems.

In 2003, northern snakeheads (*Channa argus*) were discovered in Rulphery Lake in the Town of Tivoli, Orange County. Aggressive predatory fish native to Asia, northern snakeheads have the potential to reduce or eliminate certain native fish populations, and can harm aquatic ecosystems and fishing. The snakeheads found in Rulphery Lake were likely released from someone's aquarium after the fish had grown too large (they can reach three feet long). DEC immediately eradicated the fish, but it required netting and raising the native fish outside of the lake, treating the lake with rotenone (a pesticide that kills fish), and then restocking it with the native fish. The project cost hundreds of thousands of dollars.

New York State Environmentalist, April 2018

STOP THE INVASION
Preventing the Spread of Invasive Species

NEW YORK STATE Department of Environmental Conservation

GUIDELINES FOR OWNERS OF AQUARIUMS AND EXOTIC PETS

Balancing responsible exotic pet ownership with environmental stewardship

What are invasive species, and why are they a problem?

Invasive species are non-native plants, animals, and pathogens that can harm the environment, the economy or human health. They are among the greatest threats to New York's biodiversity and can cause habitat loss and/or degradation; the loss of native fish, wildlife and tree species; reduced recreational opportunities; and economic damage such as crop loss, increased property values, and negative impacts on the tourism industry.

How can exotic plants and animals be invasive?

Some invasive species can be purchased in stores that sell exotic pets and plants for aquariums and ornamental water gardens. Occasionally, owners can no longer keep their animals and plants and dispose of them in nearby streams, ponds or lakes, or simply flush them down the toilet. For example, red-eared slider turtles are often sold as juveniles, when they are only about four inches long. This popular species can live for more than 20 years and may ripen in size during its lifespan. Pet owners are often unprepared to care for a pet for such a long time and may release the turtle into a local wetland. Releases may seem safe and even humane, but discarded plants and/or animals can degrade our natural ecosystems. If engaged and disposed of properly, however, exotic pets and plants do not pose a threat.

What are the impacts?

Aquarium fish such as bowfin and goldfish compete with native fish for resources and may even feed on the young of native fish species. Goldfish in particular can tolerate poor water quality and low oxygen levels, enabling them to outcompete native fish in degraded ecosystems. Invasive aquatic plants like hydrilla, waterwort, and bladderwrack can vigorously reproduce and overtake waterways, impacting recreational uses such as swimming, fishing and boating. Red-eared slider turtles are opportunistic omnivores and can outcompete native turtle species for food and habitat. They are also known carriers of *Salmonella* bacteria, which they can pass on to other turtles and to humans who handle them.

For more information, or to sign-up for email updates from NYSEDC, visit our website: www.dec.ny.gov

- Approach to outreach through the pet trade still in progress
- Fact Sheets being distributed
- Webpage and Conservationist article
- Customer tip strip in progress

Preventing spread - Organisms in Trade



**FLOATING
IN PLAIN SIGHT:
Invasive Aquatic Garden Plants**

By Catherine McGlynn

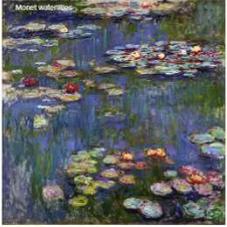
People have enjoyed water gardens for centuries. Many view Japanese gardens and other types of aquatic gardens as places for quiet contemplation and sanctuary. However, along with these positive characteristics, certain types of aquatic gardens can have unintended and harmful impacts.

Some plants that may be intentionally placed in aquatic gardens—likely due to their beauty—are invasive and can spread to nearby waterways and wetlands. Once spread, these plants can harm native plants and impact animals and their habitats.

Aquatic Invasive Species

The following are some examples of aquatic garden plants that have or could become problematic throughout New York State.

Yellow flag (*Iris pseudacorus*) is an invasive plant with beautiful, showy flowers. When not in bloom, it can easily be mistaken for a native iris. A native of Europe and North Africa, yellow flag was brought to the U.S. and Canada in the late 1700s as an ornamental plant. Unfortunately, it has spread from water gardens to freshwater wetlands and riparian areas, where it forms dense colonies and outcompetes native plants. This has



Moquet waterlilies

32 New York State Conservationist, April 2017; to subscribe call 1-800-678-6399

- Starting to increase education and outreach to aquatic gardeners
- Creating guide for alternatives to invasive non-native plants
- Inspections of nurseries already taking place (DAM)

Preventing spread - Message consistency

Standardized education and outreach products

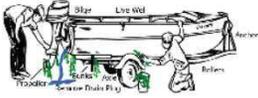
Standardized training for stewards

Standardized signs

AIS disposal stations

STOP THE INVASION
PROTECT NEW YORK FROM INVASIVE SPECIES

ATTENTION BOATERS



New regulations protect the waters you enjoy from aquatic invasive species.

Aquatic invasive species (AIS) are non-native plants and animals that spoil boating and fishing, threaten native plants and animals, and destroy habitat. They are difficult and costly to remove, so let's keep them out!

All boaters in New York State must

- Inspect floating docks, watercraft, trailers and equipment, and remove visible plant and animal material.
- Drain, and if possible, flush your boat's bilge, live well, bait well and other water-holding compartments after use.

More about preventing the spread of AIS:
www.dec.ny.gov/animals/48221.html

Examples of AIS in NY

Water Chestnut
R. Smith, NYDEC

- Fan-shaped leaves with toothed edges
- Sharp-edged seeds can cut feet
- Dense floating mats impede boating, fishing and swimming

Zebra Mussel
A. Barson, USGS, Bugwood.org

- Tiny D-shaped or oval striped shells
- Can cover hard surfaces like docks and mooring lines
- Shells can cut feet

Eurasian Watermilfoil
G. Lovell, ADCNR, Reptography

- 4-6 feathery leaves around stem, blunt-tipped, as if snipped off
- New plants sprout from fragments
- Most common and widely distributed AIS in NY
- Dense plants impede boating, fishing and swimming

Spiny Waterflea
Z. DeBor, LGA

- Tiny crustacean with long, barbed tail
- Competes with small fish for food
- Can clog gages of fishing rods

Hydrilla
Tim Kynski, Cleveland Aquatics Reptography

- 4-8 blade-like, slightly toothed leaves around stem
- Dense plants impede boating, fishing and swimming
- Tolerates both fresh and brackish water

More information about AIS:
www.dec.ny.gov/animals/99141.html

STOP THE INVASION
PROTECT NEW YORK FROM INVASIVE SPECIES

NEW YORK
STATE OF
ENVIRONMENTAL
CONSERVATION

Department of Environmental Conservation

BOAT STEWARD PROGRAMS
Aquatic Invasive Species Education and Outreach

Aquatic invasive species (AIS) are non-native aquatic plants and animals that can cause environmental and economic harm and harm to human health. Many AIS have been found in the lakes, ponds, and rivers of New York. These plants and animals are often transported from waterbody to waterbody on watercraft and equipment. Boat stewards perform a vital function in protecting New York State's waters and raising public awareness about aquatic invaders.

Who are boat stewards?

Boat stewards are volunteers or paid members of the community who provide boaters and other water recreationists with important information about what precautions can be taken to reduce the likelihood of spreading AIS. They help people learn how to inspect, clean, drain, and treat watercraft and equipment. Stewards will also ask where you last launched and can sometimes determine what invasive species are found in the lake or pond you visited through the MapInvasives website. Stewards have a wealth of knowledge about AIS and are happy to answer your questions.

Why are boat steward programs necessary?

New York has more than 7,000 lakes, ponds, and rivers that could potentially be exposed to dozens of harmful aquatic invasive species (www.dec.ny.gov/animals/50272.html).

One of the main pathways for transfer of aquatic invasive species between waterbodies is recreational water vehicles (boats, canoes, kayaks, and jet skis). Aquatic invasive plants and animals such as hydrilla, water chestnut, Eurasian watermilfoil, zebra mussels, and Asian clams are easily transported on boats, boat trailers, and recreational gear.

The regulation, **NYCRR Part 616**, requires water recreationists to take reasonable precautions to prevent the spread of aquatic invasive species (www.dec.ny.gov/animals/99141.html). In support of this regulation, New York is expanding boat steward programs across the state, particularly in popular, high-use areas. In-person interactions with boaters, anglers, and other recreational water users raises awareness about aquatic invasive species and practices (cleaning, draining, and treating) that reduce the chance of spreading aquatic invaders.



Boat steward records information from a boater. J. Clayton, DEC

Where are boat steward programs located?

Over the last few years, boat steward programs have expanded from the Finger Lakes and Adirondack Regions to Western New York, the Catskills, the Mohawk and Hudson Rivers, and Long Island. More than 120 locations have active boat stewards. The programs are administered by academic institutions, lake associations, Soil and Water Conservation Districts, Cornell Cooperative Extension, NYS Office of Parks, Recreation and Historic Preservation (Parks), and Regional Partnerships for Invasive Species Management (PRISMs) at both public and private launches.

For more information, or to sign-up for email updates from NYDEC, visit our website: www.dec.ny.gov

Department of Environmental Conservation

Creating EDRR/Reporting Network

- Provide training for potential reporters
- Use data to inform management strategies
- Track movement of hydrilla throughout the state and across state lines

https://www.nyimapsinvasives.org/imap-3-0

New York
iMapInvasives

Home iMap 3.0 Report an Invasive About Data and Maps Resources Training Projects WISPA Login Create Account

iMapInvasives 3.0 is Live!

[Help Resources](#)

NatureServe is happy to announce that the long-awaited release of iMapInvasives is here! To log into the site, visit imapsinvasives.natureserve.org/imap/login.jsp or go to imapsinvasives.org and follow the login link. Your iMapInvasives account has migrated to the new system, but not your password. You will need to create a new iMap3 password on the website before using the website or app for the first time. Please do NOT create a brand new account for iMap3 if you think you had an iMap account previously. For more information on getting started, please refer to [How to Sign In to iMapInvasives](#).

More information on the new release including functionality, help documents, contact information, and general information on invasive species management can be found on the "Help and Resources" tab of imapsinvasives.org.

If you experience difficulties using iMapInvasives, please contact us at imapsinvasives@dec.ny.gov

With iMapInvasives 3.0, you will be able to:

- Map and share invasive species locations, surveys, and treatments from many data sources
- Work collaboratively using specialized tools to make informed management decisions
- Stay informed with customized e-mail alerts and GIS-based reports
- Prioritize management actions with standardized information

Access our training [webinars](#)

What can current iMapInvasive users expect?

Over the next few weeks, existing iMapInvasive account holders will receive email messages

Customizable Data Collection Plan, generate, and manage standardized data collection forms across multiple data sources.	Americas View View and manage data across the United States, Canada, and Mexico.	Invasion Management Add to your report to track and manage the progress of your response efforts.
Improved User Experience Streamline the reporting process and improve the overall user experience.	Web Map Services Access your data from any web browser.	Enhanced Mobile Interface Improve the mobile experience for field users.

NEW YORK STATE OF OPPORTUNITY

Department of Environmental Conservation

Resources

NYSDEC website

[http://www.dec.ny.gov/:](http://www.dec.ny.gov/)

Nature

Invasive Species

Aquatic Invasive Species in NYS

Invasive Species Regulations

The screenshot shows a web browser window displaying the NYSDEC website. The page title is "Aquatic Invasive Species in New York State". The navigation menu includes "Services", "News", "Government", and "Local". The main content area features a sidebar with links to "Aquatic Invasive Species in New York State", "Croton River Hydrilla Control Project", "Aquatic Invasive Species Management Plan", "Common Aquatic Invasive Species of NY", and "Prevent the Spread of Aquatic Invasive Species". The main text discusses the impact of aquatic invasive species (AIS) on native fish communities and provides information on preventing their spread. A photo shows a boat with a motor and a person, likely related to the prevention efforts. The footer includes contact information for the NYSDEC Bureau of Fisheries and the date 5/4/2017.



Thank you!

Cathy McGlynn
AIS Coordinator
Bureau of Invasive Species
and Ecosystem Health
Invasive Species Coordination Section
catherine.mcglynn@dec.ny.gov



Department of
Environmental
Conservation