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Conservation

# Aquatic Invasive Species and Owasco Lake: Present and Future

Bob Brower Scientific Symposium  
March 6, 2021

# Overview

- Confirmed aquatic invasive plants and animals
- Incoming species!!
- What to do if you think you've found an invasive species
- Management methods
- Regulatory efforts

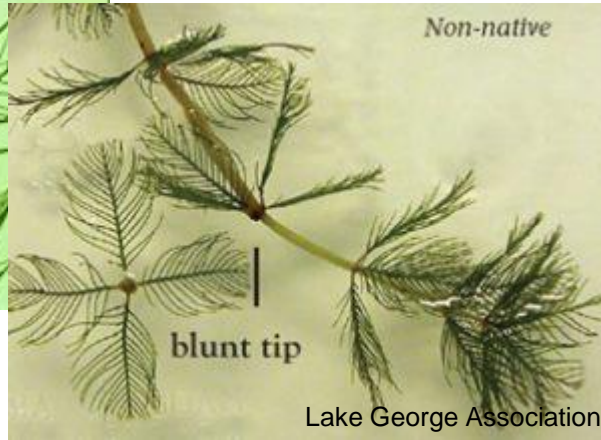


# Confirmed Aquatic Invasive Plants

- **Eurasian watermilfoil**  
(*Myriophyllum spicatum*)
- **Starry Stonewort (not really a plant)** (*Nitellopsis obtusa*)



- **Eurasian watermilfoil** (*Myriophyllum spicatum*)



- Native to Europe, Asia, and North Africa
- Main stem with leaves with fine leaflets (feathery appearance)
- Leaves have blunt tips
- Spreads through fragmentation

# Starry Stonewort (*Nitellopsis obtusa*)

Native to Europe and W. Asia

- Large algae (ballast water)
- Whorls of 4-6 long branchlets
- Can grow over 6 feet tall
- Anchored by colorless filaments
- Reproductive structure is a star-shaped bulbil



MI DEQ



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# Great Lakes Starry Stonewort Collaborative

- Finger Lakes PRISM
- David Carr, Coordinator  
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<https://starrystonewort.org/>



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# Potential new plant arrivals

- Hydrilla (*Hydrilla verticillata*)
- Water hyacinth (*Eichhornia crassipes*)
- Water lettuce (*Pistia stratiotes*)



# Hydrilla (*Hydrilla verticillata*)

- Native to Korea
- Federally listed noxious weed, NYS prohibited (Part 575)
- Whorls of three or more leaves with serrated edges and mid-rib
- Reproduction: turions, tubers, and fragments
- Inhibits recreation; severe ecosystem impacts





# Water Hyacinth (*Eichhornia crassipes*)

- Native to South America
- “go to” plant for aquatic gardeners and aquaria
- Recurring populations in WNY
- Round to oval shiny green leaves with inflated petioles
- Spikes of light purple-colored flowers
- Air bladders in leaf stems



# Water Lettuce (*Pistia stratiotes*)



- Native to S. America and Africa
- Free floating plant that resembles an open head of lettuce
- Leaves are light green with parallel veins and short white hairs
- Scattered populations reported in New York
- Documented overwintering in WI

# Confirmed Aquatic Invasive Animals

- Zebra mussel (*Dreissena polymorpha*)
- Fishhook waterflea (*Cercopagis pengoi*)



"It doesn't seem to be covered in our invasive species management plan."

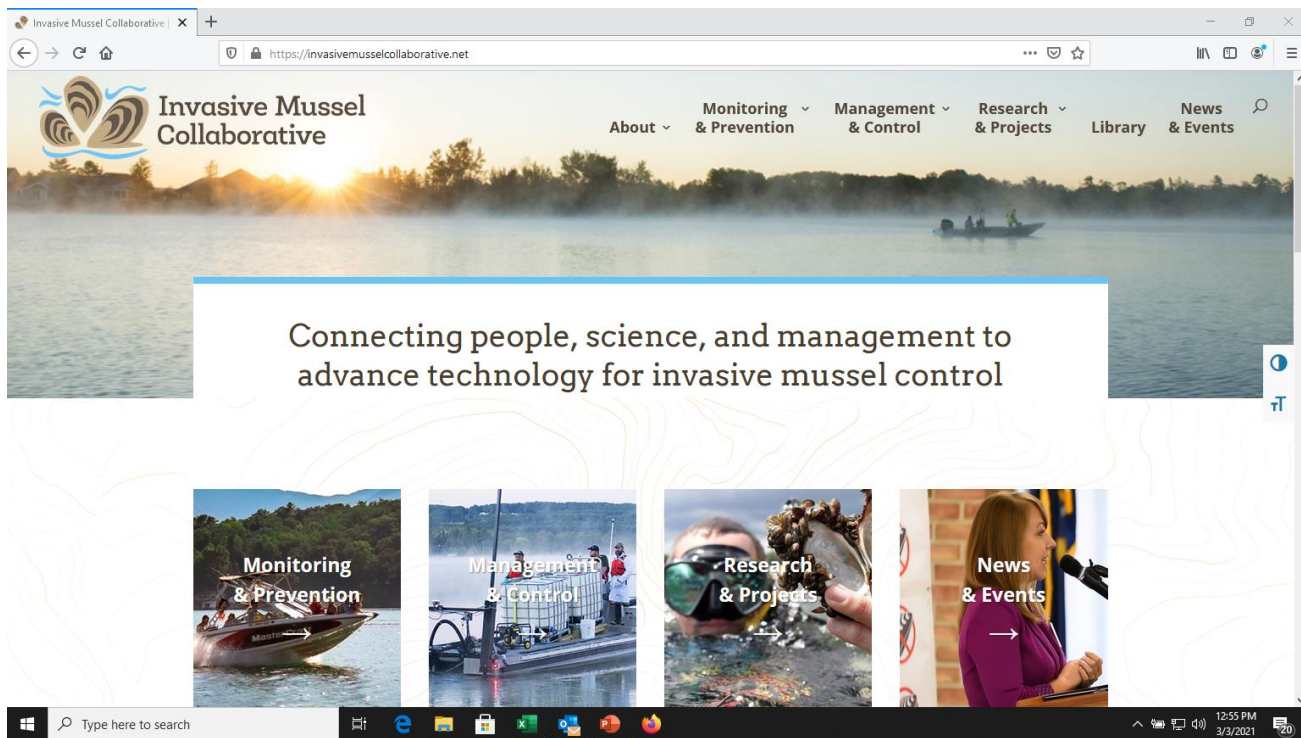
# Zebra mussels (*Dreissena polymorpha*)



- Native to Caucasus/Black Sea (Western Asia)
- First documented in Lake St. Claire in 1988
- Microscopic veligers (juveniles)
- Filter feeders (1 liter per day)
- Prefer hard substrates
- Females produce 1 million eggs per year



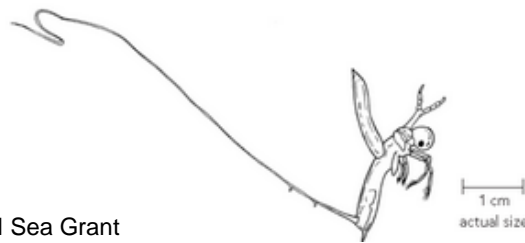
# Great Lakes Invasive Mussel Collaborative





# Fishhook Waterfleas (*Cercopagis pengoi*)

- Native to Eastern Europe and Western Asia
- Ballast introduction
- Eat smaller zooplankton
- Compete with young of year fish



MI Sea Grant



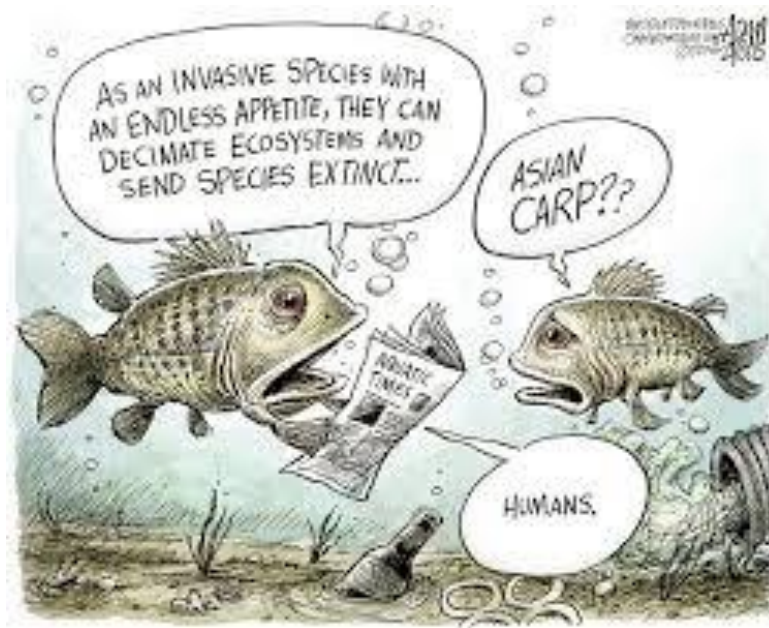
Wisconsin DNR



BugGuide.Net

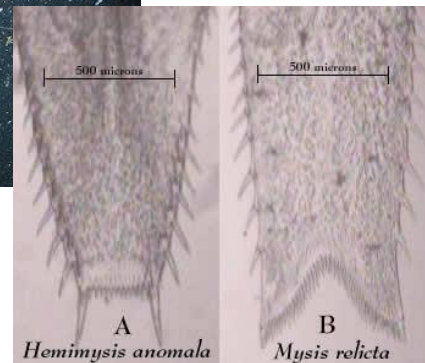
# Potential new animal arrivals

- **Bloody red shrimp**  
(*Hemimysis anomala*)
- **Round goby** (*Neogobius melanostoma*)



# Bloody red shrimp (*Hemimysis anomala*)

- Great Lakes (ballast water)
- About a half inch long
- Translucent bodies with bright red-orange heads and tails
- Eyes large and black on extended stalks
- Tail square with two spines at end
- Avoids direct sunlight



# Round goby (*Neogobius melanostomus*)

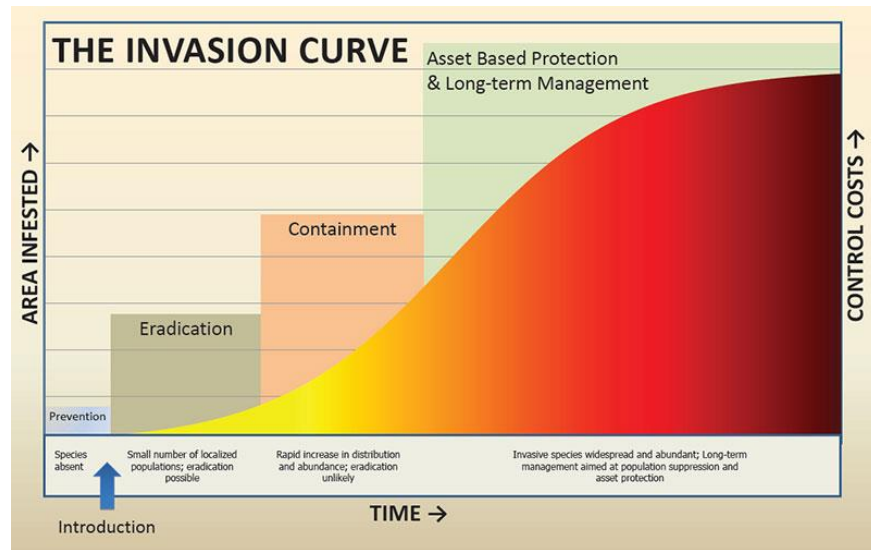
- Native to Western Asia (Black and Caspian Seas)
- Introduced through ballast water
- Bottom dwelling fish
- Can grow up to 10 inches in length
- Prey on native fish and native invertebrates (also eat zebra mussels)



Michigan SeaGrant

# Pathways for Introduction

- Motorized boats
- Bait releases
- Aquarium releases
- Prayer releases
- Live markets
- Aquatic gardens





# Focus on Prevention: boats and bait

- Watercraft Inspection Steward Program
- Bait disposal



# Focus on Prevention: Releases

- Education and outreach to aquarium owners
- Religious groups
- Live markets



# Focus on Prevention: Aquatic gardens

- Nurseries
- Plant clubs
- Shows



# What you can do as a NYS resident

- Clean, drain, and dry your watercraft and fishing gear
- Keep up to date about what AIS are problematic in your region and in your lake
- Learn to identify those AIS and to report them



# What you can do as a NYS resident

- Learn which plants are recommended for aquatic gardens
- Don't dump your aquarium and its inhabitants in public or private waters
- Be aware that aquatic plant purchases can have hitchhikers





# What you can do as a NYS resident

- Engage in control or management of AIS when possible
- Conduct regular lake-wide surveys
- Develop a lake management plan
- Spread the word!



Cayuga Economic Development Agency

# Resources

NYS website:

Invasive Species Regulations-

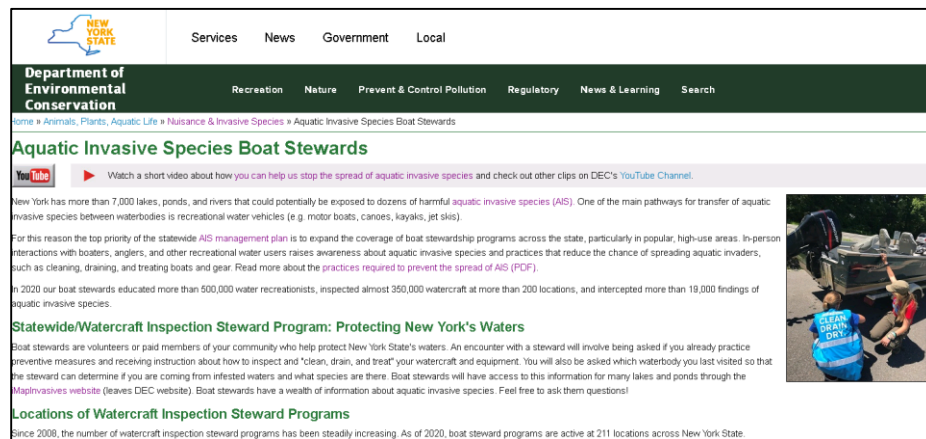
<http://www.dec.ny.gov/animals/99141.html>

Prevent the Spread of Aquatic Invasive Species-

<http://www.dec.ny.gov/animals/48221.html>

Aquatic Invasive Species Boat Steward Programs-

<http://www.dec.ny.gov/animals/107807.html>



The screenshot shows the DEC website with a navigation bar including Services, News, Government, and Local. Below the navigation bar, there are links for Recreation, Nature, Prevent & Control Pollution, Regulatory, News & Learning, and Search. The main content area is titled "Aquatic Invasive Species Boat Stewards" and features a YouTube video player with a play button. To the right of the video player is a photo of two people on a boat, one holding a sign that says "CLEAN, DRAIN, DRY". The text on the page describes the AIS management plan and the role of boat stewards in preventing the spread of aquatic invasive species.

**Aquatic Invasive Species Boat Stewards**

Watch a short video about how you can help us stop the spread of aquatic invasive species and check out other clips on DEC's YouTube Channel.

New York has more than 7,000 lakes, ponds, and rivers that could potentially be exposed to dozens of harmful **aquatic invasive species (AIS)**. One of the main pathways for transfer of aquatic invasive species between waterbodies is recreational water vehicles (e.g. motor boats, canoes, kayaks, jet skis).

For this reason the top priority of the statewide **AIS management plan** is to expand the coverage of boat stewardship 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 that reduce the chance of spreading aquatic invaders, such as cleaning, draining, and treating boats and gear. Read more about the **practices required to prevent the spread of AIS (PDF)**.

In 2020 our boat stewards educated more than 500,000 water recreationists, inspected almost 350,000 watercraft at more than 200 locations, and intercepted more than 19,000 findings of aquatic invasive species.

**Statewide Watercraft Inspection Steward Program: Protecting New York's Waters**

Boat stewards are volunteers or paid members of your community who help protect New York State's waters. An encounter with a steward will involve being asked if you already practice preventive measures and receiving instruction about how to inspect and "clean, drain, and treat" your watercraft and equipment. You will also be asked which waterbody you last visited so that the steward can determine if you are coming from infested waters and what species are there. Boat stewards will have access to this information for many lakes and ponds through the **MapInvasives website** (leaves DEC website). Boat stewards have a wealth of information about aquatic invasive species. Feel free to ask them questions!

**Locations of Watercraft Inspection Steward Programs**


Since 2008, the number of watercraft inspection steward programs has been steadily increasing. As of 2020, boat steward programs are active at 211 locations across New York State.



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# Resources



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**Department of Environmental Conservation**

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[Home](#) » [Animals, Plants, Aquatic Life](#) » [Nuisance & Invasive Species](#) » Guidelines for Aquarium & Pet Owners

## Guidelines for Aquarium & Pet Owners


### Protect Our Environment: Be a Responsible Aquarium & Pet Owner

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 triple in size during its lifespan. Pet owners may be unprepared to care for a pet for such a long time and sometimes 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 enjoyed and disposed of properly, however, exotic pets and plants do not pose a threat.

### Impacts of Invasive Species

Aquarium fish such as lionfish 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, fanwort, and Brazilian elodea can vigorously reproduce and overtake waterways, impairing 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.



*Goldfish, a popular aquarium pet, outcompete native fish in the wild. Photo credit: USGS, Bugwood.org*

### How You Can Help

The following best management practices apply to various activities, including but not limited to maintaining a water garden and/or aquarium, purchasing study specimens for classrooms and owning exotic pets:



- Select species that comply with federal and state regulations, which prohibit or regulate the sale, possession, and transport of certain species.

<https://www.dec.ny.gov/animals/115034.html>



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# Resources

	<a href="#">Services</a> <a href="#">News</a> <a href="#">Government</a> <a href="#">Local</a>
<b>Department of Environmental Conservation</b>	
<b>Aquatic Invasive Species in New York State</b> <a href="#">Peconic River Ludwigia Control Project</a> <a href="#">Croton River Hydrilla Control Project</a>	<a href="#">Home</a> » <a href="#">Animals, Plants, Aquatic Life</a> » <a href="#">Nuisance &amp; Invasive Species</a> » Aquatic Invasive Species in New York State <h2>Aquatic Invasive Species in New York State</h2> <div> View DEC's new <a href="#">Guide to Water Gardening in New York</a> for recommended water garden species and tips on avoiding invasive species. </div> <div> <p>On this page:</p> <ul style="list-style-type: none"> <li>• <a href="#">How you can help prevent the spread of aquatic invasive species</a></li> <li>• <a href="#">DEC's Aquatic Invasive Species Management Plan</a></li> <li>• <a href="#">Protecting the Adirondacks from aquatic invasives</a></li> </ul> <p>What do Eurasian watermilfoil, didymo, water chestnut, purple loosestrife, fishhook water fleas, and zebra mussels have in common? They are all species from other parts of the world that have been accidentally introduced and have flourished in New York State, often at the expense of our native species. Add to this list sea lamprey, white perch, fanwort, yellow perch, and a host of common baitfish species that are native to the US, and in some cases NY, but have since spread to water which they were not originally found.</p> <p>These plants and animals are all considered invasive species. Without the predators, parasites, and diseases that control their numbers in their native habitats, these species can reproduce and spread at an amazing pace. Similarly, fish diseases such as whirling disease and viral hemorrhagic septicemia (VHS) have also been introduced to New York State. Although these diseases are not a threat to human health, they can have dire consequences for our native fish communities.</p> <p>Some of these species were introduced into New York via ballast water discharges, as ships from ports around the world travel up the St. Lawrence Seaway and into the Great Lakes. Many exotic aquatic plants have been introduced through the home aquarium trade. How some other organisms are introduced, including many fish diseases,</p> </div>
	<div>  <p><i>Invasive aquatic plant species hanging off a trailered boat</i></p> </div> <div> <b>Important Links</b>  <a href="#">Adirondack MOU (PDF)</a>  <a href="#">Prevent the Spread of Aquatic Invasives</a>  <a href="#">Procedures To Prevent the Spread of Aquatic Invasive Species While Boating (PDF)</a>  <a href="#">Resources for Boat Launch Owners</a>  <a href="#">VHS in New York</a>  <b>Links Leaving DEC's Website</b>  <a href="#">Protect Your Waters</a>  <b>PDF Help</b>  For help with PDFs on this page, please call 518-402-6869 </div>

<https://www.dec.ny.gov/animals/50121.html>



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# NEW YORK INVASIVE SPECIES (IS) INFORMATION

New York State's gateway to science-based invasive species information



Cornell University  
Cooperative Extension



[Home](#) [Species](#) [Regulations](#) [NY IS Network](#) [Resources](#)



DOT Pesticide Training Credit: Zachary Simek, APIPP PRISM



## Welcome to the New York Invasive Species Information Clearinghouse

NYIS.INFO is your gateway to science-based information, innovative tools, news and events, and for coping with biological invaders in New York. NYIS.INFO links scientists, local, state and federal resource managers, policy setters, educators, and grassroots efforts to help you become part of the battle against invasive species in New York.

[www.nyis.info](http://www.nyis.info)



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# Thank you!



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