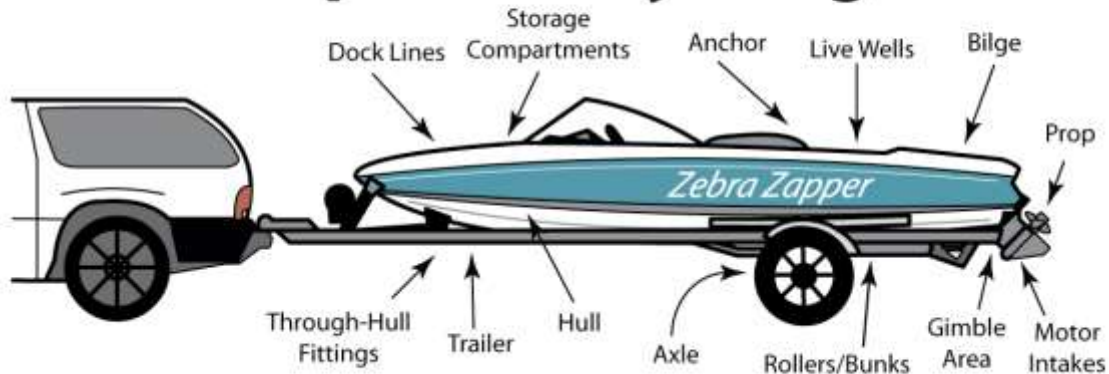


## Prevention

- Don't release exotic pets or plants into the environment.
  - Buy and plant only native trees and plants.
  - Learn to identify invasive species in your area and report sightings to the proper authorities.
  - Prevent and help clean up pollution on land and in the water.
  - Obey all related laws and educate others about the negative impacts of invasive species.
- 
- Spray your boat and trailer with high-pressure water and then rinse with hot water after each use. DO NOT use salt and/or chlorine water mixtures as the runoff can pollute the waterway and the mixtures can damage boat equipment.
  - Drain and flush the motor, live well, bilge and transom wells with hot water.
  - Remove all visible vegetation from your boat, propeller, anchor, trailer and any other equipment or objects that were in the water.
  - Dry your boat and equipment for at least five days before entering another body of water.  
Some ANS, like Zebra and Quagga mussels, can live for days or even weeks out of water depending on the relative humidity and time of year.
  - DO NOT dump unused bait or its packing material into the water. While bait may be bought locally, it is often shipped from farther away.

Before Leaving & Before Launching...  
**Inspect Everything!**



In addition to the instructions above, people who use personal watercraft with jet-drive systems (such as Jet Skis) should also:

- Avoid running your engine through aquatic plants when on the water.
- Push or winch the watercraft onto the trailer when leaving the water
- Once on the trailer, run the engine for five to ten seconds to blow out excess water that may contain ANS.
- Carefully inspect the engine and steering nozzle for fragments of aquatic plants or other ANS. Be sure the motor is turned off first!

What follows here is information on specific marine organisms that are Aquatic Nuisance Species in NY, The information comes from a NYS web site and gives you some

contact information and so on. You are NOT responsible for the different organisms and what they do. This is FYI.

## AQUATIC NUISANCE SPECIES AND INVASIVE SPECIES

### DEPARTMENT OF ENVIRONMENTAL CONSERVATION NYS

1. An Aquatic nuisance species is any species found in the water which becomes an annoyance to people. As defined by

As per [Executive Order 13112](#) an "invasive species" is defined as a species that is:

- 1) non-native (or alien) to the ecosystem under consideration and
- 2) whose introduction causes or is likely to cause economic or environmental harm or harm to human health.

**Aquatic Nuisance Species** (ANS) are nonindigenous species that threaten the diversity or abundance of native species, the ecological stability of infested waters, or any commercial, agricultural, aquacultural or recreational activities dependent on such waters.

#### **2. Definition of Aquatic Nuisance Species**

3. ANS are nonindigenous aquatic species that pose significant ecological and economic threats to aquatic ecosystems. This can include fish, aquatic plants, algae, invertebrates, mussels, viruses, and other aquatic pathogens.

### Species Specific Information

Use the links below to find information on specific invasive species learn what DEC is doing to combat them.

## Plants

- [Didymo \(Rock Snot\)](#)
- [Giant Hogweed](#)
- [Hydrilla](#)
- [Wild Parsnip](#)

## Insects

- [Asian Longhorned Beetle \(ALB\)](#)
- [Emerald Ash Borer \(EAB\)](#)
- [Hemlock Woolly Adelgid](#)
- [Gypsy Moth](#)
- [Sirex Woodwasp](#)
- [Viburnum Leaf Beetle](#)

## Fish and Shellfish

- [Chinese Mitten Crab](#)

### **Chinese Mitten Crab**

in the Hudson River Estuary



Photo by Tom Lake, Estuary Naturalist

**Chinese mitten crabs** (*Eriocheir sinensis*) (CMC) is our newest Hudson River invader! The Chinese mitten crab, a non-native species from East Asia, is a costly and environmentally damaging invader in Europe and San Francisco Bay. The first one was caught in early June, 2007 in the Hudson River Tappan Zee section 27 miles upstream from the mouth. As of June 9, 2008, at least three juvenile CMC have been caught - one in Cold Spring, Putnam County and two in Tivoli Bays, Dutchess County, suggesting reproduction is occurring and CMC are rapidly moving upriver. They are among the first caught in the eastern United States coastal waters. A few

others have been caught in the Chesapeake Bay and Delaware Bay. About a dozen Chinese mitten crabs have been reported in the Great Lakes - St. Lawrence system since 1965; although a population has not established in this system, more frequent sightings from 2004 - 06 have raised concerns.

These crabs may be found in both freshwater and salt water. They are walking crabs that can emerge from the water to move upstream of barriers and are capable of moving several hundred miles upstream from saltwater. They spend most of their lives in freshwater rivers, migrating to brackish or salt water to reproduce. The young move upstream, sometimes spending 2 - 5 years in freshwater.

**Why be concerned?** These crabs are aggressive and may compete with our popular native blue crab in the Hudson River. Their burrowing habits may threaten stream bank and earthen dam stability and promote erosion and habitat loss.

**How did they get here?** We are not certain; however, ship ballast water and live release are the two most likely means.

### Identification

Only freshwater crab in the Hudson River drainage

- Claws equal size with white tips and hair
- Carapace (shell) up to 4 inches wide; light brown to olive color
- Eight sharp pointed walking legs; no swimming legs

If you catch a Chinese mitten crab

### **Do not release it back to the water**

- Keep it and freeze it (preserve in alcohol if you can't freeze it)
- Note date and location caught (GPS coordinates preferred but pinpointed on a map is acceptable) and how you caught it
- If possible, take a close-up photo. You may e-mail photo to SERCMittenCrab@si.edu for identification.

The Mitten Crab Network, a partnership among several state, federal and research organizations, is collecting data to determine the status, abundance and distribution of this species. New York State Department of Environmental Conservation's Division of Fish, Wildlife and Marine Resources has agreed to collect and hold specimens for genetics testing to determine the origin of individuals caught in the Hudson River.

The Department of Environmental Conservation is seeking the public's assistance in collecting any CMC specimens that may exist in NY. Persons who collect and possess a CMC solely for the purpose of turning the crab over to the Department will not be prosecuted under 6 NYCRR 44.10\* for possession or transport violations. Persons collecting and holding CMC for the sole purpose of turning the crab over to the Department must, within 48 hours of collecting the CMC, contact one of the following individuals:

**Long Island Sound, New York Harbor and Hudson River below George Washington Bridge:** Kim McKown, NYS DEC Division of Fish Wildlife and Marine Resources Crustacean Unit, 631-444-0454

**Hudson River above George Washington Bridge:** Sarah Fernald, NYS DEC Division of Fish, Wildlife and Marine Resources, Hudson River Estuary Research Reserve, 845-889-4745.

**NOTE:**

**\* NYS Fish and Wildlife regulations (Section 44.10) prohibit releasing Chinese mitten crab into waters of New York State; prohibits possession, importation, transportation, purchase or sale or offer of purchase or sale of Chinese mitten crab whether dead or live. This regulation requires Chinese mitten crab to be destroyed unless lawfully held under a license or permit to collect, possess or sell for propagation, scientific or exhibition purposes issued under section 11-0515 of the Environmental Conservation Law. In addition, the Federal Lacey Act prohibits inter-state transport of Chinese mitten crabs.**

- [Northern Snakehead Fish](#)

**Northern Snakehead Fish**

(*Channa argus*)

*What are they?*



The Northern Snakehead

The northern snakehead is an invasive fish native to China, Russia and Korea. Other snakehead species are native to parts of Asia and Africa. Two populations of this air-breathing predator have been identified in New York State; one in two connected ponds in Queens, NYC and one in Ridgebury Lake in the Town of Wawayanda, Orange County. While the Queens population is confined, the Ridgebury population, situated in the Wallkill River drainage, has the potential to infest the entire Hudson River drainage and beyond to the Great Lakes and continental US. DEC plans to eradicate the Ridgebury population using rotenone.

*Why should I care?*



Northern Snakehead in a tank

Snakeheads are highly invasive and have the potential to disrupt recreational and commercial fishing, harm native fish and wildlife, and impact our economy. New York State prohibits possession, sale and live transport of snakehead fish (genus *Channa* and *Parachanna*) and their viable eggs. Importation and interstate transport of snakeheads is prohibited under federal Lacey Act. Northern snakeheads are top predators capable of growing to at least three feet long and surviving throughout the continental US in a variety of habitats. With teeth similar to our pike and walleye, they are superb predators. They feed voraciously, primarily on other fish but also eat frogs, crayfish and aquatic insects. While they prefer weedy shallow waters, they can inhabit virtually any of our lakes and streams. They tolerate a wider range of oxygen levels than our native species. When oxygen is insufficient to support most of our native fish, snakeheads can

breathe air and they may survive for days out of water in damp conditions. Young fish can move across the ground to access water. Snakeheads spawn multiple times each year with females releasing tens of thousands of eggs each time. Eggs hatch in one to two days during the summer and parents guard the young until they begin to feed. Upon hatching, snakeheads feed on zooplankton then begin consuming other fish larvae when they are less than an inch long.

#### *What do they look like?*

- Tan to pale brown with dark brown blotches on sides and saddle-like markings on back.
- Elongate body with long dorsal and anal fins.
- Many sharp teeth.
- Large mouth reaching far behind eyes.
- May be confused with bowfin which has a short anal fin, small teeth and often a black spot at base of tail.

#### *What should I do if I see or catch a snakehead?*

- REPORT any caught or observed snakehead to DEC's regional fisheries office.
- If you catch one, DO NOT RELEASE it. Kill it immediately, freeze it and report your catch. Take a digital photo if possible

#### *DEC Regional Fisheries Offices*

Region 1: 631-444-0280

Region 2: 718-482-4922

Region 3: 845-256-3161

Region 4: 607-652-7366

Region 5: 518-897-1333

Region 6: 315-785-2263

Region 7: 607-753-3095

Region 8: 585-226-2466

Region 9: 716-372-0645



More about Northern Snakehead Fish:

- [DEC's Plans to Eradicate Northern Snakehead Fish](#) - Information of plans to treat Ridgebury Lake and Catlin Creek to kill off invasive northern snakehead fish
  
- [Sea Lamprey](#)

## Sea Lamprey

Lake Champlain

Sea Lamprey Control



## Strategic Plan for Lake Champlain Fisheries

The Lake Champlain Fish and Wildlife Cooperative has released the [Final 2009 Strategic Plan for Lake Champlain Fisheries \(PDF - 126 KB\)](#). The Strategic Plan provides a framework for implementing the Cooperative's coordinated fisheries management programs. It outlines fish community goals and objectives and describes the role of each of the agencies.

## Events

### *2015 Lake Champlain Sea Lamprey Control Schedule*

#### **Lampricide Treatments - Fall 2015**

- Stream and River TFM Treatments
  - In New York: Putnam Creek, Beaver Brook and Mount Hope Brook
  - In Vermont: Hubbardton River, Winooski River and Lewis Creek
  - New York - Vermont Border: Poultney River

## Biology



The sea lamprey (*Petromyzon marinus*) is one of four lamprey species found in the Lake Champlain Basin. Lampreys are eel-shaped fish with a skeleton made of cartilage and they belong to a relic (primitive) group of jawless fishes called Agnathans. The sea lamprey has smooth, scaleless skin and two fins on its back (dorsal fins). The sea lamprey is parasitic; it feeds on other fish, using a suction disk mouth filled with small sharp, rasping teeth and a file-like tongue. These are used by the sea lamprey to attach to a fish, puncture its skin, and drain its body fluids.

### *Life cycle*

Sea lampreys have a complex life cycle. The first four years of their life are spent as ammocoetes [am-mah-seats] - a blind worm-like larval stage - in the soft bottom and banks of waters that flow into Lake Champlain. They then transform into the parasitic adult stage and enter the lake to feed on landlocked Atlantic salmon (salmon), lake trout and many other fish species; which they prefer due to their small scales and thin skin. After twelve (12) to twenty (20) months in the lake the adults migrate back into the streams flowing into the lake to spawn, after which the adults die.

### *Lampreys in Lake Champlain*

Moderate numbers of sea lampreys were first noted in Lake Champlain in 1929. The sea lamprey has been considered a non-native invasive species

that entered Lake Champlain during the 1800s through the Hudson/Champlain Canal. Recent genetic studies indicate that the sea lamprey may be native to Lake Champlain.

Three other lamprey species are found in the Lake Champlain Basin. Two species are non-parasitic, and while the third species is parasitic, it does not have a significant impact on the Lake Champlain fish community.

Whether the sea lamprey is native to Lake Champlain or not, it is having detrimental impacts on the Lake Champlain fisheries, ecosystem, and human residents that are very significant.

See [Sea Lamprey Biology](#) for more information.

### Impacts

Sea lamprey have a major detrimental impact on the Lake Champlain fish community, the Lake Champlain Basin ecosystem, the anglers that fish Lake Champlain, and the many people throughout the watershed whose livelihood is directly or indirectly supported by the fishing and tourist industry.



Adult sea lamprey attach to a host fish, rasp and puncture its skin, and drain its body fluids, often killing the host fish. Their preferred hosts are salmon, lake trout and other trout species, however they also feed on other fish species, including lake whitefish, walleye, northern pike, burbot, and lake sturgeon. The lake sturgeon is listed as a threatened species in New York and an endangered species in Vermont and it is likely that sea lamprey are affecting their survival.

### *Impacts on Host Fish*

Most sea lamprey hosts are native fish species that have been part of the Lake Champlain Basin ecosystem for thousands of years. Additionally many

of these fish species are important sportfish, highly prized and sought after by local and visiting anglers.

Prior to any control measures, angler catches of lake trout and salmon in Lake Champlain were a fraction of catches in similar lakes, despite intensive stocking efforts. High wounding rates indicated that sea lamprey were having a significant impact on the lake trout and salmon populations, and were preventing the restoration of these native fish species to Lake Champlain.



Studies on the Great Lakes show a 40 to 60 percent mortality rate for fish attacked by sea lamprey. Other studies found that a single sea lamprey can kill 40 or more pounds of fish during its adult life. The abundance of sea lamprey were obviously having significant impacts on Lake Champlain's fishery and ecosystem.

### *Impacts on Local Economy*

Poor fishing caused many anglers to seek fishing opportunities elsewhere. A study estimated that 29.4 million dollars in economic benefits to businesses and residents of the Lake Champlain Basin were lost due to the impacts of sea lamprey.

See [Sea Lamprey Impacts](#) for more information.

### Control



Due to the severity of the impacts that sea lamprey have on the Lake Champlain fishery and ecosystem, and the social and economic impacts on the people who live in the Lake Champlain Basin, it has been determined that sea lamprey populations should be controlled. The federal and state governments, the agencies that manage Lake Champlain, the various organizations that are concerned with Lake Champlain and the people that live in the Lake Champlain Basin generally agree that it would be irresponsible not to control the sea lamprey population.

The New York State Department of Environmental Conservation, the Vermont Department of Fish and Wildlife and the United States Fish and Wildlife Service formed a cooperative and began an integrated control program to reduce the sea lamprey population in Lake Champlain to an acceptable level. The program is not attempting to eliminate the sea lamprey from Lake Champlain, but rather to reduce the impacts of sea lamprey on the lake's fishery and restore balance to the ecosystem.

### *Control Efforts*

Physical methods of control include the use of barriers to prevent adult sea lamprey from migrating up waterways to spawn and traps to capture adult sea lamprey before they can spawn.



However, the most significant and effective form of control has been the treatment of tributaries and deltas with lampricides - TFM in tributaries and Bayluscide on deltas. The lampricides target the larval sea lamprey, killing them before they can transform into their parasitic adult form.

It should be noted that after years of study in Lake Champlain, the Great Lakes, and other places where sea lamprey are controlled by using lampricides, fisheries managers have concluded that the lampricides have little or no known permanent effect on populations of non-target species present in the treatment areas.

## Control Program



Click on the map to see a larger map

Evaluation of an eight year experimental sea lamprey control program that took place in Lake Champlain in the 1990s documented significant benefits for fish and anglers. These benefits included decreases in wounding rates on trout and salmon, increases in weight and survival rates of lake trout, increases in angler catch rates of lake trout and a benefit to cost ratio of 3.5 to 1.

At the end of the eight year experimental sea lamprey control program, a limited, three-year interim sea lamprey control program was undertaken from 1998 to 2000. After a thorough environmental review, a long term sea lamprey control program began in 2002.

Fish sampling programs, salmon returns to fish ladders, angler surveys and sampling of larval sea lamprey are used to measure the effectiveness of the control program. The control program may be expanded to other streams and delta areas if significant sea lamprey populations develop in them.

## Assessments



Assessments of sea lamprey populations are made before any control measures are undertaken and afterwards to assist in determining the effectiveness of the controls. Field staff, using a variety of capture methods, sample both adult and larval sea lamprey from streams and deltas to determine the presence and density of sea lamprey populations. This information is used to determine which streams or deltas are in need of control measures and which control measures to use.

Scientists and fish managers have considered, and continue to consider, other methods to reduce sea lamprey impacts. These include the use of pheromones (chemical attractants naturally produced by lamprey) to capture adult sea lamprey, the release of sterile males to disrupt spawning, and the stocking of lamprey-resistant strains of fish.

See [Sea Lamprey Control](#) for more information.

### More about Sea Lamprey:

- [Sea Lamprey Biology](#) - What is a sea lamprey? How does it live and breed? How did it get into Lake Champlain?
- [Sea Lamprey Impacts](#) - Impacts from sea lamprey on the fishery and ecosystem of Lake Champlain
- [Sea Lamprey Control](#) - Physical, chemical and other methods utilized in the effort to control sea lamprey in Lake Champlain
- [Sea Lamprey Control Method Map](#) - This map shows different methods employed in the control of Lake Champlain sea lamprey.
- **Sea Lamprey**
  - [Sea Lamprey Biology](#)
  - [Sea Lamprey Impacts](#)
  - [Sea Lamprey Control](#)

- [Sea Lamprey Control Method Map](#)
- 
- Links Leaving DEC's Website
  - 
  - [United States Fish and Wildlife Service](#)
  - [Vermont Department of Fish and Wildlife](#)
  - [Lake Champlain Basin Program](#)
  - [Great Lakes Fishery Commission](#)
  - [US Fish and Wildlife Service Great Lakes Sea Lamprey Management Program](#)
  - [Environmental Impact Statement and Other Supporting Documents](#)
  - [Lake Champlain Fisheries Technical Committee Minutes and Reports](#)

- Contact for this Page
- Region 5 Fisheries
  - P.O. Box 296
  - 1115 State Route 86
  - Ray Brook, NY 12977
  - 518-897-1333
  - [Send us an email](#)

- This Page Covers



PLANTS



## Plants

- [Didymo \(Rock Snot\)](#)

### **Didymo (Rock Snot)**

What is didymo?



Didymo covered rock.

Photo courtesy of Tim Daley,  
Pennsylvania Department of  
Environmental Protection.

Didymo (*Didymosphenia geminata*), also known as "rock snot," is a non-native invasive microscopic algae (diatom) that can produce large amounts of stalk material to form thick brown mats on stream bottoms. Didymo threatens aquatic habitat, biodiversity and recreational opportunities. Native to northern North America and Europe, didymo has rapidly expanded its range, invading streams in several western states before moving east. Didymo has been found in several major New York water-based recreational rivers.

Historically, didymo has been found in cool, clear, nutrient poor waters but has expanded its worldwide distribution to include nutrient rich waters. Rivers with stable, regulated flows are particularly at risk.

How do I know if I find didymo?

- Color - tan, brown or white (not green); may form long white "tails"
- Texture - like wet wool (not slimy)

- Strength - firmly attached; does not fall apart when rubbed between fingers

### What are the impacts of didymo?

Unlike many other aquatic invasive plants, didymo grows on the bottom of both flowing and still waters. It is characterized by the development of thick mat-like growths (blooms), which can last for months, even in fast flowing streams. During blooms, these mats may completely cover long stretches of stream beds, altering stream conditions and choking out many of the organisms that live on the stream bottom, which can affect trout and other fish by limiting their food. For the recreational user, footing can become very difficult due to the heavy growths.

### Where has didymo been found in New York?

Didymo has been confirmed in the following rivers in New York:

- Batten Kill and one tributary (Washington County)
- Kayderosserras Creek (Saratoga County)
- East Branch Delaware River below Pepacton Reservoir (Delaware County)
- West Branch Delaware River below Cannonsville Reservoir (Delaware County)
- West Branch Delaware River below Delhi to Cannonsville Reservoir (Delaware County)
- Mainstem Delaware River (Delaware and Sullivan Counties)
- Mouth of Little Delaware River (Delaware County)
- Esopus Creek downstream of the Shandaken Portal (Ulster County)
- West Branch Croton River (Westchester County)

**Please note:** these are very popular fishing and water-based recreational rivers. It is very likely that didymo is present in other river systems, but has not been detected yet. Do not assume that rivers not listed above are free of infestation.

### Can didymo be eradicated once it becomes established?

There are currently no known methods for controlling or eradicating didymo once it infests a water body.

How is didymo spread?

The primary way for didymo to be spread is by anglers, kayakers, canoeists, tubers, boaters and others engaging in water-based recreation can unknowingly spread didymo. The microscopic algae can cling - unseen - to waders, boots, boats, clothing, lures, hooks, fishing line and other equipment and remain viable for several weeks under even in seemingly dry conditions.

How can I prevent the spread of didymo?

Water recreationists are urged to use the "Inspect, Clean and Dry" method to limit the spread of invasive species, including didymo. Details on the "Inspect, Clean and Dry" method can be found on the "[Attention Boaters and Anglers: Don't Spread Invasive Species!](#)" web page.

Equipment and gear can also be placed in a freezer until all moisture is frozen solid. Please note that freezing is a didymo specific treatment and will not necessarily prevent the spread of other invasive species of fish diseases and may damage some gear.

**Note:** If cleaning, drying or freezing is not practical, restrict equipment use to a single water body.

**Felt Sole Considerations:** DEC encourages anglers to consider alternatives to felt-soled waders such as rubber studded boots. Felt-soles, due to their ability to absorb didymo cells and to stay damp for prolonged periods of time, are a major vector in spreading didymo and require special treatment (prolonged soaking in disinfectant).

- [Giant Hogweed](#)
- [Hydrilla](#)

**Hydrilla**

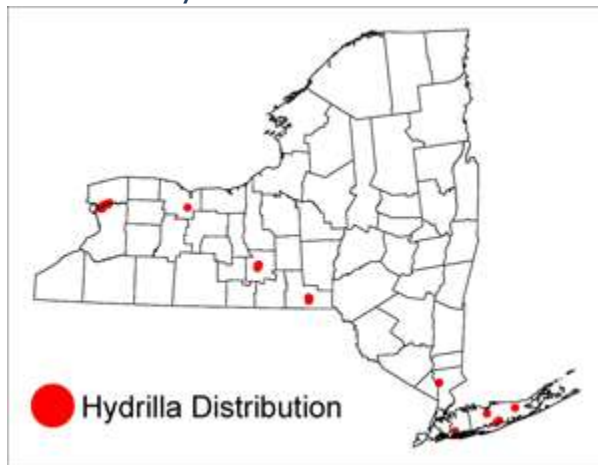
What is hydrilla?



Hydrilla forming a dense mat in water

Hydrilla or "water thyme" (*Hydrilla verticillata*) is an aquatic plant from Asia that is one of the most difficult aquatic invasive species to control and eradicate in the United States. Infestations can have negative impacts on recreation, tourism, and aquatic ecosystems. It is a [federally listed noxious weed](#) (leaves DEC website) which means that its movement between states and in foreign commerce is prohibited. It is a popular aquarium plant, but it was recently [prohibited from sale or possession in New York State](#). View the [hydrilla factsheet \(PDF, 177 KB\)](#).

Where is hydrilla located in New York?



Hydrilla was first discovered in 2008 in a small pond in Orange County and has since been discovered in Broome, Erie, Kings, Monroe, Nassau, Niagara, Suffolk, Tompkins, and Westchester counties.

How does it impact lakes, rivers, and wetlands?

Hydrilla can grow up to an inch a day, producing dense mats of vegetation that initially grow along the bottom of lakes and rivers. As they grow up to the water's surface, these mats can become several feet thick, shading out and displacing native plants that provide food and shelter to native wildlife. They interfere with waterfowl feeding areas and fish spawning sites. Hydrilla disrupts water flow in reservoirs, hampers drainage in irrigation canals, and decreases dissolved oxygen in the water, which results in fish kills. The size and weight of sport fish such as large mouth bass are also reduced in areas infested with hydrilla.

How can it impact me?

Hydrilla's dense mats of vegetation can interfere with boating, swimming, and fishing. Municipalities that rely on tourist dollars from recreational use of lakes and ponds can suffer serious losses in income due to an infestation. Waterfront property values can be greatly reduced, and property owners may incur some of the costs of management, which is expensive and long-term.

How does it spread?

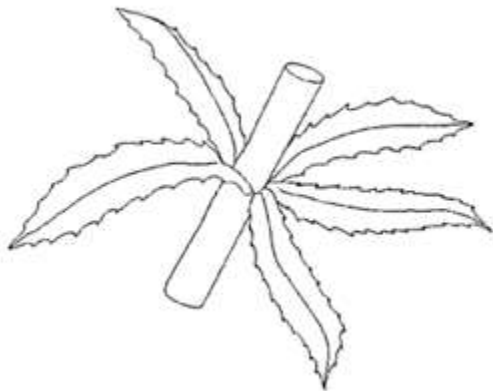
In addition to producing seed, hydrilla has green overwintering buds called turions and tubers that grow at the end of the roots and store energy. New populations of hydrilla can sprout from any of these, as well as from plant

fragments that easily break off from the main plant. Turions, tubers, and plant fragments can be carried by currents or boats, boat trailers, and fishing gear to new locations.

How can I identify hydrilla?



Hydrilla has whorls of 3 or more leaves



Leaves have serrated edges and mid-veins

Hydrilla generally grows along the bottoms of wetlands, rivers, streams, lakes, and ponds in late spring and early summer. As the days grow longer and the water temperature becomes warmer it will deposit tubers in the soil

and grow to the surface of the water, creating a wall of vegetation. Plants branch profusely with each individual branch having a series of whorls of leaves (leaves growing around the stem in the same plane). Each whorl has more than three leaves and each leaf has serrated edges and a spiny mid-vein down the center. In brackish water hydrilla will turn brown in early fall and in hard water (water high in dissolved calcium and magnesium) it may develop a whitish coating of calcium carbonate.

### Look-alikes

Brazilian elodea is a native of South America that has whorls of more than three leaves. Its whorls of leaves are closer together on the stem which give the plant a bushy appearance. Individual leaves have smooth edges and a smooth mid-vein.

Native elodea has whorls of three leaves that have smooth edges and smooth mid-veins.

### What can I do?

- Inspect and remove plant fragments and mud from boats, trailers, and equipment before and after each use.
- Dispose of all debris in trash cans or above the waterline on dry land. Note: tubers and turions can easily be transported in sediment.
- Clean and dry your equipment thoroughly before visiting other waterbodies.
- Do not dispose of unwanted aquarium plants in waterbodies, ditches, or canals.
- Monitor recently acquired aquatic plants because hydrilla tubers can be transported in the attached soil/growing material.
- Learn how to identify hydrilla and report infestations to DEC at [isinfo@dec.ny.gov](mailto:isinfo@dec.ny.gov) or (518) 402-9405

Learn more about hydrilla in New York and the U.S.

- [NYSDEC Hydrilla Fact Sheet \(PDF, 177 KB\)](#)
- [Ithaca, NY \(Tompkins County\)](#) (leaves DEC website)
- [Croton-on-Hudson, NY \(Westchester County\)](#) (leaves DEC website)
- [Western NY \(Erie County\)](#) (leaves DEC website)
- [New York Invasive Species Clearinghouse](#) (leaves DEC website)
- [Distribution map of hydrilla in the United States](#) (leaves DEC website)
- [California](#) (leaves DEC website)
- [Florida](#) (leaves DEC website)
- [National Invasive Species Information Center](#) (leaves DEC website)

Outside of New York there are many invasive species both terrestrial and marine/aquatic. One of the more famous are the zebra mussels which have been causing problems.

Zebra Mussel (*Dreissena polymorpha*)

**Zebra mussels** are a **problem** because they filter water, up to a liter per day, to eat the plankton. Since the **zebra mussels** eat a lot of plankton, they compete with fish for food. They also clog pipes by forming colonies inside of the pipes. Then the water cannot flow through the pipes as easily.

*Dreissena polymorpha*

## **Another is the Asian Carp**

### **Asian Carp**

Got loose from aquaculture during flood and are headed for the Great Lakes

<https://www.youtube.com/watch?v=1BhoCNOjbzo>

The US Geological Survey says

[https://www.usgs.gov/faqs/what-are-zebra-mussels-and-why-should-we-care-about-them?qt-news\\_science\\_products=0#qt-news\\_science\\_products](https://www.usgs.gov/faqs/what-are-zebra-mussels-and-why-should-we-care-about-them?qt-news_science_products=0#qt-news_science_products)

Zebra mussels are an invasive, fingernail-sized mollusk that is native to fresh waters in Eurasia. Their name comes from the dark, zig-zagged stripes on each shell.





Zebra mussels probably arrived in the Great Lakes in the 1980s via ballast water that was discharged by large ships from Europe. They have spread rapidly throughout the Great Lakes region and into the large rivers of the eastern Mississippi drainage. They have also been found in Texas, Colorado, Utah, Nevada, and California.

Zebra mussels negatively impact ecosystems in many ways. They filter out algae that native species need for food and they attach to--and incapacitate--native mussels. Power plants must also spend millions of dollars removing zebra mussels from clogged water intakes.

### Asian Carp

Carp are fish that belong to several species. The common carp was introduced into the US about 1880 years ago. It seems not particularly dangerous to the waters (lakes and rivers) where it lives. Its Maximum length is approximately 43 inches Maximum weight is around 90 pounds



This fish is considered a "nuisance" fish because it makes life more difficult for native species but it hasn't completely changed the feeding structure of our lakes and streams. This fish is not listed as one of the four [invasive Asian carp](#) species, nor do they reproduce as quickly as the four Asian carp.

Somewhere in the 1970s four other kinds of carp were introduced into the system to control the growth of weeds and parasites in aquafarming. These 4:

([bighead carp](#) (Maximum length: 55 in (1.4 m) Maximum weight: 88 lbs (40 kg);





[black carp](#), (Maximum length: 59 in (1.5 m) Maximum weight: 110 lbs (50 kg));





[grass carp](#), (Maximum length: 59 in (1.5 m) Maximum weight: 100 lbs (50 kg))and



[silver carp](#) ( ) Maximum length: 39 in (1 m) Maximum weight: 60 lbs (27 kg)



are collectively known as Asian Carp

Problems are they outcompete native fish, and lower water quality which can kill off some animals like fresh water mussels.

The can also jump out of the water and have hit and damaged some boats and people.

Experts are worried that if these fish get into the Great Lakes, they may negatively affect the area's \$7 billion/year fishing industry. By out-competing native fish species for food and habitat, carp may reduce the populations of native fish that are so important to fishermen. Even if Asian carp are kept out of the Great Lakes, continued spread throughout the Mississippi River watershed could result in them reaching 31 states and 40% of the continental United States, spelling disaster for our nation's freshwater ecosystems.

### **How do carp spread?**

Asian carp (especially Silver carp) are capable of jumping over barriers, including low dams. Flooding can spread these fish as well, because flooding can connect water bodies that aren't normally connected. This makes it possible for fish to travel to new areas. Recent floods may have [helped the fish spread further.](#)

Asian carp are also spread by human actions. The release of live bait containing young carp has introduced these fish to numerous water bodies. Watercraft that use the Mississippi locks allow carp to move upstream when the locks are opened to allow boats through. Additionally, boats that aren't drained after use can carry young carp or eggs that may be released into the water the next time the boat is used.

Releasing even a few carp into a body of water can become a huge problem. While the adult carp prefer slow moving water, they look for high, fast moving water when laying eggs (a process called spawning). They lay hundreds of thousands of eggs at a time, multiple times per year, which means populations grow and spread quickly. Because of this, they can quickly out-compete native species, and put [ecosystems in danger](#).

<https://www.nps.gov/miss/learn/nature/index.htm>

<https://www.nps.gov/miss/learn/nature/asiancarp.htm>

<https://www.nps.gov/miss/learn/nature/ascarpover.htm>