

What do Eurasian watermilfoil, didymo, water chestnut, purple loosestrife, fishhook water fleas, zebra mussels, and round gobies 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, oftentimes at the expense of valuable 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 U.S., and in some cases NY, but have since spread to waters where they were not originally found. These plants and animals are all considered invasive species and when they become problems, are termed nuisance 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.

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. The mechanisms by which other organisms are introduced, including many fish diseases, are still unclear. What is clear is as anglers and boaters move from water to water, they can unknowingly spread these invasives. This can occur by failing to properly dry or disinfect boating and fishing equipment, improperly using and disposing of baitfish, or illegally moving fish from water to water.

Anglers and boaters are asked to be aware of the part they may play in the spread of invasive species in New York State and take action to help stem their spread. Unfortunately, there is no single preventative action that can address all invasive plant and animal species, or diseases that an angler or boater may come in contact with. Adhering to the following guidelines, however, will lessen the likelihood of spreading these species and diseases as you fish or boat.

Recommended Drying and Disinfection Techniques for Fishing and Boating Equipment

INSPECT your fishing and boating equipment and remove all mud, plants and other organisms that might be clinging to it.

DRY your fishing and boating equipment before using it on another body of water. Drying is the most effective “disinfection” mechanism and is least likely to damage sensitive equipment and clothing. All fishing and boating equipment, clothing and other gear should be dried completely before moving to another body of water. This may take a week or more depending upon the type of equipment, where it is stored and weather conditions. A basic rule of thumb is to allow at least 48 hours for drying most non-porous fishing and boating gear at relative humidities of 70% or less.

DISINFECT your fishing and boating equipment if it cannot be dried before its use in another body of water. Disinfection recommendations vary depending on the type of equipment and disease of concern. Be particularly aware of bilge areas, livewells and baitwells in boats. These areas are difficult to dry and can harbor invasive species.

Effective disinfection techniques include:

Hot Water: Soak equipment in water kept above 140°F (hotter than most tap water) for 1 minute or for 20 minutes in water that is at least 110°F. Note that hot water can delaminate Gore-Tex® fabric and damage other sensitive clothing items. Household steamers may also be used for disinfection by exposing equipment to steam for 1 minute. Commercial hot-water car washes are effective for disinfecting boats and vehicles.

Bleach: Soak or spray equipment for at least 1 minute with a 2% bleach solution (3 ounces of household bleach mixed with 1 gallon of water). If whirling disease is suspected, a 10% solution should be used (13 ounces of household bleach mixed with 1 gallon of water). Note that bleach is an extremely effective disinfection agent, but is also a caustic substance that can be corrosive to aluminum and other sensitive fishing and boating equipment.

Cleaning Agents: Of the materials traditionally used to disinfect for human or animal health purposes, quaternary ammonium compounds have been found to be effective in controlling fish viruses and pathogens, including whirling disease. Commercial formulations, such as Parvasol® and Kennelsol®, are available through laboratory or veterinary supply companies. Household cleansers/disinfectants, such as Formula 409® and Fantastic®, that contain the quaternary ammonium compound alkyl dimethyl benzyl ammonium chloride can also be used to disinfect equipment. These solutions can be used full strength as a spray, or diluted for soaking with 2 parts water to 1 part disinfectant. For all materials, follow label instructions and be sure to soak equipment for a minimum of 10 minutes.

Special Note to Wading Anglers: Felt-soled waders and wading shoes, which have been identified as an important means by which whirling disease spores and didymo can be transported, are difficult to disinfect. Rubber or studded soles that provide similar traction are now readily available and are much less likely to transport these invasives.

Be sure to dispose of all cleaning/disinfection solutions away from surface waters in accordance with label restrictions.



Inspect your boat, trailer and other equipment for attached plants and animals and dispose on dry land before leaving a waterbody.

Some Common Invasive Plant and Animal Species in New York State

Eurasian Watermilfoil

Native to Europe, Asia and Africa, Eurasian watermilfoil is a very aggressive exotic that has found its way into virtually every U.S. state and three Canadian provinces. Its stems are usually 3 to 10 feet in length, often forming dense mats on the surface. Its bright green feathery leaves are finely divided and occur in whorls (circles) around the stems. Each leaf has 12-21 leaflet pairs (native northern milfoil has 5-10 leaflet pairs). Eurasian watermilfoil can spread by both seed and, most commonly, by plant fragments.



Water Chestnut

Native to Europe, Asia and Africa, water chestnut is an annual aquatic plant with a long flexible stem that can reach 12 to 15 feet in length. On the water's surface the plant contains a circular cluster of saw-toothed edged, triangular floating leaves that are connected to an inflated petiole (bladder) that provides added buoyancy. Feather-like leaves can be found along the long submerged stem. The fruit is a nut with four 1/2-inch barbed spines that can cause a painful wound if stepped on. Seeds can remain viable for up to 12 years. Water chestnut can be spread from the rosette and fruits detaching from the stem and floating to another area, or by fruits clinging to objects, birds and other animals.



Fanwort

Native to South America and the southern United States, fanwort has spread throughout the U.S. It is a perennial aquatic plant with a long stem that can appear tubular. It has fan-like leaves with a short stem and finely dissected divisions that are arranged opposite of each other on the stem. Plants have white to light pink flowers that float on the surface. Fanwort primarily spreads through fragments that break off from the plant as it becomes brittle later in the growing season.



L.J. Mehroff, Univ. of Ct., Bugwood.org

Curly-leaf Pondweed

Curly-leaf pondweed is native to Europe, Asia, Africa, and Australia. The leaves are reddish brown-green, oblong, about 3 inches long, somewhat stiff and crinkled, with finely-toothed edges. The stem is flat, reddish-brown and grows 1 to 3 feet long. The plant usually dies off by mid-summer. Though it can reproduce by seed, it primarily spreads through burr-like winter buds (turions) which break off from the plant. New plants grow under the ice in winter, giving it a head start over other native aquatic plants.



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Didymo

Didymo is a freshwater diatom (a form of algae), native to northern North America and Europe. It was first identified in



New York State in 2007 in the Batten Kill and Delaware River tailwaters. Didymo is primarily found in flowing coldwater streams. It is attached to the stream bottom by stalks. As the stalks lengthen, didymo can form wavy mats. It can be distinguished from native algae (usually green in color) by its tan or brown color. Long strands of didymo can often be washed white at the ends. It has a wet wool texture that is not slimy and does not fall apart when rubbed between fingers. Didymo cells are microscopic and can be spread by a single drop of water.

Round Goby

Round gobies are bottom-dwelling fish that were introduced to the Great Lakes from central Eurasia. Round gobies are usually 3 to 6 inches in length, but can reach 10 inches. Key identifying characteristics include a black spot on the rear of the upper dorsal fin, a raised frog-like eye, thick lips and a body mostly slate gray or black, mottled with black or brown spots.



USGS Archive, USGS, Bugwood.org

Zebra Mussel

The zebra mussel is a small, non-native mussel originally found in Russia. Zebra mussels grow to about 2 inches in size. They can usually be identified by striping on their shells, although this pattern varies greatly to the point that some shells have little if any noticeable striping. Young zebra mussels are microscopic in size and are spread easily by water currents.



USGS Archive, USGS, Bugwood.org

Alewife

The alewife is native to the coastal waters of New York. Unfortunately, due to migrations from these waters and bait bucket introductions, this species has also become established in nuisance proportions in the Great Lakes and many inland waters in New York State, most recently in Lake Champlain. Alewives are silver in color with a blue-green metallic luster along the back, usually with a black spot behind the gill cover and a serrated belly. In freshwater, they usually grow to 3 to 6 inches in length; however, in saltwater they can attain lengths of a foot or more.



White Perch

White perch are an anadromous species that live most of their life in marine waters, but spawn in freshwater. Although a valued sportfish in some coastal waters, this species can become a nuisance when accidentally or purposefully introduced into landlocked waters. White perch are silvery-gray in color with a light belly. Unlike the white bass and striped bass, they lack striping. They can attain lengths of 12 inches or more in freshwater and even larger in marine waters, but in overabundant populations rarely exceed 6 inches in length.



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