Pond and Lake Stewardship: What You Can Do about Aquatic Invasive Plants

Westchester County Pond and Lake Management Workshop
December 7, 2017
Overview

- Aquatic invasive plants
- Preventive measures
- A case study in Westchester County
- Management methods
- Regulatory efforts
Aquatic Invasive Plants

- Eurasian watermilfoil (Myriophyllum spicatum)
- Brittle naiad (Najas minor)
- Water Chestnut (Trapa natans)
- Fanwort (Cabomba caroliniana)
- Curly leaf pond weed (Potamogeton crispus)
- Hydrilla (Hydrilla verticillata)
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
Brittle naiad (*Najas minor*)

- Native to Europe, Asia, and North Africa
- Grows in dense clusters with highly branched stems
- Leaves are opposite, unbranched and strap-shaped
- Leaves have prominent teeth along edges
- Reproduces by fragment and seed
Look alikes?

Illinois Wildflowers
Water chestnut (Trapa natans)

- Native to Europe, Asia, and Africa
- Triangular, toothed leaves with saw-toothed margins with submerged roots
- Fruit is a sharply, barbed nutlet
- Forms dense mats of floating vegetation

Mark Naylor, MD DNR
**Fanwort** (*Cabomba caroliniana*)

- Native to South America (aquaria)
- Fanlike underwater leaves (2”)
- Long branched stems and fibrous roots often rooted in soil
- Submersed leaves are arranged oppositely or in whorls
- White or pink flowers May-September
Curly leaf pondweed (Potamogeton crispus)

- Native to Eurasia, Africa, and Australia
- One of first plants to leaf out in spring
- Alternate, tooth-edged leaves stiff and crinkled
- Produces turions
- Dies off by midsummer
**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
Aquatic Invasive Plants: Keep a lookout

Plants

Starry Stonewort
Water lettuce
Water hyacinth
Starry Stonewort

- 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
Water Lettuce

- 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
Water Hyacinth

- Native to South America

- “go to” plant for aquatic gardeners and aquaria

- Overwintering in the Midwest

- Round to oval shiny green leaves with inflated petioles

- Spikes of light purple colored flowers
How to report a potential invasive aquatic plant

- Take coordinates
- Take photos
- Submit a report to iMapInvasives.org and include the coordinates and photos
Why an emphasis on prevention?

- Best method for dealing with *any* invasive species
- Avoid ecological impacts
- Reduce economic impacts
- But not 100% foolproof
Potential sources of these infestations

- Transport on watercraft and/or equipment
- Accidental planting of hitchhiking aquatic plants
- Aquaria dumping
- Waterfowl transport
Preventive Measures

• AIS disposal station

• “Protect Your Waters” sign
More preventive measures

- Boat steward
- Decontamination station
What you can do as a NYS resident

• Clean, drain, and treat 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

• Consider a lake management plan

• Spread the word!

Truesdale Lake, Photo by HKA
Case Study in Westchester County

- *Hydrilla verticillata* detected in Croton River in October 2013 and in New Croton Reservoir soon after

- Most likely arrived at boat launch in reservoir
Potential Impacts

- Reduce recreation on Croton River
- Change in water quality in Village of Croton water
- Reduce diversity of native plants and animals
- Threaten Hudson River and other tributaries
Action

• More than 1.5 years of outreach
• Five stakeholder meetings
• One failed pilot project attempt
• And then…
Five Year Management Plan: 2017

- $8.6 M contract for five years

- Pre- and post-treatment aquatic plant surveys

- Treatment with 1 – 4 ppb of fluridone for 120 days each season

- Village of Croton drinking water sampling (aquifer in treated area)

- Aquatic plant survey in priority locations along Hudson River
Five Year Management Plan: Future

- Four more seasons of herbicide treatment and monitoring
- Goal is 99% reduction and continued monitoring afterward
And outreach continues ....
Methods for dealing with an invasive aquatic plant

• Assuming that you’ve reported and received confirmation that a particular species is in your waterbody
Factors to consider for management

- Species of plant involved?
- Amount of area covered?
- Water uses?

Teatown Lake Reservation
To control or not to control?

Invasive Plant Management Decision Analysis Tool (IPMDAT)

http://www.ipmdat.org/
Mechanical or Manual

Diver Assisted Suction Harvesting
Benthic barrier
Hand pull
Dredging
Drawdown

Canopus Lake (Journal News)
Chemical

Herbicide must be aquatic approved
- Systemic – slow acting, long term treatment
- Contact – quickly acts, short term treatment

Treatment requires:
- a licensed applicator
- Article 15 Permit application
- Article 24 Wetlands Permit application (sometimes)
- State Pollutant Discharge Elimination System (SPDES) permit

Swan Lake (Journal News)
Biocontrol

Grass carp (*Ctenopharyngodon idella*)

Eurasian watermilfoil beetle (*Euhrychiops lecontei*)

Water chestnut biocontrol beetle (*Galerucella birmanica*) development is in process

No current insect biocontrols for Hydrilla, fanwort, brittle naiad, curly leaf pondweed
Regulatory Efforts

- Amendment to Article 3 of the Navigation Law – “AIS spread prevention signs at public boat launches”

- 6 NYCRR Part 59.4 (DEC) & 9 NYCRR Part 377.1 (Parks) – “AIS spread prevention regulations for boat launching/retrieving at DEC and Parks-owned sites”
Regulatory Efforts

6 NYCRR Part 575
“Regulated and Prohibited Plants and Animals”

6 NYCRR Part 576
“Reasonable Precautions to Prevent Spread of AIS”
Clean, Drain, and Treat

Clean

• Inspect watercraft, anchor, equipment, gear, trailer, or floating dock and remove any plant or animal material

• Dispose of materials in appropriate receptacle or upland away from mean high water mark
Part 576 – Reasonable Precautions

ATTENTION BOATERS
Stop the Spread of Invasive Plants and Animals

Before launching your boat or leaving this site please use the Nuisance Invasive Species Disposal Station to:

1. Dispose of any plants or animals that are attached to your boat, trailer, motor and other fishing or boating equipment.
2. Dump your bait bucket

Please also remember to drain your boat before leaving.

STOP AQUATIC HITCHHIKERS!
Clean, **Drain**, and Treat

**Drain**

- Drain water from watercraft and water holding compartments away from waterbody before launching

- Drain water from cooling system of personal watercraft after leaving water at a distance from waterbody
Clean, Drain, and Treat

Treat (one of the following options)

- **Drying** via heat or sun exposure (5 days) or subfreezing temperatures (3 days) or towel dry portions of the boat and equipment prior to launching

- **Rinsing** using high pressure/hot water on exterior; rinse/flush water cooled motors for two minutes or rinse water containing compartments with hot water for 30 seconds or rinse the boat hull and flushing compartments with warmest water available

- Application and maintenance of **anti-fouling paint**
9 NYCRR 377.1 (Parks)

- Rewording occurred to label need to drain water away from launch and above high water
- Boaters would drain water at the launch before entering waterbody
6 NYCRR Part 59.4 (DEC)

- NYSDEC Fisheries highly recommends focusing on flushing the bilge and other water containing compartments before entering a waterbody.
Part 576: The Details

• Active since May 27, 2016
• Cleaning, draining, and treating (i.e. drying and rinsing) must be done before launching a watercraft into a public waterbody
• ECO’s have discretionary authority to enforce law
• Watercraft and floating docks are exempt when relaunched from the same waterbody without having been launched in another waterbody
• Sunsets June 1, 2019
Exemptions

- Plants (NOT invasive) used for camouflage for hunting or wildlife viewing purposes

- Baitfish and gamefish that are possessed and/or taken in accordance with applicable laws/regulations

- Plants (NOT invasive) used for habitat restoration purposes or research – must be approved by DEC
Exemptions: Transport Permit

Example situations:

1. Transport of watercraft to an on land location for storage
2. Transport of watercraft to a cleaning or repair facility
3. Transport of legally caught bass or other fish kept in a watercraft’s live well to a weigh-in station
Part 576: The Details

- We are encouraging clean, draining, and treating when exiting waterbodies that have AIS which have microscopic stages: zebra and quagga mussels, Asian clams, and spiny and fishhook waterflea.

[Images of zebra mussels, Asian clams, and fishhook waterflea]
The Details: Part 576 “Public waters”

“Waters” or “waters of the state” shall be construed to include lakes, bays, sounds, ponds, impounding reservoirs, springs, wells, rivers, streams, creeks, estuaries, marshes, inlets, canals, the Atlantic ocean within the territorial limits of the state of New York and all other bodies of surface or underground water, natural or artificial, inland or coastal, fresh or salt, public or private (except those private waters which do not combine or effect a junction with natural surface or underground waters), which are wholly or partially within or bordering the state or within its jurisdiction. ECL 17-0105(2)
The Details: Part 576 “Public waters”
The Details: Part 576

- Cleaning, draining, and treating can be done before heading to a launch. Taking similar precautions when exiting a launch is encouraged, but not required by Part 576. At NYSDEC/Park launches this is a requirement – particularly when leaving a waterbody with known small-bodied AIS.
- EnCon officers have discretionary authority to enforce the law.
- Watercraft and floating docks are exempted when re-launched from same waterbody without having been launched in another waterbody.
The Details: Part 576

• If a floating dock delivered to a location appears to be carrying invasive species please report it to the ECOs. And do NOT install it!

• Be sure to clean and inspect your dock if you are moving it between waterbodies
Details: Part 576

Applies to both motorized water vehicles

- Motor boats
- Jet skis
Details: Part 576

Non-motorized vehicles

Whitehall Rowing & Sail

City of Waupaca
Details: Part 576

- Float planes
Penalties for violating Part 576

1st violation: written warning and educational materials

2nd violation: fine up to $150

3rd violation: fine up to $300

4th violation: fine up to $1,000
Answers to Frequently Asked Questions (FAQs)

1. Are boat stewardship programs required by law?
Boat steward programs are voluntary

But they are a very good idea.
Answers to FAQs

2. Where does this law apply?

Wikimediacommons: Shadows Marina on the Hudson
The Details: Part 576 “Public waters”
More FAQs

3. Who is responsible for following clean, drain, and treat protocol?
All water recreationists

Any person launching watercraft or floating docks into public waterbodies to prevent the spread of aquatic invasive species.
More FAQs

4. How are public waters defined?

Marina at Dunsbach Ferry on Mohawk River  (Ron Cogswell, Flickr)
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5. How do you define watercraft?

Paddleboats at Sea World (youtube.com)
Definition of Watercraft

Every motorized or non-motorized boat, vessel, or vehicle capable of being used or operated as a means of transportation or recreation in or on water.
More FAQs

6. What if my watercraft or dock is only launched or placed in one water body (does not leave site)?

Erie Basin Marina in Buffalo (fineartamerica.com)
Relaunching

Prohibited launching without cleaning, draining, and treating (Part 576.3) shall not apply to any watercraft and associated equipment or floating dock that is relaunched from a launch site into a public waterbody within the bounds of any permanent barriers impassable to watercraft…
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
Resources

New York State Invasive Species Research Institute:
Eurasian watermilfoil review

New York Invasive Species Clearinghouse

Resources

Aquatic Pesticide Permits (including SPDES)
http://www.dec.ny.gov/chemical/8530.html

Aquatic Pesticide Purchase Permit
http://www.dec.ny.gov/chemical/33127.html

Freshwater Wetlands Permit
http://www.dec.ny.gov/permits/6058.html
Resources

Education and Outreach Materials:

Examples of AIS In NY

- Fan-shaped leaves with toothed edges
- Thin, white, waxy seeds can float
- Dense floating leaves impede boating, fishing, and swimming

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 to control once present, so let’s keep them out!

AIS in New York State:

- Inspect floating docks, watercraft, trails, and equipment, and remove visible plant and animal material.
- Once, and if possible, flush your boat’s bilge, live well, bait well, and other water-containing compartments after use.

More about preventing the spread of AIS:

www.dec.ny.gov/waters/84229.html

STOP THE INVASION
PROTECT NEW YORK FROM INVASIVE SPECIES

UNWANTED: Hydrilla verticillata

An invasive aquatic plant recently found in several counties, hydrilla could impact New York’s fishing, boating, swimming, and waterfront property values. Early detection of hydrilla could save the state millions in control costs.

HELP IDENTIFY THIS PLANT BEFORE POPULATIONS ARE TOO LARGE TO ERADICATE OR MANAGE

Keep this card in your boat or tackle box and let us know right away if you think you’ve found hydrilla. To learn more about this plant, visit http://www.dec.ny.gov/animals/104700.html

STOP THE INVASION
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WATER CHESTNUT
Trapa natans

Water chestnut is an aquatic invasive plant that is native to Eurasia and Africa. Introduced in the United States in the mid-1800s as an ornamental plant, water chestnut was soon found growing in Collins Lake near Scotia, NY. Water chestnut colonies clog areas of freshwater ponds, lakes, and slow-moving streams and rivers where it negatively impacts aquatic ecosystems and water recreation.

Where is water chestnut found?

Water chestnut is found in forty-three counties in New York. Many of the infestations are reported to or near the Hudson River. No water chestnut has been reported in the following counties: Allegany, Cortland, Delaware, Franklin, Fulton, Greene, Hamilton, Herkimer, Kings, Lewis, Livingston, New York, Orleans, Queens, Rensselaer, St. Lawrence, Tioga, Warren, and Wyoming.

How do I identify water chestnut?

Water chestnut is an annual plant with a submerged stem 12-15 feet long with five roots that are 2-3 feet below the soil. Its floating leaves are triangular with saw-toothed edges and ridges, on an erect stem. Leaves form a rosette around a central point. In late summer, white flowers grow on short stems. The fruit is a single seed, oval in shape, with a waxy texture. Seeds within these fruits can remain viable for up to 12 years.

How does it spread?

Water chestnut spreads by means of rhizomes and seedling dislodging from the stems and floating to another area on currents. They also spread by spraying in flowing waters, including recreation watersports, the use of buoys, boats, and watercraft, and species used as fish food.

What are its impacts?

Water chestnut can displace native species of vegetation that can be very difficult to get through in a boat, hike, fish, or canoe, or when waterfowl. Water chestnut fruits are often found ingested by fish and tadpoles. Water chestnut’s large size and aggressive growing habits can cause significant damage to water quality and aquatic species. The presence of water chestnut reduces the diversity of aquatic life.
Thank you!

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